

IDERA PHARMACEUTICALS, INC.

Form DEF 14A

April 25, 2016

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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

SCHEDULE 14A

(RULE 14a-101)

INFORMATION REQUIRED IN PROXY STATEMENT

SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the

Securities Exchange Act of 1934

(Amendment No. )

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

Preliminary Proxy Statement

Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))

Definitive Proxy Statement

Definitive Additional Materials

Soliciting Material Pursuant to § 240.14a-12

IDERA PHARMACEUTICALS, INC.

(Name of Registrant as Specified in its Charter)

(Name of Person(s) Filing Proxy Statement, if Other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

No fee required.

Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

- 1) Title of each class of securities to which transaction applies:
- 2) Aggregate number of securities to which transaction applies:
- 3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):
- 4) Proposed maximum aggregate value of transaction:
- 5) Total fee paid:

Fee paid previously with preliminary materials.

Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

- 1) Amount Previously Paid:
  - 2) Form, Schedule or Registration Statement No.:
  - 3) Filing Party:
  - 4) Date Filed:
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IDERA PHARMACEUTICALS, INC.

167 Sidney Street

Cambridge, Massachusetts 02139

NOTICE OF 2016 ANNUAL MEETING OF STOCKHOLDERS

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Date and Time: Monday, June 13, 2016 at 3:00 p.m., local time

Place: Idera Pharmaceuticals, Inc.  
505 Eagleview Boulevard  
Suite 212  
Exton, Pennsylvania 19341

Items of Business: At our 2016 annual meeting of stockholders we will ask our stockholders to:

Elect three Class III directors to our board of directors for terms to expire at the 2019 annual meeting of stockholders;

Approve, by non-binding vote, executive compensation;

Ratify the selection of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2016; and

Transact any other business as may properly come before the 2016 annual meeting or any postponement or adjournment of the 2016 annual meeting.

The board of directors has no knowledge of any other business to be transacted at the 2016 annual meeting.

Record Date: You may vote at the 2016 annual meeting if you were a stockholder of record at the close of business on April 20, 2016.

Proxy Voting: It is important that your shares be represented and voted at the 2016 annual meeting. Whether or not you plan to attend the 2016 annual meeting, please mark, sign, date and promptly mail your proxy card in the enclosed postage-paid envelope or follow the instructions on the proxy card to vote by telephone or over the internet. You may revoke your proxy at any time before its exercise at the 2016 annual meeting.

By order of the board of directors,

/s/ Mark J. Casey  
Mark J. Casey  
General Counsel and Secretary  
Cambridge, Massachusetts  
April 25, 2016

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IDERA PHARMACEUTICALS, INC.

167 Sidney Street

Cambridge, Massachusetts 02139

PROXY STATEMENT

For our Annual Meeting of Stockholders to be held on June 13, 2016

Idera Pharmaceuticals, Inc., a Delaware corporation, which is referred to as “we,” “us,” the “Company” or “Idera” in this proxy statement, is sending you this proxy statement and the enclosed proxy card because our board of directors is soliciting your proxy to vote at our 2016 annual meeting of stockholders, or the 2016 annual meeting. The 2016 annual meeting will be held on Monday, June 13, 2016, at 3:00 p.m., local time, at our office located at 505 Eagleview Boulevard, Suite 212, Exton, Pennsylvania 19341. If the 2016 annual meeting is adjourned for any reason, then proxies submitted may be used at any adjournment of the 2016 annual meeting.

This proxy statement summarizes information about the proposals to be considered at the 2016 annual meeting and other information you may find useful in determining how to vote. The proxy card is the means by which you actually authorize another person to vote your shares in accordance with your instructions.

We are mailing this proxy statement and the enclosed proxy card to stockholders on or about May 5, 2016.

In this mailing, we are also including copies of our annual report to stockholders for the year ended December 31, 2015, or 2015 Annual Report. Our annual report on Form 10-K for the year ended December 31, 2015, as filed with the Securities and Exchange Commission, or the SEC, on March 10, 2016, including our audited financial statements, is included in our 2015 Annual Report and is also available free of charge on our website, [www.iderapharma.com](http://www.iderapharma.com), where it can be accessed by clicking “Investors” and then “SEC Filings,” or through the SEC’s electronic data system at [www.sec.gov](http://www.sec.gov). To request a printed copy of our Notice of Annual Meeting, Proxy Statement and 2015 Annual Report, which we will provide to you free of charge, or to obtain directions to be able to attend the 2016 annual meeting and vote in person, write to Investor Relations, Idera Pharmaceuticals, Inc., 167 Sidney Street, Cambridge, Massachusetts 02139, call our toll-free number 1 (877) 888-6550, or email Investor Relations at [ir@iderapharma.com](mailto:ir@iderapharma.com).

Important Notice Regarding the Availability of

Proxy Materials for the 2016 Annual Meeting

to Be Held on June 13, 2016:

The Notice of Annual Meeting, Proxy Statement and 2015 Annual Report are available at <http://ir.iderapharma.com/phoenix.zhtml?c=208904&p=proxy>.

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INFORMATION ABOUT THE 2016 ANNUAL MEETING

Who may vote?

Holders of record of our common stock at the close of business on April 20, 2016, the record date for the 2016 annual meeting, are entitled to vote on each matter properly brought before the 2016 annual meeting. Holders of our common stock will be entitled to one vote for each share of common stock held as of the record date. As of the close of business on April 20, 2016, the record date for the 2016 annual meeting, we had 121,309,604 shares of common stock outstanding.

How do I vote my shares if I am a stockholder of record?

If you are a stockholder of record (meaning that you hold shares in your name in the records of our transfer agent, Computershare Trust Company, N.A., and that your shares are not held in “street name” by a bank or brokerage firm), you may vote your shares in any one of the following ways:

- You may vote by mail. To vote by mail, you need to complete, date and sign the proxy card that accompanies this proxy statement and promptly mail it in the enclosed postage-prepaid envelope. You do not need to put a stamp on the enclosed envelope if you mail it from within the United States.
- You may vote by telephone. To vote by telephone through services provided by Computershare Trust Company, N.A., call 1-800-652-VOTE (8683), and follow the instructions provided on the proxy card that accompanies this proxy statement. If you vote by telephone, you do not need to complete and mail your proxy card.
- You may vote over the internet. To vote over the internet through services provided by Computershare Trust Company, N.A., please go to the following website: <http://www.investorvote.com/IDRA> and follow the instructions at that site for submitting your proxy. If you vote over the internet, you do not need to complete and mail your proxy card.
- You may vote in person. If you attend the 2016 annual meeting, you may vote by delivering your completed proxy card in person or you may vote by completing a ballot at the 2016 annual meeting. Ballots will be available at the 2016 annual meeting.

Your proxy will only be valid if you complete and return the proxy card, vote by telephone or vote over the internet at or before the 2016 annual meeting. The persons named in the proxy card will vote the shares you own in accordance

with your instructions on your proxy card, in your vote by telephone or in your vote over the internet. If you return the proxy card, vote by telephone or vote over the internet, but do not give any instructions on a particular matter described in this proxy statement, the persons named in the proxy card will vote the shares you own in accordance with the recommendations of our board of directors.

How do I vote my shares if I hold them in “street name?”

If the shares you own are held in “street name” by a bank or brokerage firm, your bank or brokerage firm, as the record holder of your shares, is required to vote your shares according to your instructions. In order to vote your shares, you will need to follow the directions that your bank or brokerage firm provides to you. Many banks and brokerage firms solicit voting instructions over the internet or by telephone.

Under applicable stock exchange rules, banks or brokerage firms subject to these rules that hold shares in street name for customers have the discretion to vote those shares with respect to certain matters if they have not received instructions from the beneficial owners. Banks or brokerage firms will have this discretionary authority with respect to routine or “discretionary” matters. Among the proposals to be presented at the 2016 annual meeting, the ratification of the selection of our independent registered public accounting firm is a discretionary matter, and banks and brokerage firms are permitted to vote your shares even if you have not given voting instructions. The election of directors and the approval of a non-binding vote on executive compensation are non-routine or “non-discretionary” matters, and banks and brokerage firms cannot vote your shares on such proposals if you have not given voting instructions. “Broker non-

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votes” occur when a bank or brokerage firm submits a proxy for shares but does not indicate a vote for a particular proposal because the bank or brokerage firm either does not have authority to vote on that proposal and has not received voting instructions from the beneficial owner, or has discretionary authority but chooses not to exercise it. The effect of broker non-votes is discussed below in the answer to the question “What vote is required to approve each matter and how will votes be counted?”.

Even if your shares are held in street name, you are welcome to attend the 2016 annual meeting. If your shares are held in street name, you may not vote your shares in person at the 2016 annual meeting unless you obtain a proxy, executed in your favor, from the holder of record (i.e., your bank or brokerage firm). If you hold your shares in street name and wish to vote in person, please contact your bank or brokerage firm before the 2016 annual meeting to obtain the necessary proxy from the holder of record.

How may I change or revoke my vote?

If you are a stockholder of record, even if you complete and return a proxy card or vote by telephone or over the internet, you may change or revoke your vote at any time before your proxy is exercised by taking one of the following actions:

- send written notice to our Secretary, Mark J. Casey, at our address above, stating that you wish to revoke your vote;
- deliver to us another signed proxy card with a later date or vote by telephone or over the internet at a later date; or
- attend the 2016 annual meeting, notify our Secretary that you are present and then vote by ballot.

If you own shares in street name, your bank or brokerage firm should provide you with instructions for changing or revoking your vote.

What constitutes a quorum?

In order for business to be conducted at the 2016 annual meeting, a quorum must be present. A quorum consists of the holders of a majority of the shares of our common stock issued, outstanding and entitled to vote at the 2016 annual meeting.

Shares of common stock present in person or represented by proxy (including broker non-votes and shares that are abstained or withheld or with respect to which no voting instructions are provided for one or more of the matters to be voted upon) will be counted for the purpose of determining whether a quorum exists.

If a quorum is not present, the 2016 annual meeting will be adjourned until a quorum is obtained.

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What vote is required to approve each matter and how will votes be counted?

The table below sets forth the vote required for each matter being submitted to our stockholders at the 2016 annual meeting to be approved and the effect that abstentions, withheld votes and broker non-votes will have on the outcome of voting on each proposal that is being submitted to our stockholders for approval at the 2016 annual meeting.

Proposal	Affirmative Vote Required	Abstentions/ Withholds	Broker Non- Votes
Election of Directors (Proposal 1)	Plurality of votes cast by holders of common stock entitled to vote	No effect(1)	No effect
Advisory Vote on Executive Compensation (Proposal 2)	Majority of common stock present or represented and voting on the matter	No effect	No effect
Ratification of Selection of Ernst & Young LLP (Proposal 3)	Majority of common stock present or represented and voting on the matter	No effect	No effect

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(1) You may vote FOR all of the director nominees, WITHHOLD your vote from all of the director nominees or WITHHOLD your vote from any of the director nominees.

Each share of common stock will be counted as one vote.

How does the board of directors recommend that I vote?

Our board of directors recommends that you vote as follows:

- To elect the three nominees to our board of directors (Proposal One); and
- FOR Proposal Two and Proposal Three.

Under the Securities Exchange Act of 1934, as amended, or the Exchange Act, and related SEC regulations, the vote on executive compensation, as described in greater detail in Proposal Two set forth elsewhere in this proxy statement, is an advisory vote, meaning it is non-binding. The vote on the ratification of the selection of Ernst & Young LLP as our independent registered public accounting firm, as described in greater detail in Proposal Three, is also advisory. Our board will carefully consider the outcome of each of these votes.

Will any other business be conducted at the 2016 annual meeting of stockholders?

Our board of directors does not know of any other business to be conducted or matters to be voted upon at the 2016 annual meeting. If any other matter properly comes before the 2016 annual meeting, the persons named in the proxy card that accompanies this proxy statement will exercise their judgment in deciding how to vote or otherwise act with respect to that matter at the 2016 annual meeting.

Who is making and paying for the solicitation of proxies and how is it made?

We are making the solicitation and will bear the costs of soliciting proxies. In addition to solicitations by mail, our directors, officers and employees, without additional remuneration, may solicit proxies by telephone, facsimile, email, personal interviews and other means. We may retain a proxy solicitation firm to assist in the solicitation of proxies in connection with the 2016 annual meeting. In that event, we will pay such firm customary fees, which we expect would be approximately \$10,000, plus expenses. We have requested that brokerage houses, custodians, nominees and fiduciaries forward copies of the proxy materials to the persons for whom they hold shares and request instructions for voting the proxies. We will reimburse the brokerage houses and other persons for their reasonable out-of-pocket expenses in connection with this distribution.

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How and when may I submit a proposal for the 2017 annual meeting of stockholders?

If you are interested in submitting a proposal for inclusion in the proxy statement and proxy card for our 2017 annual meeting of stockholders, or the 2017 annual meeting, you need to follow the procedures outlined in Rule 14a-8 of the Exchange Act. We must receive your proposal intended for inclusion in the proxy statement at our principal executive offices, 167 Sidney Street, Cambridge, Massachusetts 02139, Attention: Secretary, no later than January 5, 2017. SEC rules set standards for the types of stockholder proposals and the information that must be provided by the stockholder making the request.

If you wish to present a proposal at the 2017 annual meeting, but do not wish to have the proposal considered for inclusion in the proxy statement and proxy card or have not complied with the requirements for inclusion of such proposal in our proxy statement under SEC rules, you must also give written notice to us at the address noted above. Our bylaws specify the information that must be included in any such notice, including a brief description of the business to be brought before the annual meeting, the name of the stockholder proposing such business and stock ownership information for such stockholder. In accordance with our bylaws, we must receive this notice at least 60 days, but not more than 90 days, prior to the date of the 2017 annual meeting and the notice must include specified information regarding the proposal and the stockholder making the proposal.

Notwithstanding the foregoing, if we provide less than 70 days' notice or prior public disclosure of the date of the annual meeting to the stockholders, notice by the stockholders must be received by our Secretary no later than the close of business on the tenth day following the date on which the notice of the annual meeting was mailed or such public disclosure was made, whichever occurs first. If a stockholder who wished to present a proposal fails to notify us by this date, the proxies that management solicits for that meeting will have discretionary authority to vote on the stockholder's proposal if it is otherwise properly brought before that meeting. If a stockholder makes timely notification, the proxies may still exercise discretionary authority to vote on stockholder proposals under circumstances consistent with the SEC's rules.

Are annual meeting materials househilded?

Some banks and brokerage firms may be participating in the practice of "householding" proxy statements and annual reports. This means that the banks and brokerage firms send only one copy of this proxy statement and the accompanying 2015 annual report to multiple stockholders in the same household. Upon request, we will promptly deliver separate copies of this proxy statement and our annual report to stockholders. To make such a request, please call Investor Relations at 1 (877) 888-6550, write to Investor Relations, 167 Sidney Street, Cambridge, Massachusetts 02139 or email Investor Relations at [ir@iderapharma.com](mailto:ir@iderapharma.com). To receive separate copies of our annual report to stockholders and proxy statement in the future, or to receive only one copy for the household, please contact us or your bank or brokerage firm.





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PROPOSAL ONE

ELECTION OF DIRECTORS

General Information

Our board of directors is divided into three classes and currently consists of three Class I directors: Vincent J. Milano, Kelvin M. Neu, M.D. and William S. Reardon, C.P.A.; three Class II directors: Julian C. Baker, James A. Geraghty and Maxine Gowen, Ph.D.; and four Class III directors: Sudhir Agrawal, D. Phil., Youssef El Zein, Mark Goldberg, M.D. and Eve E. Slater, M.D. Each member of a class is elected for a three-year term, with the terms staggered so that approximately one-third of our directors stand for election at each annual meeting of stockholders. The Class I, Class II and Class III directors were elected to serve until the annual meeting of stockholders to be held in 2017, 2018 and 2016, respectively, and until their respective successors are elected and qualified.

Our board of directors, on the recommendation of our nominating and corporate governance committee, has nominated Dr. Agrawal, Mr. El Zein and Dr. Goldberg for election as Class III directors at the 2016 annual meeting. At the 2016 annual meeting, stockholders will be asked to consider the election of Dr. Agrawal, Mr. El Zein and Dr. Goldberg. Dr. Goldberg has been nominated for election as a director at a meeting of our stockholders for the first time. In January 2014, Dr. Goldberg was elected to our board of directors as a Class III director by action of our board of directors with a term expiring at our 2016 annual meeting. Dr. Goldberg was recommended for initial election to our board of directors by our nominating and corporate governance committee. Dr. Slater has not been nominated and will not be standing for re-election to our board of directors at the 2016 annual meeting.

The persons named in the enclosed proxy card will vote to elect Dr. Agrawal, Mr. El Zein and Dr. Goldberg to our board of directors unless you indicate that you withhold authority to vote for the election of any or all nominees. You may not vote for more than three directors. Each Class III director will be elected to hold office until our 2019 annual meeting of stockholders and until his or her successor is elected and qualified or until his or her earlier resignation, death or removal. Each of the nominees is presently a director and each has indicated a willingness to serve as a director, if elected. If a nominee becomes unable or unwilling to serve, however, the persons acting under the proxy may vote for substitute nominees selected by the board of directors.

Information about our Directors

Set forth below are the names of each of the nominees for election to our board of directors, the names of each of our other continuing directors, the years in which each first became a director, their ages as of April 15, 2016, their

positions and offices with our company, their principal occupations and business experience during at least the past five years and the names of other public companies for which they currently serve, or have served within the past five years, as a director. We have also included information about each director's specific experience, qualifications, attributes or skills that led our board of directors to conclude that such individual should serve as one of our directors. We also believe that all of our directors, including our nominees, have a reputation for integrity, honesty and adherence to high ethical standards. They each have demonstrated business acumen and an ability to exercise sound judgment, as well as a commitment of service to Idera and our board of directors.

#### Recommendation of the Board of Directors

Our board of directors unanimously recommends that the stockholders vote FOR the election of Dr. Agrawal, Mr. El Zein and Dr. Goldberg as Class III directors.

#### Class III Nominees — Terms to Expire in 2019

Sudhir Agrawal, D. Phil. Director since 1993

Dr. Agrawal, age 62, has been our President of Research since December 2014. Prior to this, he served as our President from February 2000 to October 2005 and again from September 2008 to November 2014 and our Chief Executive Officer from August 2004 to November 2014. He served as the chairman of our board of directors from September 2010 until July 2013. He also served as our Chief Scientific Officer from January 1993 until September 2010 and as Acting Chief Executive Officer from February 2000 until September 2001. Dr. Agrawal joined us in 1990 and

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served in various capacities before his appointment as Chief Scientific Officer, including Scientific Founder, Vice President of Discovery and Senior Vice President of Discovery. Prior to joining us, Dr. Agrawal served as a Foundation Scholar at the Worcester Foundation for Experimental Biology in Massachusetts, and conducted post-doctoral research at the Medical Research Council's Laboratory of Molecular Biology in Cambridge, England and obtained his D. Phil. from Allahabad University in India. We believe that Dr. Agrawal's qualifications to sit on our board of directors include his unique insights into our challenges, opportunities and operations that he has as a result of the various roles he has played with us since our founding, including Scientific Founder, Chief Scientific Officer, Chief Executive Officer, Chairman and President of Research.

Youssef El Zein Director since 1992

Mr. El Zein, age 67, has been the Managing Partner of Pillar Invest Corporation, a Cayman Island company that he founded, and the General Partner of a family of funds, including Pillar Pharmaceuticals I, L.P. and Pillar Pharmaceuticals II, L.P., since 2011. Mr. El Zein has been the chairman and Chief Executive Officer of Pillar Invest (offshore) SAL since 2009. Mr. El Zein has been managing partner of Pillar Investment Limited, a private investment firm, since 1991. Mr. El Zein holds a Bachelor of Arts in Economics from the American University of Beirut in 1970 and a post-graduate degree in Economics from St. Catherine's College, Oxford University in 1973. We believe that Mr. El Zein's qualifications to sit on our board of directors include his knowledge of our industry, his financial experience, his affiliation with one of our significant stockholders and his significant role in various financings we have conducted and during his 23 years of service on our board of directors.

Mark Goldberg, M.D. Director since 2014

Dr. Goldberg, age 61, served as a medical and regulatory strategist for Synageva BioPharma Corp., a biopharmaceutical company, from October 2014 until June, 2015. Prior to that, he served as the Executive Vice President for Medical and Regulatory Strategy of Synageva from January 2014 to October 2014 and as the Senior Vice President of Medical and Regulatory Affairs of Synageva from September 2011 to January 2014. Dr. Goldberg served in a variety of senior management positions at Genzyme Corporation, a biotechnology company, from 1996 to July 2011, including most recently as Senior Vice President and Therapeutic Group Head for Oncology, Genetic and Neurodegenerative Diseases Clinical Development from 2009 to July 2011. Prior to working at Genzyme Corporation, he was a full time staff physician at Brigham and Women's Hospital and Dana Farber Cancer Institute, where he still holds appointments. He has also been an Associate Professor of Medicine at Harvard Medical School since 1996. Dr. Goldberg is a board-certified medical oncologist and hematologist and has more than 50 published papers. Dr. Goldberg currently serves on the board of directors of ImmunoGen, Inc., GlycoMimetics, Inc., Blueprint Medicines Corporation, and aTyr Pharma, Inc., all publicly traded companies. Dr. Goldberg also served on the board of directors of Synageva from October 2008 to December 2011. Dr. Goldberg holds an A.B. from Harvard College and an M.D. from Harvard Medical School. We believe that Dr. Goldberg's qualifications to sit on our board of directors include his extensive scientific and medical background, public company board experience and extensive experience in the management and operations of pharmaceutical companies.

Continuing Members of the Board of Directors

Class I Directors — Terms to Expire in 2017

Vincent J. Milano Director since 2014

Vincent Milano, age 52, has been our President and Chief Executive Officer, and a member of our board of directors, since December 2014. Prior to joining us, Mr. Milano served as Chairman, President and Chief Executive Officer of ViroPharma Inc., a pharmaceutical company that was acquired by Shire Plc in January 2014, from March 2008 to January 2014, as its Vice President, Chief Financial Officer and Chief Operating Officer from January 2006 to March 2008 and as its Vice President, Chief Financial Officer and Treasurer from April 1996 to December 2005. Mr. Milano also served on the board of directors of ViroPharma from March 2008 to January 2014. Prior to joining ViroPharma, Mr. Milano served in increasingly senior roles, most recently senior manager, at KPMG LLP, an independent registered public accounting firm, from July 1985 to March 1996. Mr. Milano currently serves on the board of directors of Spark Therapeutics, Inc. and Vanda Pharmaceuticals Inc., each a publicly traded company, and VenatoRx

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Pharmaceuticals, Inc. Mr. Milano holds a Bachelor of Science degree in Accounting from Rider College. We believe Mr. Milano's qualifications to sit on our board of directors include his knowledge of our company as our President and Chief Executive Officer, knowledge of our industry, including over 19 years of experience serving in a variety of roles of increasing responsibility in the finance department, corporate administration and operations of a multinational biopharmaceutical company, and understanding of pharmaceutical research and development, sales and marketing, strategy, and operations in both the United States and overseas. He also has corporate governance experience through service on other public company boards.

Kelvin M. Neu, M.D. Director since 2014

Dr. Neu, age 42, is a Managing Director of Baker Bros. Advisors LP and has been with the firm since 2004. The firm primarily manages long-term investment funds focused on publicly traded life sciences companies. Dr. Neu previously served on the board of directors of XOMA Corporation, a publicly traded company. Dr. Neu also served as a director of AnorMED Inc. and diaDexus, Inc. Dr. Neu holds an A.B. in Molecular Biology from Princeton University and an M.D. from Harvard Medical School and the Harvard-MIT Division of Health Sciences and Technology. He also trained for three years in the Immunology Ph.D. program at Stanford University. We believe that Dr. Neu's qualifications to sit on our board of directors include his scientific background, affiliation with one of our significant stockholders and knowledge of our industry.

William S. Reardon, C.P.A. Director since 2002

Mr. Reardon, age 69, has been a director since 2002 and served as lead independent director of our board of directors from September 2010 to July 2013. He served as an audit partner at PricewaterhouseCoopers LLP, where he led the Life Science Industry Practice for New England and the Eastern United States from 1986 until his retirement from the firm in July 2002. Mr. Reardon currently serves as a director of Synta Pharmaceuticals, Inc., a publicly traded company. Mr. Reardon has also served as a trustee of closed-end mutual funds H&Q Healthcare Investors and H&Q Life Sciences Investors since April 2010. We believe that Mr. Reardon's qualifications to sit on our board of directors include his accounting and financial experience, including as a partner at a leading accounting firm leading its life science practice, his role in keeping the board of directors and senior management team abreast of current accounting regulations and his experience as a member of several boards of directors of biotechnology companies. Additionally, we value Mr. Reardon's role in leading the board on matters of corporate governance, before, during and after his service as lead independent director.

Class II Directors — Terms to Expire in 2018

Julian C. Baker Director since 2014

Mr. Baker, age 49, is a Managing Partner of Baker Brothers Investments, which he founded in 2000 with his brother, Dr. Felix J. Baker. The firm primarily manages long-term investment funds focused on publicly traded life sciences companies. Mr. Baker's career as a fund manager began in 1994 when he co-founded a biotechnology investing partnership with his brother and the Tisch Family. Previously, Mr. Baker was employed from 1988 to 1993 by the private equity investment arm of Credit Suisse First Boston Corporation. He also serves on the boards of directors of Acadia Pharmaceuticals, Inc., Incyte Corporation and Genomic Health, Inc. and previously served on the board of directors of Trimeris, Inc. Mr. Baker holds an A.B. from Harvard University. We believe that Mr. Baker's qualifications to sit on our board of directors include his financial expertise, affiliation with one of our significant stockholders, knowledge of our industry and significant public company board experience.

James A. Geraghty    Director since 2013

Mr. Geraghty, age 61, has served as chairman of our board of directors since July 2013. He has been an Entrepreneur in Residence at Third Rock Ventures since May 2013. Mr. Geraghty served as a Senior Vice President of Sanofi, a global healthcare company, from April 2011 to December 2012. Prior to that, he served in various senior management roles at Genzyme Corporation, a biotechnology company, from 1992 to April 2011, including as Senior Vice President, International Development from January 2007 to April 2011. Mr. Geraghty has served as a director of Voyager Therapeutics, Inc., a publicly traded company, since 2014. He has also served as a director of Juniper Pharmaceuticals, Inc., a publicly traded company, since May 2015 and as its chairman of the board since July 2015. Mr.

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Geraghty has also served as a director of ImmuneXcite, Inc., a private biotechnology company, since February 2016. Mr. Geraghty previously served as a director of bluebird bio Inc. and GTC Biotherapeutics, Inc. We believe that Mr. Geraghty's qualifications to sit on our board of directors include his public company board and management experience and his broad and deep knowledge of the industry in which we operate.

Maxine Gowen, Ph.D. Director since 2016

Dr. Gowen, age 58, has served as the founding President and CEO and a member of the board of directors of Trevena, Inc., a biopharmaceutical company, since November 2007. Prior to joining Trevena, Dr. Gowen was Senior Vice President for the Center of Excellence for External Drug Discovery at GlaxoSmithKline plc, or GSK, where she held a variety of leadership positions during her tenure of 15 years. Before GSK, Dr. Gowen was Senior Lecturer and Head, Bone Cell Biology Group, Department of Bone and Joint Medicine, of the University of Bath, U.K. Dr. Gowen has served as a director of Akebia Therapeutics, Inc., a public biopharmaceutical company, since July 2014. From 2008 until 2012, Dr. Gowen served as a director of Human Genome Sciences, Inc., a publicly traded company. She received her Ph.D. from the University of Sheffield, U.K., an M.B.A. with academic honors from The Wharton School of the University of Pennsylvania, and a B.Sc. with Honors in Biochemistry from the University of Bristol, U.K. We believe that Dr. Gowen's qualifications to sit on our board of directors include her significant public company management and board experience and knowledge of our industry.

## Director Compensation

We use a combination of cash and equity-based compensation to attract and retain candidates to serve on our board of directors. We do not compensate directors who are also our employees for their service on our board of directors. As a result, Mr. Milano and Dr. Agrawal do not receive any compensation for their service on our board of directors.

We generally review our director compensation program every two years with the advice of an independent compensation consultant. Our director compensation program was last modified in April 2014.

Under our director compensation program, we pay our non-employee directors retainers in cash. Each director receives a cash retainer for service on the board of directors and for service on each committee on which the director is a member. The chairmen of each committee receive higher retainers for such service. These fees are paid quarterly in arrears. The fees paid to non-employee directors for service on the board of directors and for service on each committee of the board of directors on which the director was a member are as follows:

	Member	Chairman
	Annual Fee	Annual Fee
Board of Directors	\$ 35,000	\$ 70,000
Audit Committee	\$ 7,000	\$ 15,000
Compensation Committee	\$ 7,000	\$ 15,000
Nomination and Corporate Governance Committee	\$ 3,500	\$ 7,500

Our director compensation program includes a stock-for-fees policy, under which directors have the right to elect to receive common stock in lieu of cash fees. These shares of common stock are issued under our 2013 Stock Incentive Plan. The number of shares issued to participating directors is determined on a quarterly basis by dividing the cash fees to be paid through the issuance of common stock by the fair market value of our common stock, which is the closing price of our common stock, on the first business day of the quarter following the quarter in which the fees are earned. In

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2015, several of our directors elected to receive shares of our common stock in lieu of cash fees as set forth in the table below. No other director elected to receive shares of our common stock in lieu of cash fees during 2015.

	Shares of Common Stock	In Lieu of Cash Fees
Julian C. Baker	10,653	\$ 35,000
Youssef El Zein	13,177	\$ 43,294
James A. Geraghty	3,000	\$ 10,560
Kelvin M. Neu	14,104	\$ 46,000

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Under our director compensation program, we also reimburse our directors for travel and other related expenses for attendance at meetings.

Under our director compensation program, upon their initial election to the board of directors, new non-employee directors receive an initial option grant to purchase 70,000 shares of our common stock, and all non-employee directors, other than the chairman, receive an annual option grant to purchase 35,000 shares of our common stock. The chairman receives an annual option grant for 52,500 shares of our common stock. The annual grants are made on the date of our annual meeting of stockholders. The options granted to our non-employee directors vest with respect to one third of the underlying shares on the first anniversary of the date of grant and the balance of the underlying shares vest in eight equal quarterly installments following the first anniversary of the date of grant, subject to continued service as a director, and are granted under our 2013 Stock Incentive Plan. These options are granted with exercise prices equal to the fair market value of our common stock, which is the closing price of our common stock, on the date of grant and will become immediately exercisable in full if there is a change in control of our company.

Under our retirement policy for non-employee members of the board, if a non-employee director is deemed to retire, then:

- all outstanding options held by such director will automatically vest in full; and

the period during which such director may exercise the options will be extended to the expiration of the option under the plan.

Under the policy, a non-employee director will be deemed to have retired if:

- the director resigns from the board or determines not to stand for re-election or is not nominated for re-election at a meeting of our stockholders and has served as a director for more than 10 years; or
- the director does not stand for re-election or is not nominated for re-election due to the fact that he or she is or will be older than 75 at the end of such director's term.

The following table sets forth a summary of the compensation we paid to our non-employee directors who served on our board in 2015.

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## DIRECTOR COMPENSATION FOR 2015

Name	Fees Earned or			Total (\$)
	Paid in Cash (\$)	Option Awards (\$)(1)	All Other Compensation (\$)	
Julian C. Baker	35,000	(2) 85,155	—	120,155
Youssef El Zein	45,500	(3) 85,155	—	130,655
James A. Geraghty	84,500	(4) 127,733	—	212,233
Mark Goldberg	38,500	85,155	—	123,655
Maxine Gowen(5)	—	—	—	—
Robert W. Karr (6)	18,462	—	328,941	347,403
Malcolm MacCoss(7)	21,978	—	—	21,978
Kelvin M. Neu	46,000	(8) 85,155	—	131,155
William S. Reardon	53,500	85,155	—	138,655
Eve E. Slater	42,000	85,155	—	127,155

- (1) These amounts represent the aggregate grant date fair value of option awards made to each listed director in 2015 as computed in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 718, "Stock Compensation," or ASC 718. These amounts do not represent the actual amounts paid to or realized by the directors during 2015. See Note 2(j) to the financial statements in our annual report on Form 10-K for the year ended December 31, 2015 regarding assumptions we made in determining the fair value of option awards. As of December 31, 2015, our non-employee director, or former directors in the case of Dr. Karr, held options to purchase shares of our common stock as follows: Mr. Baker: 140,000; Mr. El Zein: 227,250; Mr. Geraghty: 595,000; Dr. Goldberg: 140,000; Dr. Karr: 212,250; Dr. Neu: 140,000; Mr. Reardon: 227,250; and Dr. Slater: 186,000.
- (2) Includes cash meeting fees of \$35,000 in lieu of which Mr. Baker elected to receive 10,653 shares of our common stock.
- (3) Includes cash meeting fees of \$43,294 in lieu of which Mr. El Zein elected to receive 13,177 shares of our common stock.
- (4) Includes cash meeting fees of \$10,560 in lieu of which Mr. Geraghty elected to receive 3,000 shares of our common stock.
- (5) Dr. Gowen joined our board of directors in January 2016.
- (6) Dr. Karr's service on our board of directors ended on the date of our 2015 annual meeting of stockholders in June 2015. The \$328,941 of other compensation consists of stock-based compensation associated with the acceleration of vesting and extension of the exercise period of Dr. Karr's stock options as a result of a modification to his stock options in connection with his departure due to retirement from our board of directors.

- (7) Dr. MacCoss' service on our board of directors ended on the date of our 2015 annual meeting of stockholders in June 2015.
  
- (8) Includes cash meeting fees of \$46,000 in lieu of which Dr. Neu elected to receive 14,104 shares of our common stock.

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CORPORATE GOVERNANCE INFORMATION

Board of Directors

Our board of directors is responsible for establishing our broad corporate policies and overseeing the management of our company. Our chief executive officer and our other executive officers are responsible for our day-to-day operations. Our board evaluates our corporate performance and approves, among other things, our corporate strategies and objectives, operating plans, major commitments of corporate resources and significant policies. Our board also evaluates and appoints our executive officers.

Our board of directors met six times during 2015, including regular, special and telephonic meetings. Each director who served as a director during 2015 attended at least 75% of the total number of board meetings held during 2015 while he or she was a director and of the total number of meetings held by all board committees on which he or she served during 2015.

Directors are responsible for attending our annual meetings of stockholders. Four of our directors attended the 2015 annual meeting of stockholders in person.

Board Leadership Structure

Our board does not have a policy on whether the offices of chairman of the board and chief executive officer should be separate and, if they are to be separate, whether the chairman of the board should be selected from among the independent directors or should be an employee of our company. Our board believes that it should have the flexibility to make these determinations at any given point in time in the way that it believes best to provide appropriate leadership for our company at that time. Currently, Mr. Geraghty serves as chairman of our board and Mr. Milano serves as chief executive officer. Our board believes that this separation allows our chief executive officer to focus on our day-to-day business, while allowing the chairman of the board to lead the board in its fundamental role of providing advice to and independent oversight of management.

Our board recognizes that no single leadership model is right for all companies and at all times and that depending on the circumstances, other leadership models, such as a combined chairman and chief executive officer, might be appropriate. Accordingly, the board periodically reviews its leadership structure. Pursuant to our corporate governance guidelines, if the chairman is not an independent director, the board may elect a lead director from its independent directors. In such case, the chairman and chief executive officer would consult periodically with the lead director on board matters and on issues facing our company. In addition, the lead director would serve as the principal liaison between the chairman of the board and the independent directors and would preside at any executive session of independent directors.

## Board's Role in Risk Oversight

Our board of directors, as a whole, has responsibility for risk oversight, with reviews of certain areas being conducted by relevant committees that report directly to the board of directors. The oversight responsibility of the board of directors and its committees is enabled by management reporting processes that are designed to provide visibility to the board of directors about the identification, assessment and management of critical risks and management's risk mitigation strategies. These areas of focus include competitive, economic, operational, financial (accounting, credit, liquidity and tax), legal, regulatory, compliance, health, safety, environmental, political and reputational risks. Our board of directors regularly reviews information regarding our strategy, operations, credit and liquidity, as well as the risks associated with each. Our compensation committee is responsible for overseeing risks relating to our executive compensation plans and arrangements. Our audit committee is responsible for overseeing financial risks and risks associated with related party transactions. Our nominating and corporate governance committee is responsible for overseeing risks associated with the independence of the board of directors. While each committee is responsible for evaluating certain risks and overseeing the management of such risks, our entire board of directors is regularly informed through committee reports about such risks.

## Board Committees

Our board of directors has established three standing committees: audit, compensation and nominating and corporate governance. Each of our audit, compensation and nominating and corporate governance committees operates

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under a charter that has been approved by our board of directors. Our board of directors has also adopted corporate governance guidelines to assist our board in the exercise of its duties and responsibilities. Current copies of the charters for the audit, compensation and nominating and corporate governance committees and the corporate governance guidelines are posted on our website, [www.iderapharma.com](http://www.iderapharma.com), and can be accessed by clicking “Investors” and “Corporate Governance.”

Audit Committee

Our audit committee’s responsibilities include:

- appointing, approving the compensation of, and assessing the independence of our independent registered public accounting firm;
- overseeing the work of our independent registered public accounting firm, including through the receipt and consideration of certain reports from such accounting firm;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures;
- monitoring our internal control over financial reporting, disclosure controls and procedures and code of business conduct and ethics;
- discussing our risk management policies;
- establishing procedures for the receipt and retention of accounting related complaints and concerns;
- reviewing and approving related party transactions;
- meeting independently with our independent registered public accounting firm and management; and
- preparing the audit committee report required by SEC rules, which is included in the section of this proxy statement entitled “Accounting Matters — Report of the Audit Committee.”

The current members of our audit committee are Mr. Reardon (Chairman), Mr. Geraghty and Dr. Goldberg. Mr. Reardon and Mr. Geraghty were members of our audit committee throughout 2015. Dr. Karr served as a member of our audit committee until he left our board of directors in June 2015, and since this time Dr. Goldberg has served as a member of our audit committee. Our board of directors has determined that Mr. Reardon is an “audit committee financial expert” within the meaning of SEC rules and regulations. During 2015, our audit committee held six meetings in person or by teleconference.

#### Compensation Committee

Our compensation committee’s responsibilities include:

- annually reviewing and approving corporate goals and objectives relevant to compensation for our executive officers;
- determining the compensation of our senior executives;
- overseeing the evaluation of our senior executives;
- overseeing and administering our cash and equity incentive plans;
- reviewing and making recommendations to the board of directors with respect to director compensation;



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- reviewing and discussing annually with management the compensation discussion and analysis required by the SEC rules and included in this proxy statement; and
- preparing the compensation committee report required by SEC rules, which is included in the section of this proxy statement entitled “Executive Compensation — Compensation Committee Report.”

The current members of our compensation committee are Dr. Neu (Chairman), Mr. El Zein, Dr. Gowen and Dr. Slater. Dr. Neu, Mr. El Zein and Dr. Slater were members of our compensation committee throughout 2015. Dr. MacCoss served as chairman of our compensation committee until he left our board of directors in June 2015. Dr. Gowen joined our compensation committee in January 2016. During 2015, the compensation committee held five meetings in person or by teleconference.

The processes and procedures followed by our compensation committee in considering and determining executive compensation are described below under the heading “Executive Compensation.”

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee’s responsibilities include:

- identifying individuals qualified to become members of our board of directors;
- recommending to our board of directors the persons to be nominated for election as directors or to fill vacancies on our board of directors, and the persons to be appointed to each of the committees of the board of directors;
- reviewing and making recommendations to the board of directors with respect to management succession planning;
- developing and recommending to the board of directors corporate governance principles; and
- overseeing periodic evaluations of the board of directors.

The current members of our nominating and corporate governance committee are Mr. Geraghty (Chairman), Mr. El Zein and Mr. Reardon. During 2015, the nominating and corporate governance committee held four meetings in person or by teleconference.

The processes and procedures followed by our nominating and corporate governance committee in identifying and evaluating director candidates are described below under the heading “Director Nomination Process.”

#### Director Independence

Under applicable rules of the Nasdaq Stock Market, a director will only qualify as an “independent director” if, in the opinion of our board of directors, that person does not have a relationship which would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. Our board of directors has determined that Mr. Baker, Mr. El Zein, Mr. Geraghty, Dr. Goldberg, Dr. Gowen, Dr. Neu, Mr. Reardon and Dr. Slater and all of the members of each of the audit, compensation and nominating and corporate governance committees are independent as defined under applicable rules of the Nasdaq Stock Market including, in the case of all members of the audit committee, the independence requirements contemplated by Rule 10A-3 under the Exchange Act and, in the case of all members of the compensation committee, the independence requirements contemplated by Rule 10C-1 under the Exchange Act.

Our board of directors had previously made similar determinations of independence with respect to Drs. Karr and MacCoss, each of whom served as a director until June 2015.

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Director Nomination Process

The process followed by our nominating and corporate governance committee to identify and evaluate director candidates includes requests to members of our board of directors and others for recommendations, meetings from time to time to evaluate biographical information and background material relating to potential candidates and interviews of selected candidates by members of our nominating and corporate governance committee and our board of directors. The nominating and corporate governance committee has from time to time used a third-party recruiting firm to identify and interview potential candidates.

In considering whether to recommend any particular candidate for inclusion in the board's slate of recommended director nominees, the nominating and corporate governance committee will apply the criteria set forth in our corporate governance guidelines. These criteria include the candidate's:

- business acumen;
- knowledge of our business and industry;
- age;
- experience;
- diligence;
- conflicts of interest;
- ability to act in the interests of all stockholders; and
- in the case of the renomination of existing directors, performance on our board of directors and on any committee of which the director was a member.

Our corporate governance guidelines also provide that candidates should not be discriminated against on the basis of race, religion, national origin, sex, sexual orientation, disability or any other basis proscribed by law and that our nominating and corporate governance committee should consider the value of diversity of the board of directors when evaluating particular candidates. The committee has not adopted any formal or informal diversity policy and treats diversity as one of the criteria to be considered by the committee. The committee does not assign specific weights to

particular criteria that the committee reviews and no particular criterion is a prerequisite for the consideration of any prospective nominee. We believe that the backgrounds and qualifications of our directors, considered as a group, should provide a composite and diverse mix of experience, knowledge and abilities that will allow the board of directors to fulfill its responsibilities.

#### Stockholder Nominees

Stockholders may recommend individuals to the nominating and corporate governance committee for consideration as potential director candidates by submitting the individuals' names, together with appropriate biographical information and background materials and a statement as to whether the stockholder or group of stockholders making the recommendation has beneficially owned more than 5% of our common stock for at least one year as of the date such recommendation is made, to Nominating and Corporate Governance Committee, c/o Secretary, Idera Pharmaceuticals, Inc., 167 Sidney Street, Cambridge, Massachusetts 02139. Assuming that appropriate biographical and background material has been provided on a timely basis, the nominating and corporate governance committee will evaluate stockholder-recommended candidates by following substantially the same process, and applying substantially the same criteria, as it follows for candidates submitted by others. If the board of directors determines to nominate a stockholder-recommended candidate and recommends his or her election, then his or her name will be included in our proxy card for the next annual meeting.

Stockholders also have the right under our bylaws to nominate director candidates directly, without any action or recommendation on the part of the nominating and corporate governance committee or the board of directors, by

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following the procedures set forth in our bylaws, including advance notice requirements. Candidates nominated by stockholders in accordance with the procedures set forth in our bylaws will not be included in our proxy card for the next annual meeting. See “Information about the 2016 annual meeting — How and when may I submit a proposal for the 2017 annual meeting of stockholders?” for more information about these procedures.

### Communicating with our Board of Directors

Our board of directors will give appropriate attention to written communications that are submitted by stockholders and will respond if and as appropriate. The chairman of the board of directors (if an independent director) or the lead independent director, if any, is primarily responsible for monitoring communications from stockholders and for providing copies or summaries to the other directors, as he or she considers appropriate.

Communications are forwarded to all directors if they relate to important substantive matters and include suggestions or comments that the chairman of the board of directors or lead independent director, as the case may be, considers to be important for the directors to know. In general, communications relating to corporate governance and long-term corporate strategy are more likely to be forwarded than communications relating to ordinary business affairs, personal grievances and matters that involve repetitive or duplicative communications.

Stockholders who wish to send communications on any topic to the board of directors should address such communications to Board of Directors, c/o Secretary, Idera Pharmaceuticals, Inc., 167 Sidney Street, Cambridge, Massachusetts 02139.

Each communication from a stockholder should include the following information in order to permit stockholder status to be confirmed and to provide an address to forward a response if deemed appropriate:

- the name, mailing address and telephone number of the stockholder sending the communication;
- the number of shares held by the stockholder; and
- if the stockholder is not a record owner of our securities, the name of the record owner of our securities beneficially owned by the stockholder.

### Compensation Committee Interlocks and Insider Participation

Our compensation committee currently consists of Dr. Neu, Mr. El Zein, Dr. Gowen and Dr. Slater. Dr. Neu, Mr. El Zein and Dr. Slater were members of our compensation committee throughout 2015. Dr. Gowen joined our compensation committee in January 2016. In 2015, Dr. MacCoss served as chairman of our compensation committee from January until June. No member of our compensation committee was at any time during 2015, or was formerly, an officer or employee of ours. No member of our compensation committee engaged in any related person transaction involving our company during 2015 other than Dr. Neu. See “Transactions with Related Persons” for information about the terms of the transactions we engaged in with affiliates of Dr. Neu. None of our executive officers has served as a director or member of the compensation committee (or other committee serving the same function as the compensation committee) of any other entity, while an executive officer of that other entity served as a director or member of our compensation committee.

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## Executive Officers of Idera

The following table sets forth the names, ages and positions of our executive officers as of April 15, 2016:

Name	Age	Position
Vincent J. Milano*	52	President and Chief Executive Officer
Sudhir Agrawal, D. Phil.**	62	President of Research
Louis J. Arcudi, III, M.B.A.	55	Senior Vice President of Operations, Chief Financial Officer, Treasurer and Assistant Secretary
Mark J. Casey, Esq.	53	Senior Vice President, General Counsel and Secretary
R. Clayton Fletcher	53	Senior Vice President, Business Development and Strategy
Joanna Horobin, M.B., Ch.B	61	Senior Vice President, Chief Medical Officer

\* Mr. Milano is a continuing member of our board of directors. See “Proposal One — Election of Directors” for more information about Mr. Milano.

\*\* Dr. Agrawal is a continuing member of our board of directors. See “Proposal One — Election of Directors” for more information about Dr. Agrawal.

Louis J. Arcudi, III, M.B.A., has been our Senior Vice President of Operations since April 2011 and our Chief Financial Officer and Treasurer since he joined us in December 2007. Mr. Arcudi served as our Secretary from December 2007 until June 2015 and has been our Assistant Secretary since June 2015. Prior to joining us, Mr. Arcudi served as Vice President of Finance and Administration and Treasurer for Peptimmune, Inc., a biotechnology company, from 2003 to 2007. From 2000 to 2003, Mr. Arcudi was Senior Director of Finance and Administration at Genzyme Molecular Oncology Corporation, a division of Genzyme Corporation. He was Director of Finance Business Planning and Operations International at Genzyme from 1998 to 2000. Prior to joining Genzyme, he held finance positions with increasing levels of responsibility at Cognex Corporation, a supplier of machine vision systems, Millipore Corporation, a provider of technologies, tools and services for bioscience, research and biopharmaceutical manufacturing, and General Motors Corporation, an automobile manufacturer. Mr. Arcudi holds an M.B.A. from Bryant College and a B.S. in accounting and information systems from the University of Southern New Hampshire.

Mark J. Casey, Esq., has been our as Senior Vice President, General Counsel, and Secretary since June 2015. Previously, he served as Senior Vice President, General Counsel, and Secretary at Hologic, Inc., a global healthcare and diagnostics company, from October 2007 to December 2014 and as Chief Administrative Officer from March 2012 to December 2014, following Hologic’s acquisition of Cytyc Corporation. Prior to the acquisition, Mr. Casey served as Vice President, Deputy General Counsel, and Chief Patent Counsel of Cytyc from 2002 to 2007. Prior to joining Cytyc, Mr. Casey held roles of increasing responsibility at Boston Scientific Corporation and EMC Corporation. Mr. Casey holds a B.S. in electrical engineering from Syracuse University and a J.D. from Suffolk

University Law School.

R. Clayton Fletcher, has been our Senior Vice President, Business Development and Strategic Planning since January 2015. Prior to joining us, Mr. Fletcher served in increasingly senior positions at ViroPharma Inc., which was acquired by Shire Plc in January 2014, from April 2001 until January 2014, including as Vice President, Business Development and Project Management from 2005 until January 2014. Mr. Fletcher served as Senior Project Manager at SmithKline Beecham plc, a pharmaceutical company, which was purchased by Glaxo Wellcome plc in December 2000, from 1997 until 2001. Prior to working at SmithKline Beecham, he served as Project Scientist, at Becton, Dickinson and Company, a medical devices company and as Principal Scientist at Intracel Corporation, a biopharmaceutical company. Prior to working at Intracel, he served as Senior Associate Scientist at Centocor Biotech, Inc., a biotechnology company from 1991 until 1993. Mr. Fletcher holds a B.S. and a M.S. in biology from Wake Forest University.

Joanna Horobin, M.B., Ch.B, has been our Senior Vice President and Chief Medical Officer since November 2015. Prior to joining us, Dr. Horobin served as the Chief Medical Officer of Verastem, Inc., a biopharmaceutical company, from October 2012 to June 2015. Prior to joining Verastem, she served as President of Syndax Pharmaceuticals, a biopharmaceutical company, from September 2006 to October 2012 and as Chief Executive Officer from September 2006 until April 2012. Prior to that, Dr. Horobin held several roles of increasing responsibility at global pharmaceutical corporations such as Rhône-Poulenc Rorer (now Sanofi) and Chugai-Rhône-Poulenc. Dr. Horobin received her medical degree from the University of Manchester, England.

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SECURITY OWNERSHIP OF CERTAIN BENEFICIAL

OWNERS AND MANAGEMENT

On March 31, 2016, we had 121,299,667 shares of common stock issued and outstanding. The following table sets forth information we know about the beneficial ownership of our common stock, as of March 31, 2016, by:

- each person known by us to own beneficially more than 5% of the outstanding shares of our common stock;
- each of our directors;
- each of our named executive officers, as defined in “Executive Compensation—Compensation Discussion and Analysis” below; and
- all current directors and executive officers as a group.

We have determined beneficial ownership in accordance with the rules of the SEC, and the information in the table below is not necessarily indicative of beneficial ownership for any other purpose. Under such rules, beneficial ownership of a person includes any shares as to which such person has the sole or shared voting power or investment power. In addition, under such rules, beneficial ownership of a person includes any shares that such person has the right to acquire within 60 days after March 31, 2016 through the conversion of any convertible security or the exercise of any stock option, warrant or other right. These shares, however, are not considered outstanding when computing the percentage ownership of each other person.

Unless otherwise indicated in the footnotes to the table below, each stockholder named in the table has sole investment and voting power (or shares such power with his or her spouse) with respect to the shares shown as beneficially owned by them. The inclusion of any shares deemed beneficially owned does not constitute an admission of beneficial ownership of such shares.

Name and Address of Beneficial Owner(1) 5% Stockholders	Amount and Nature of Beneficial Ownership of Common Stock	% of Common Stock Beneficially Owned
	25,694,955	(2) 19.99 % (2)

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Pillar Investment Entities c/o Pillar Invest Offshore SAL Starco Ctr Bloc B, 3rd Flr Omar Daouk St. Beirut, M8 2020-3313 Affiliates of Baker Brothers Advisors, LLC 667 Madison Avenue, 21st Floor New York, NY 10065	7,124,359	(3)	5.87	%(3)
Named Executive Officers and Directors				
Vincent J. Milano	871,527	(4)	*	
Sudhir Agrawal, D. Phil.	3,622,828	(5)	2.90	%
Louis J. Arcudi, III	995,113	(6)	*	
Julian C. Baker	7,124,359	(7)	5.87	%(3)
Mark J. Casey	—		*	
Youssef El Zein	25,694,955	(8)	19.99	%(2)
R. Clayton Fletcher	187,500	(9)	*	
James A. Geraghty	895,441	(10)	*	
Mark Goldberg	69,584	(11)	*	
Maxine Gowen	—		*	
Kelvin M. Neu	91,284	(12)	*	
William S. Reardon	192,573	(13)	*	
Eve E. Slater	131,416	(14)	*	
All current directors and executive officers as a group (13 individuals)	39,785,296	(15)	29.5	%

\* Less than 1%

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- (1) Except as otherwise noted, the address for each person listed above is c/o Idera Pharmaceuticals, Inc., 167 Sidney Street, Cambridge, Massachusetts 02139.
- (2) Consists of (i) 2,090,126 shares of common stock held by Pillar Pharmaceuticals I, L.P., or Pillar I, (ii) 6,135,132 shares of common stock held by Pillar Pharmaceuticals II, L.P., or Pillar II, (iii) 3,871,839 shares of common stock held by Pillar Pharmaceuticals III, L.P., or Pillar III, (iv) 200,000 shares of common stock held by Pillar Pharmaceuticals IV, L.P., or Pillar IV, (v) 5,657,953 shares of common stock held by Participations Besancon, or Besancon, and over which Pillar Invest Corporation has investment discretion, pursuant to an advisory agreement between Pillar Invest Corporation and Besancon, or the Advisory Agreement, (vi) 2,033,900 shares of common stock issuable upon exercise of warrants to purchase common stock held by Pillar I, (vii) 5,034,061 shares of common stock issuable upon exercise of warrants to purchase common stock held by Pillar II, (viii) 500,528 shares of common stock held directly by Mr. El Zein and (ix) 171,416 shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016 held by Mr. El Zein. As a result of the application of the Exercise Cap, as described below in this footnote, the table above does not include the following as being beneficially owned by the Pillar Investment Entities: (a) 776,750 shares of common stock issuable upon exercise of warrants to purchase common stock held by Pillar I; and (b) 4,118,020 shares of common stock issuable upon exercise of warrants to purchase common stock held by Besancon and over which Pillar Invest Corporation has investment discretion pursuant to the Advisory Agreement. Mr. El Zein, a member of our board of directors, is a director and controlling stockholder of Pillar Invest Corporation, which is the general partner of Pillar I, Pillar II, Pillar III and Pillar IV, and is a limited partner of Pillar I, Pillar II, Pillar III and Pillar IV. Mr. El Zein expressly disclaims beneficial ownership over shares held directly by Pillar I, Pillar II, Pillar III, Pillar IV and indirectly by Pillar Invest Corporation, including the warrants to purchase common stock issued in connection therewith held by Besancon, or the Besancon Warrants. Pillar I, Pillar II, Pillar III and Pillar IV expressly disclaim beneficial ownership of the Besancon Warrants. Besancon is an investment fund having no affiliation with Mr. El Zein, Pillar I, Pillar II, Pillar III, Pillar IV or Pillar Invest Corporation. The information in this footnote is based on information provided to the Company by Pillar Invest Corporation and Mr. El Zein. Pursuant to the terms of the warrants to purchase common stock issued to the Pillar Investment Entities, the warrants to purchase common stock issued to the Pillar Investment Entities cannot be exercised by the holders thereof with respect to any portion of the shares, to the extent that such exercise would result in the Pillar Investment Entities beneficially owning in the aggregate more than 19.99% of (x) the number of shares of common stock outstanding or (y) the voting power of our securities outstanding immediately after giving effect to the exercise of the warrants to purchase common stock. This limitation on exercise of the warrants to purchase common stock issued to the Pillar Investment Entities is referred to in this footnote as the Exercise Cap. In addition, pursuant to the terms of the purchase agreements under which such warrants were acquired, the purchasers have each agreed that for so long as such purchaser and its affiliates beneficially own more than 19.99% of our outstanding common stock, such purchaser, and its affiliates will vote any shares held by them in excess of the number of shares equal to 19.99% of the outstanding common stock with respect to any matter put to a vote of the holders of common stock in the same manner and percentage as the holders of the common stock vote on such matter.
- (3) Consists of (i) 606,472 shares of our common stock owned by 667, L.P., (ii) 6,304,832 shares of our common stock owned by Baker Brothers Life Sciences, L.P., (iii) 35,105 shares of our common stock owned by 14159, L.P., (iv) (a) 19,581 shares of our common stock held directly by Mr. Baker and (b) 24,199 shares of our common stock held directly by Dr. Neu, and in which each of 667, L.P., Baker Brothers Life Sciences, L.P. and 14159, L.P., which we refer to collectively as the Funds, has an indirect pecuniary interest and may be deemed to own a portion of these shares, and (v) (a) 67,085 shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016 held by Mr. Baker and (b) 67,085 shares of common stock

subject to outstanding options that are exercisable within 60 days after March 31, 2016 held by Dr. Neu. As a result of the application of the Beneficial Ownership Cap, as described below in this footnote, the table above does not include the following as being beneficially owned by the Funds: (a) 4,640,773 shares of common stock issuable upon exercise of warrants to purchase common stock owned by 667, L.P., (b) 36,907,015 shares of common stock issuable upon exercise of warrants to purchase common stock owned by Baker Brothers Life Sciences, L.P. and (c) 919,591 shares of common stock issuable upon exercise of warrants to purchase common stock owned by 14159, L.P. The information in this footnote is based on a Schedule 13G filed with the SEC on February 16, 2016 and on information provided to the Company by the Funds and Mr. Baker. Mr. Baker, a member of our board of directors, is a managing member of Baker Bros. Advisors LP and is a principal of Baker Bros. Advisors (GP), LLC, the sole general partner of Baker Bros. Advisors LP. Baker Bros. Advisors LP serves as the investment advisor to the Funds. Accordingly, Mr. Baker may be deemed to have sole power to direct the voting and disposition of the shares of common stock held directly

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by the Funds and indirectly by Baker Bros. Advisors LP and Baker Bros. Advisors (GP), LLC. Mr. Baker expressly disclaims beneficial ownership over shares held directly by the Funds and indirectly by Baker Bros. Advisors LP and Baker Bros. Advisors (GP), LLC, except to the extent of his pecuniary interest therein, if any, by virtue of his pecuniary interest therein. Dr. Neu, a member of our board of directors, is an employee of Baker Bros. Advisors LP. Under the terms of the warrants issued to the Funds, the Funds are not permitted to exercise such warrants to purchase common stock to the extent that such exercise would result in the Funds (and their affiliates) beneficially owning more than 4.99% of the number of shares of our common stock outstanding immediately after giving effect to the issuance of shares of common stock issuable upon exercise of such warrants to purchase common stock. This limitation on exercise of the warrants to purchase common stock issued to the Funds is referred to in this footnote as the Beneficial Ownership Cap. The Funds have the right to increase this beneficial ownership limitation in their discretion on 61 days' prior written notice to us, provided that in no event are the Funds permitted to exercise such warrants to purchase common stock to the extent that such exercise would result in the Funds (and their affiliates) beneficially owning in the aggregate more than 19.99% of the number of shares of our common stock outstanding or the combined voting power of our securities outstanding immediately after giving effect to the issuance of shares of common stock issuable upon exercise of such warrants to purchase common stock.

- (4) Includes 625,000 shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016.
- (5) Includes 3,496,551 shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016.
- (6) Includes 980,916 shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016.
- (7) Consists of shares reported under footnote 3 to this table above. Mr. Baker is a managing member of Baker Bros. Advisors LP and is a principal of Baker Bros. Advisors (GP), LLC, the sole general partner of Baker Bros. Advisors LP. Baker Bros. Advisors LP serves as the investment advisor to the Funds. Accordingly, Mr. Baker may be deemed to have sole power to direct the voting and disposition of the shares of common stock held directly by the Funds and indirectly by Baker Bros. Advisors LP and Baker Bros. Advisors (GP), LLC. Mr. Baker expressly disclaims beneficial ownership over shares held directly by the Funds and indirectly by Baker Bros. Advisors LP and Baker Bros. Advisors (GP), LLC, except to the extent of his pecuniary interest therein, if any, by virtue of his pecuniary interest therein.
- (8) Consists of shares reported under footnote 2 to this table above. Mr. El Zein is a director and controlling stockholder of Pillar Invest Corporation, which is the general partner of Pillar I, Pillar II, Pillar III and Pillar IV, and is a limited partner of Pillar I, Pillar II, Pillar III and Pillar IV. Accordingly, Mr. El Zein may be deemed to have sole power to direct the voting and disposition of the shares of common stock held directly by Pillar I, Pillar II, Pillar III and Pillar IV and indirectly by Pillar Invest Corporation, including the Besancon Warrants. Mr. El Zein expressly disclaims beneficial ownership over shares held directly by Pillar I, Pillar II, Pillar III and Pillar IV, and indirectly by Pillar Invest Corporation, including the Besancon Warrants, except to the extent of his pecuniary interest therein, if any, by virtue of his ownership interest in Pillar Invest Corporation and his limited partnership interest in Pillar I, Pillar II, Pillar III and Pillar IV.

- (9) Consists of shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016.
- (10) Includes 479,792 shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016.
- (11) Consists of shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016.
- (12) Includes 67,085 shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016.

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- (13) Includes 171,416 shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016.
- (14) Consists of shares of common stock subject to outstanding stock options that are exercisable within 60 days after March 31, 2016.
- (15) Includes 6,447,761 shares of common stock subject to outstanding stock options held by the directors and executive officers as a group that are exercisable within 60 days after March 31, 2016, shares reported in clauses (i) through (viii) of the first sentence of footnote 2 to this table above, shares reported in clauses (i) through (iv) of the first sentence of footnote 3 to this table above.

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EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

Executive Summary

The compensation committee of our board of directors is responsible for establishing compensation policies with respect to our executive officers, including our chief executive officer and our other executive officers who are listed in the Summary Compensation table on page 36 and who we refer to as “named executive officers.” Our “named executive officers” include Vincent J. Milano, our President and Chief Executive Officer, Sudhir Agrawal, D. Phil., our President of Research, Louis J. Arcudi, III, our Chief Financial Officer, Mark J. Casey, our Senior Vice President, General Counsel and Secretary, and R. Clayton Fletcher, our Senior Vice President of Business Development and Strategy. Our compensation committee makes compensation decisions relating to our executive officers after consultation with our board of directors.

This section discusses the principles underlying our executive compensation policies and decisions and the most important factors relevant to an analysis of these policies and decisions. It provides qualitative information regarding the manner and context in which compensation is awarded to and earned by our named executive officers. As further discussed in this section, we design our compensation and benefit programs to attract, retain, and motivate individuals who will maximize our business results by working to meet or exceed established company and individual objectives. In addition, we use our programs to reward our executive officers for corporate and individual performance.

The following items represent key compensation-related events and actions during or related to 2015:

- At our 2015 annual meeting of stockholders, 99% of votes cast approved our 2014 executive compensation program. The board of directors and compensation committee considered the results of this advisory vote, together with the other factors and data discussed in this proxy statement, in determining executive compensation decisions and will continue to consider the outcome of our say on pay votes when making future compensation decisions for our named executive officers.
- In 2015, the essential components of our executives’ compensation remained the same, including base salary; annual cash bonuses to reflect achievement of company and individual objectives; and stock option awards to align the long-term incentives of our executives with the long-term performance of the company and interests of our stockholders.
- We continued our practice of targeting overall compensation towards the 50th percentile of the market data.
- We provided salary increases to select named executive officers in early 2016, but did not increase the salaries of our President and Chief Executive Officer and President of Research due to their current above-median positioning among our benchmark data.
- We made changes to add more rigor and structure to our assessment of company performance against objectives for purposes of the annual cash bonus determination. Our assessment resulted in a corporate performance score of 98%, reflecting strong company performance overall (see pages 27-29 for a description of how the corporate performance score factors into cash bonus payouts).

Compensation Philosophy and Objectives

The compensation committee seeks to achieve the following broad goals in connection with our executive compensation programs and decisions regarding individual compensation:



- attract, retain and motivate the best possible executive talent;
- ensure executive compensation is aligned with our corporate strategies and business objectives, including our short-term operating goals and longer-term strategic objectives;
- promote the achievement of key strategic and financial performance measures by linking short- and long-

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term cash and equity incentives to the achievement of measurable corporate and individual performance goals; and

- align executives' incentives with the creation of stockholder value.

To achieve these objectives, the compensation committee:

- sets short- and long-term compensation at levels the compensation committee believes are competitive with those of other companies in our industry and our region that compete with us for executive talent;
- ties a substantial portion of each executive officer's overall cash compensation to key strategic, financial, research, and operational goals such as clinical trial and regulatory progress, intellectual property portfolio development, establishment and maintenance of key strategic relationships, and exploration of business development opportunities, as well as our financial and operational performance; and
- provides a portion of our executive compensation in the form of stock options or other stock awards that vest over time from the date of grant of the option awards and from the time of achievement of performance milestones when applicable, which we believe helps to retain our executives and align their interests with those of our stockholders by allowing them to participate in the longer term success of our company as reflected in stock price appreciation.

## Compensation Benchmarking

During 2014 and until September 2015, our compensation committee engaged Radford Survey + Consulting, or Radford, and in October 2015, our compensation committee engaged Pearl Meyer & Partners, LLC or Pearl Meyer, in each case, to provide advice and recommendations regarding the amount and form of executive compensation, equity incentive programs, and compensation generally. During 2014, our compensation committee also engaged Radford to provide advice and recommendations regarding our director compensation program, which is discussed above under "Proposal One — Election of Directors — Director Compensation." Neither Radford nor Pearl Meyer provided any services to our company during 2014 or 2015 other than pursuant to their respective engagement by the compensation committee. Our compensation committee considered the relationship that each firm has with us, the members of our compensation committee and our executive officers, as well as the policies that each has in place to maintain its independence and objectivity. Based on the compensation committee's evaluation, as well as the consideration by our executive officers of the policies that each firm has in place to maintain its independence and objectivity, the compensation committee has determined that neither Radford's nor Pearl Meyer's work for the compensation committee raised any conflicts of interest. In reaching these conclusions, the compensation committee considered the factors set forth in Exchange Act Rule 10C-1.

As part of its engagement, in February 2014, in connection with the compensation committee's review of our director compensation program, Radford worked with the compensation committee to select a peer group of publicly traded companies. In working with Radford to develop the peer group, the compensation committee and Radford generally targeted mid- to late-development stage companies conducting Phase 2 or Phase 3 clinical trials, with approximately 15 to 60 employees and valuations ranging from one-half to one and one-half times our size in terms of market capitalization. In its assessment of companies with comparable market capitalizations, the compensation committee assumed that all outstanding preferred stock and warrants to purchase common stock were converted into or exercised for shares of our common stock. The companies included in the 2014 peer group were:

AcelRx Pharmaceuticals Inc.	Achillion Pharmaceuticals, Inc.	BioCryst Pharmaceuticals, Inc.
bluebird bio Inc.	Cempra, Inc.	Chelsea Therapeutics International, Ltd.
Chimerix, Inc.	Corcept Therapeutics Incorporated	CytRx Corporation
Durata Therapeutics, Inc.	Enanta Pharmaceuticals, Inc.	Endocyte Inc.
Inovio Pharmaceuticals, Inc.	Insmed Incorporated	Intra-Cellular Therapies, Inc.
Neuralstem, Inc.	Orexigen Therapeutics, Inc.	Repros Therapeutics Inc.
Verastem, Inc.		

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In connection with the compensation committee’s annual performance and compensation review in November 2014 and December 2014, Radford provided the compensation committee with a blend of the data from the 2014 peer group and compensation survey data from the Radford 2014 Global Life Sciences Survey, a survey of U.S. biotech companies. We refer to this blended data as the “2014 market compensation data.” Our compensation committee considered this 2014 market compensation data in making its compensation determinations in December 2014, including its determinations with respect to base salaries for 2015, bonus targets and option awards. The compensation committee also used this data in setting Messrs. Milano’s, Fletcher’s and Casey’s compensation arrangements upon their hiring.

As part of its engagement, in November and December 2015, in connection with its review of our executive compensation program, Pearl Meyer worked with the compensation committee to select an updated peer group. In working with Pearl Meyer to develop the updated peer group, the compensation committee and Pearl Meyer generally targeted mid- to late-development stage companies in the Pharmaceuticals, Biotechnology and Life Sciences sectors that met the following screening criteria:

- Company Size: revenue less than or equal to \$150M; operating expense less than or equal to four times our operating expense (i.e., less than or equal to \$187M); employees between 20-200;
- Business Operations: conducting Phase 2 or Phase 3 clinical trials in at least one of oncology, rare diseases, or leveraging a ‘technology platform’ model; and
- Other: exclude, subsidiaries; companies with business challenges; companies having market valuations below \$50M; and companies that have recently conducted an initial public offering (i.e., in 2015).

The following table lists the 18 companies included in the 2015 peer group:

rgos

Argos Therapeutics, Inc.	Arrowhead Research Corp.	BIND Therapeutics, Inc.
bluebird bio Inc.	Celldex Therapeutics, Inc.	Concert Pharmaceuticals, Inc.
Dicerna Pharmaceuticals, Inc.	Dynavax Technologies Corp.	Endocyte, Inc.
GlycoMimetics, Inc.	Immune Design Corp.	Immunomedics, Inc.
Inovio Pharmaceuticals, Inc.	Kite Pharma, Inc.	OncoMed Pharmaceuticals, Inc.
Regulus Therapeutics, Inc.	Xencor, Inc.	ZIOPHARM Oncology, Inc.
Executive Compensation Process		

Our compensation committee intends that if we achieve our corporate goals and the executive performs at the level expected, the executive should have the opportunity to receive compensation that is competitive with industry norms. Accordingly, our compensation committee generally targets overall compensation for executives towards the 50th percentile of the market data. However, the compensation committee does not apply those targets formulaically and allows for individuals to be positioned at different percentiles based on experience, performance levels and potential performance levels of the executive, and changes in duties and responsibilities.

In order to accomplish its objectives consistent with its philosophy for executive compensation, our compensation committee typically takes the following actions annually:

- reviews chief executive officer performance;
  
- seeks input from our chief executive officer on the performance of all other executive officers;
  
- reviews all components of executive officer compensation, including base salary, cash bonus targets and awards, equity compensation, the dollar value to the executive and cost to us of all health and life insurance and other employee benefits, and the estimated payout obligations under severance and change in control scenarios;
  
- consults with an independent compensation consultant;

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- holds executive sessions (without our management present);
- reviews information regarding the performance and executive compensation of other companies; and
- reviews all of the foregoing with the board of directors.

Under our annual performance review program for our executives, annual performance goals are determined for our company as a whole and for each executive individually. Annual corporate goals are proposed by management and approved by the board of directors. These corporate goals target the achievement of specific research, clinical, operational, and financial milestones. The compensation committee determines how the components of our annual company goals will contribute to the overall performance evaluation. In connection with the compensation committee's annual performance and compensation review in December 2015, Pearl Myer provided the compensation committee with a blend of the data from the 2015 peer group supplemented by compensation survey data from the Radford 2015 Global Life Sciences Survey, a survey of U.S. biotech companies, where the peer group data did not yield a sufficient sample pool. We refer to this blended data as the "2015 market compensation data."

Annual individual goals focus on contributions that facilitate the achievement of the corporate goals and are closely aligned with the corporate goals. Individual goals are proposed at the start of each year by each executive and approved by the chief executive officer and, as appropriate, the compensation committee. Typically, the compensation committee sets the chief executive officer's goals and reviews and discusses with the chief executive officer the goals for all other executive officers. The individual performance goals of each named executive officer consist primarily of the key objectives and goals from our annual business plan that relate to the functional area for which the named executive officer is responsible. The individual performance goals for the chief executive officer are largely coextensive with the corporate goals.

At the end of each year, the compensation committee evaluates corporate and individual performance. The compensation committee considers the achievement of the corporate goals and individual performance as factors in determining annual salary increases, annual bonuses and annual stock option awards granted to our executives. In assessing corporate performance, the compensation committee evaluates corporate performance alongside the approved corporate goals for the year and also evaluates other aspects of corporate performance, including achievements and progress made by us outside of the corporate goals. In assessing individual performance, the compensation committee evaluates corporate performance in the areas of each officer's responsibility and relies on the chief executive officer's evaluation of each officer. The chief executive officer prepares evaluations of the other executives and in doing so compares individual performance to the individual performance goals. The chief executive officer recommends annual executive salary increases, annual stock option awards and bonuses, if any, for the other executives, which are then reviewed and approved by the compensation committee. In the case of the chief executive officer, the compensation committee conducts his individual performance evaluation. During this process, the compensation committee consults with its compensation consultant and, prior to approving compensation for executive officers, consults with the board of directors.

For all executives, annual base salary increases, if any, are implemented during the first calendar quarter of the year. Annual stock option awards and bonuses, if any, are granted as determined by the compensation committee. For 2014, these were granted in the fourth quarter of 2014, and for 2015, these were granted in the first quarter of 2016.

The compensation committee generally does not plan to approve annual equity grants to employees, including named executive officers, at a time when our company is in possession of material non-public information. We do not award

stock options to named executive officers concurrently with the release of material non-public information.

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### Elements of Executive Compensation

The compensation program for our executives generally consists of five elements based upon the foregoing objectives:

- base salary;
  
- annual cash bonuses;
  
- stock option awards;
  
- health insurance, life insurance, and other employee benefits; and
  
- severance and change in control benefits.

The value of our variable, performance-based compensation is allocated between short-term compensation in the form of a cash bonus and long-term compensation in the form of stock option awards that vest over time from the date of grant of the option awards or from the time of achievement of performance milestones. The annual cash bonus is intended to provide an incentive to our executives to achieve short-term operational objectives. The stock option awards provide an incentive for our executives to achieve longer-term strategic business goals, which should lead to higher stock prices and increased stockholder value. We have not had any formal or informal policy or target for allocating compensation between long-term and short-term compensation, between cash and non-cash compensation, or among the different forms of non-cash compensation. Instead, the compensation committee, after reviewing industry information and our cash resources, determines subjectively what it believes to be the appropriate level and mix of the various compensation components.

We do not have any defined benefit pension plans or any non-qualified deferred compensation plans.

We are party to employment agreements and employment offer letters with each of our named executive officers. Other than our employment agreement with Dr. Agrawal, none of these employment agreements and employment offer letters include provisions providing for tax gross-ups and our compensation committee does not intend to include such provisions in employment related agreements in the future. Employment agreements and employment offer letters with our named executive officers are described below under the caption “Agreements with our Named Executive Officers.”

### Base Salary

In establishing base salaries for our named executive officers, our compensation committee typically reviews the market compensation data presented by the committee’s independent compensation consultant, considers historic salary levels of the executive officer and the nature of the executive officer’s responsibilities, compares the executive officer’s base salary with those of our other executives, and considers the executive officer’s experience, performance and contributions. The compensation committee also typically considers the challenges involved in hiring and retaining experienced leaders and scientific personnel with extensive experience in the pharmaceutical industry. In assessing the executive officer’s performance, the compensation committee considers the executive officer’s role in the achievement of the annual corporate goals, as well as the performance evaluation prepared by our chief executive officer with respect to such executive officer. The compensation committee considers such evaluation as a means of informing the compensation committee’s decision as to whether the executive officer’s performance was generally



consistent with our expectations.

As part of our 2014 annual performance and compensation review, the compensation committee approved new annual base salaries for our executive officers for 2015. In setting these annual base salaries, the compensation committee reviewed the 2014 market compensation data presented by Radford. After reviewing such data, the compensation committee approved increases in the annual base salaries of each of our named executive officers by 3.0%, yielding new annual base salaries of \$588,100 for Dr. Agrawal and \$337,400 for Mr. Arcudi, effective as of January 1, 2015.

As part of our December 2015 annual performance and compensation review, the compensation committee approved new annual base salaries for our executive officers to be effective January 1, 2016. In setting these annual base

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salaries, the compensation committee reviewed the 2015 market compensation data presented by Pearl Meyer. After considering each executive's current salary, performance, and experience in the context of the market compensation data as well as relative to one another, the compensation committee approved the following salary increases and resulting base salaries:

	2015 Base Salary	2016 Base Salary	% Increase
Mr. Milano	\$600,000	\$600,000	0.0
Dr. Agrawal	\$588,100	\$588,100	0.0
Mr. Arcudi	\$337,400	\$347,500	3.0
Mr. Casey	\$360,000	\$371,000	3.1
Mr. Fletcher	\$360,000	\$375,000	4.2

## Cash Bonuses

The compensation committee generally structures cash bonuses by linking them to the achievement of the annual corporate goals, corporate performance outside of the corporate goals, and individual performance. The amount of the bonus paid, if any, varies among the executive officers depending on individual performance and their contribution to the achievement of our annual corporate goals and corporate performance generally. The compensation committee reviews and assesses corporate goals and individual performance by executive officers and considers the reasons why specific goals have been achieved or have not been achieved. While achievement against the applicable corporate goals is given substantial weight in connection with the determination of annual bonuses, we also factor in an evaluation of our named executive officers' individual performance based on analysis of achievement of individual performance goals as well as the following subjective criteria:

- leadership;
- management;
- judgment and decision making skills;
- results orientation; and
- communication

The compensation committee set the following individual bonus target percentages for each of our named executive officers for 2015. In determining the target bonus percentages to be used, the compensation committee concluded that the

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target bonus percentages should be competitive with the 50th percentile of the 2015 market compensation data and that there be no difference in the target bonus percentages of our named executive officers, other than Mr. Milano and Dr. Agrawal.

	2015 Target Cash Bonus (% of base salary)
Mr. Milano	50%
Dr. Agrawal	50%
Mr. Arcudi	40%
Mr. Casey	40%
Mr. Fletcher	40%

Consistent with a company-wide annual incentive plan approved by the compensation committee in April 2015 and applicable to all employees including our named executive officers, both a corporate performance score and individual performance score factored into the determination of each executive officer's cash bonus award for 2015.

Under the terms of our incentive plan, the corporate performance score is based on the degree to which corporate performance objectives have been achieved. This score is determined by the compensation committee and may range from 0-125%. The individual performance score is based on the degree to which individual performance objectives have been achieved, the competencies and behaviors demonstrated in achieving results, the technical skills required by the position, and the completion of the ongoing responsibilities required by the position. The individual performance score may range from 0-125% and is approved by the compensation committee. The individual's actual award is then calculated as follows:

Individual Target Bonus %

x Annual Base Salary

x Corporate Performance Score (0-125%)

x Individual Performance Score (0-125%)

= Individual Bonus Payout

In setting company goals in the first quarter of 2015, the committee agreed that the business objectives would be grouped into one of three primary categories, each of which would contribute one-third weighting toward the overall assessment of the company's performance. In assessing the company's performance against its 2015 corporate goals, and determining the corporate performance score, the compensation committee considered the extent to which the company

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achieved the business objectives in each of the categories, and assigned a score for each category, as summarized in the following table:

P	Primary Goals	Contribution toward Corporate Performance Score	Committee's Assessment of Performance	Highlights of Performance on Key Objectives
	Deliver data to support our targeted approach in both B-cell lymphoma and immuno-oncology, and built momentum for our approach in rare diseases	1/3	90%	<p>Met an aggressive timetable in taking IMO-2125 program from conceptual design to first patient dosing within 2015</p> <p>Delivered IMO-8400 clinical trial data for Waldenström's macroglobulemia</p> <p>Initiated our trial of IMO-8400 in Dermatomyositis as scheduled</p> <p>Fell short of internal expectations for IMO-8400 in DLBCL</p> <p>Paused efforts to advance IMO-8400 into clinical development in Duchenne's Muscular Dystrophy</p>
	Position our third-generation antisense platform for success	1/3	110%	<p>Completed pre-clinical data packages and evaluated local delivery for multiple targets identified under our third-generation antisense platform</p> <p>Established a strategic research collaboration with GlaxoSmithKline, as discussed in our annual report on Form 10-K for the year ended December 31, 2015</p>
	Enhance our ability to be successful through relevant foundational objectives	1/3	95%	<p>Met our first quarter fundraising goal</p> <p>Established and achieved ongoing but incomplete assimilation to our new company values and desired culture</p>

Based on these achievements and resulting category scores, the compensation committee determined to use a corporate performance score of 98% for the 2015 bonus calculation.

In assessing each executive officer's individual performance score, the compensation committee further agreed:

- Dr. Agrawal's individual performance score, recognizing his achievement against his personal objectives, in particular his exceeding expectations in the progress of our third-generation antisense platform would be 105%, resulting in an overall bonus equal to 103% of his bonus target;
- Mr. Arcudi's individual performance score, recognizing his achievement against his personal objectives, including successful completion of our fundraising and instituting a new long-range financial planning process, would be 100%, resulting in an overall bonus equal to 98% of his bonus target;

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- Mr. Casey's individual performance score, recognizing his achievement against his personal objectives, including eliminating the company's reliance on costly external legal consultants, assuming board secretary role and responsibilities, and overall leadership contributions, would be 100%, resulting in an overall bonus equal to 98% of his bonus target, which was pro-rated based on his 2015 start date;
- Mr. Fletcher's individual performance score, recognizing his achievement against his personal objectives, including instituting a new long-range strategic planning process and introducing commercial input into research and development decision making, as well as his contribution to the establishment of our collaboration with GSK, would be 100%, resulting in an overall bonus equal to 98% of his bonus target, which was pro-rated based on his 2015 start date; and
- Mr. Milano's individual performance score should be held to a maximum of the corporate performance score, and that for 2015 this would be 98%, resulting in an overall bonus equal to 96% of his bonus target.

### Equity Compensation

Our equity award program is the primary vehicle for offering long-term incentives to our executive officers, including our named executive officers. We believe that equity awards provide our executives with a strong link to our long-term performance, create an ownership culture and help to align the interests of our named executive officers and our stockholders. Equity grants are intended as both a reward for contributing to the long-term success of our company and an incentive for future performance. The vesting feature of our equity awards is intended to further our goal of executive retention by providing an incentive to our named executive officers to remain in our employ during the vesting period. In determining the size of equity awards to our executives, our compensation committee considers the achievement of our annual corporate goals, individual performance, the applicable executive officer's previous awards, including the exercise price of such previous awards, the recommendations of management and the market compensation data presented by the committee's independent compensation consultant.

Our equity awards have typically taken the form of stock options. However, under the terms of our stock incentive plans, we may grant equity awards other than stock options, such as restricted stock awards, stock appreciation rights, and restricted stock units.

The compensation committee approves all equity awards to our executive officers. The compensation committee reviews all components of the executive officer's compensation when determining annual equity awards to ensure that an executive officer's total compensation conforms to our overall philosophy and objectives.

The compensation committee typically makes initial stock option awards to new executive officers upon commencement of their employment and annual stock option awards thereafter. Equity awards to our named executive officers after the initial grants are typically granted annually after the annual performance review. For 2014, this review occurred at the regularly scheduled meeting of the compensation committee held in the fourth quarter of 2014, and for 2015, this review occurred at the regularly scheduled meeting of the compensation committee held in the first quarter of 2016. In general, these option grants vest with respect to 25% of the shares subject to the option on the first anniversary of the date of grant and with respect to the balance of the shares subject to the option in 12 equal quarterly installments over the three-year period thereafter. The exercise price of stock options equals the fair market value of our common stock on the date of grant, which is typically equal to the closing price of our common stock on NASDAQ on the date of compensation committee approval except in the case of new-hire grants, which are approved in advance by the compensation committee with the grant occurring at an exercise price established at the closing price of our common stock on the first day of employment.

In 2015, the compensation committee granted to each of Mr. Fletcher and Mr. Casey a stock option to purchase 600,000 shares of our common stock, effective upon their respective commencement of employment with us. In determining the size of this initial stock option award, the compensation committee considered the size of the initial stock option awards granted in 2014 to other executive officers and determined to award Mr. Fletcher and Mr. Casey their new hire options in the same amounts. The committee determined that these stock option awards would vest with respect to 25% of the shares subject to the option on the first anniversary of the date of grant and with respect to the balance of the shares subject to the option in 12 equal quarterly installments over the three year period thereafter, subject to continued employment with us on each vesting date. No other named executive officers received stock option awards in 2015.

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In December 2015, as part of its annual compensation and performance review, the compensation committee reviewed the 2015 market compensation data regarding annual option grants. The committee then reconvened in January, 2016 to review and approve specific proposals regarding stock option grants. In evaluating the size of the proposed annual option awards for our executive officers other than Mr. Milano, the compensation committee factored in the 50th percentile of the 2015 market compensation data provided by Pearl Meyer. The compensation committee also considered Mr. Milano's overall evaluations with respect to the awards to be made to the other executive officers. In determining the size of the annual option award to Mr. Milano, the compensation committee considered what multiple of the other named executive officers' option awards was appropriate for Mr. Milano as chief executive officer, the market data regarding competitive stock option award levels for peer chief executive officers and his performance. In addition, in comparing the percentage ownership in our company that an option grant would represent to the percentage of ownership set forth in the 2015 market compensation data that had been provided by Pearl Meyer, the compensation committee also considered the impact of outstanding warrants to purchase shares of our common stock. On this basis, the compensation committee granted our named executive officers options to purchase shares of our common stock as follows:

	2016 Option Award (# options)
Mr. Milano	300,000
Dr. Agrawal	231,250
Mr. Arcudi	185,000
Mr. Casey	185,000
Mr. Fletcher	185,000

These option awards vest with respect to 25% of the shares subject to the option on the first anniversary of the date of grant and with respect to the balance of the shares subject to the option in 12 equal quarterly installments over the three year period thereafter, subject to continued employment with us on each vesting date.

#### Benefits and Other Compensation

We maintain broad-based benefits that are provided to all employees, including health and dental insurance, life and disability insurance, and a 401(k) plan. During 2015, consistent with our prior practice, we matched 50% of the employee contributions to our 401(k) plan up to a maximum of 6% of the participating employee's annual salary, resulting in a maximum company match of 3% of the participating employee's annual salary, and subject to certain additional statutory dollar limitations. Named executive officers are eligible to participate in all of our employee benefit plans, in each case on the same basis as other employees and subject to any limitations in such plans. Each of our named executive officers except for Mr. Fletcher contributed to our 401(k) plan and their contributions were matched by us.

Our board of directors has adopted a retirement policy to address the treatment of options in the event of an employee's retirement that applies to all employees, including all officers. For purposes of this policy, an employee will be deemed to have retired if the employee terminates his or her employment with us, has been an employee of ours for more than 10 years and is older than 65 upon termination of employment. Under the policy, if an employee retires, then:



- all outstanding options held by the employee will automatically vest in full; and
- the period during which the employee may exercise the options will be extended to the expiration of the term of the option under the applicable option agreement.

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Our board adopted this policy for our employees in recognition of the importance of stock options to the compensation of employees and in order to provide each of our employees with the opportunity to get the full benefit of the options held by the employee in the event of his or her retirement after making 10 years of contributions to our company.

We occasionally pay relocation expenses for newly-hired executive officers who we require to relocate as a condition to their employment by us. We also occasionally pay local housing expenses and travel costs for executives who maintain a primary residence outside of a reasonable daily commuting range to our headquarters. We believe that these are typical benefits offered by comparable companies to executives who are asked to relocate and that we would be at a competitive disadvantage in trying to attract executives who would need to relocate in order to work for us if we did not offer such assistance. Neither Mr. Fletcher nor Mr. Casey, both of whom were hired in 2015, received any relocation benefits.

Our named executive officers may also participate in our employee stock purchase plan, which is generally available to all employees who work over 20 hours per week, so long as they own less than 5% of our common stock, including for this purpose vested and unvested stock options. None of our named executive officers participated in the employee stock purchase plan during 2015.

### Severance and Change in Control Benefits

Under our employment agreements and employment offer letters with our named executive officers, we have agreed to provide severance and other benefits in the event of the termination of their employment under specified circumstances. We have provided more detailed information about these benefits, along with estimates of their value under various circumstances, under the captions “Agreements with our Named Executive Officers” and “Potential Payments Upon Termination or Change in Control” below.

We believe providing severance and/or change in control benefits as a component of our compensation structure can help us compete for executive talent and attract and retain highly talented executive officers whose contributions are critical to our long-term success. After reviewing the practices of companies in general industry surveys published by Radford, we believe that our severance and change in control benefits are appropriate.

### Deductibility of Executive Compensation/Internal Revenue Code Section 162(m)

Section 162(m) of the Internal Revenue Code of 1986, as amended, or the Code, generally disallows a tax deduction to public companies for certain compensation in excess of \$1 million paid to each of our chief executive officer and our three other most highly compensated officers (other than the chief financial officer). Certain compensation, including qualified performance-based compensation, will not be subject to the deduction limit if specified requirements are met. The compensation committee reserves the right to use its judgment to authorize compensation payments that may be subject to the limit when the compensation committee believes such payments are appropriate and in the best interests of our company and our stockholders. There can be no assurance that compensation awarded to our executive officers will be treated as qualified performance-based compensation under Section 162(m).

### Agreements with our Named Executive Officers

We have entered into agreements with our named executive officers, as discussed below, that provide benefits to the executives upon their termination of employment in certain circumstances or under which we have agreed to specific compensation elements. Other than as discussed below, our named executive officers do not have employment agreements with us, other than standard employee confidentiality agreements, and are at-will employees.

Vincent J. Milano

We are a party to an employment offer letter with Mr. Milano, our President and Chief Executive Officer. Under the employment offer letter, Mr. Milano is entitled to receive an annual base salary of \$600,000 or such higher amount as our compensation committee or our board of directors may determine. In addition, under the employment offer letter, Mr. Milano is eligible to receive an annual bonus of up to 50% of his base salary based on the achievement of both individual and company performance objectives as developed and determined by our board of directors.

Under the employment offer letter, if we terminate Mr. Milano's employment without cause, prior to a change-in-control, as such terms are defined in the agreement, he will be entitled to severance payments for 24 months equivalent

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to his then-current base salary, payable in accordance with our then-current payroll practices, and benefits continuation for the shorter of 24 months or the date his COBRA continuation coverage expires and to receive any bonus that he earned and that our board of directors approved prior to the termination to the extent not then paid. If we terminate Mr. Milano's employment without cause or Mr. Milano terminates his employment with us for good reason, as such terms are defined in the agreement, upon or within one year after a change in control, he will be entitled to severance payments for 24 months equivalent to his then-current base salary, payable in accordance with our then-current payroll practices, and benefits continuation for the shorter of 24 months or the date his COBRA continuation coverage expires and to receive any bonus that he earned and that our board of directors approved prior to the termination to the extent not then paid and the inducement option award that he received upon his commencement of employment with us will vest in full and become immediately exercisable. Our obligation to provide severance and benefits continuation to Mr. Milano following termination of his employment is subject to Mr. Milano's entering into a separation and release agreement.

Sudhir Agrawal, D. Phil.

We are a party to an employment agreement, as amended, with Dr. Agrawal, our President of Research. The agreement had an initial three-year term that is automatically extended for an additional year on October 19th of each year during the term of the agreement unless either party provides prior written notice to the other that the term of the agreement is not to be extended. As a result, on each October 19th, the term of the agreement, as extended, will be three years. On October 19, 2015, the term was extended from October 19, 2017 to October 19, 2018.

Under the agreement, Dr. Agrawal is currently entitled to receive an annual base salary of \$588,100 or such higher amount as our compensation committee or our board of directors may determine. In addition, under the agreement, as modified in December 2014, Dr. Agrawal is eligible to receive an annual bonus in an amount equal to 50% of his base salary, as determined by the compensation committee or our board of directors.

If we terminate Dr. Agrawal's employment without cause or if he terminates his employment for good reason, as such terms are defined in the agreement, we have agreed to:

- continue to pay Dr. Agrawal his base salary as severance for a period ending on the earlier of the final day of the term of the agreement in effect immediately prior to such termination and the second anniversary of his termination date;
- pay Dr. Agrawal a lump sum cash payment equal to the pro rata portion of the annual bonus that he earned in the year preceding the year in which his termination occurs;
- continue to provide Dr. Agrawal with healthcare, disability and life insurance benefits for a period ending on the earlier of the final day of the term of the agreement in effect immediately prior to the termination date and the second anniversary of the termination date, except to the extent another employer provides Dr. Agrawal with comparable benefits;

- accelerate the vesting of any stock options or other equity incentive awards previously granted to Dr. Agrawal as of the termination date to the extent such options or equity incentive awards would have vested had he continued to be an employee until the final day of the term of the agreement in effect immediately prior to such termination; and

- permit Dr. Agrawal to exercise any vested stock options until the second anniversary of the termination date. If Dr. Agrawal's employment is terminated by him for good reason or by us without cause in connection with, or within one year after, a change in control, as such terms are defined in the agreement, we have agreed to provide Dr. Agrawal with all of the items listed above, except that in lieu of the severance amount described above, we will pay Dr. Agrawal a lump sum cash payment equal to his base salary multiplied by the lesser of the aggregate number of years or portion thereof remaining in his employment term and two years. We have also agreed that if we execute an agreement that provides for our company to be acquired or liquidated, or otherwise upon a change in control, all unvested stock options held by Dr. Agrawal will vest in full.

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Our employment agreement with Dr. Agrawal provides that if all or a portion of the payments made under the agreement are subject to the excise tax imposed by Section 4999 of the Code, or a similar state tax or assessment, we will pay him an amount necessary to place him in the same after-tax position as he would have been had no excise tax or assessment been imposed. Any amounts paid pursuant to the preceding sentence will also be increased to the extent necessary to pay income and excise tax on those additional amounts.

In the event of Dr. Agrawal's death or the termination of his employment due to disability, we have agreed to pay Dr. Agrawal or his beneficiary a lump sum cash payment equal to the pro rata portion of the annual bonus that he earned in the year preceding his death or termination due to disability. Additionally, any stock options or other equity incentive awards previously granted to Dr. Agrawal and held by him on the date of his death or termination due to disability will vest as of such date to the extent such options or equity incentive awards would have vested had he continued to be an employee until the final day of the term of the employment agreement in effect immediately prior to his death or termination due to disability. Dr. Agrawal or his beneficiary will be permitted to exercise such stock options until the second anniversary of his death or termination of employment due to disability.

Dr. Agrawal has agreed that during his employment with us and for a one-year period thereafter, he will not hire or attempt to hire any of our employees or compete with us.

In connection with his transition to his new role of President of Research in December 2014, we and Dr. Agrawal agreed that his employment would continue to be subject to and on the terms and conditions set forth in his employment agreement but for the change in position and the modification of Dr. Agrawal's target bonus to be a fixed at 50% of base salary rather than the 20% to 70% of base salary range set forth in the employment agreement. In addition, Dr. Agrawal acknowledged and agreed that, notwithstanding anything to the contrary set forth in his employment agreement, the transition of his employment from President and Chief Executive Officer to President of Research, and the changes in his authority, duties, responsibilities and reporting structure associated with such event, would not constitute good reason, as defined in the employment agreement, and that he would not and could not terminate his employment for good reason on the basis of such event and changes.

In consideration of the foregoing agreements, we agreed that the vesting of any and all stock options then held by Dr. Agrawal would be accelerated such that, as of that date, such options would be deemed vested to the extent such options would have been vested had Dr. Agrawal continued to be employed by us on October 19, 2017, and any portion of such options that remained unvested after giving effect to such acceleration would continue to vest in accordance with their respective terms. This acceleration did not apply to the options granted to Dr. Agrawal in December 2014 or January 2016.

Louis J. Arcudi, III

We are a party to an employment letter, as amended, with Mr. Arcudi, our Senior Vice President of Operations, Chief Financial Officer, Treasurer and Assistant Secretary. Under the employment letter, Mr. Arcudi was initially entitled to receive an annual base salary of \$315,000, which amount is subject to adjustment from time to time in accordance with normal business practices. In addition, under the employment letter, Mr. Arcudi is entitled to receive an annual bonus in an amount approved by our board or the compensation committee based on the achievement of both individual and company performance objectives as developed and determined by our board of directors.

Under the employment letter, if we terminate Mr. Arcudi's employment without cause at any time, or if he terminates his employment for good reason upon a change in control or within one year after a change of control, as such terms are defined in the agreement, we have agreed to:

- continue to pay Mr. Arcudi his base salary as severance for 12 months following such termination payable in accordance with our then current payroll practices; and

- continue to provide Mr. Arcudi with health and dental benefits for 12 months following such termination, except to the extent another employer provides Mr. Arcudi with comparable benefits.

Our agreement to pay severance and benefits is subject to Mr. Arcudi's entering into a separation and release agreement.

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R. Clayton Fletcher

We are a party to an employment offer letter with Mr. Fletcher, who joined us in January 2015 as our Senior Vice President of Business Development and Strategic Planning. Under the terms of the employment offer letter, Mr. Fletcher is entitled to receive an annual base salary of \$360,000 or such higher amount as our compensation committee or our board of directors may determine. In addition, under the employment offer letter, Mr. Fletcher is eligible to receive an annual bonus of up to 35% of his base salary based on the achievement of both individual and company performance objectives as established by our board of directors. Under the employment offer letter, if we terminate Mr. Fletcher's employment without cause at any time, or if he terminates his employment for good reason upon a change in control or within one year after a change in control, as such terms are defined in the agreement, we have agreed to:

- continue to pay Mr. Fletcher his base salary as severance for 12 months following such termination payable in accordance with our then current payroll practices plus any bonus earned and approved by the board of directors but unpaid at the time of termination;
  
  - continue to provide Mr. Fletcher with health and dental benefits for 12 months following such termination, except to the extent another employer provides Mr. Fletcher with comparable benefits; and
  
  - only in the event of a termination described above that occurs upon or within one year after a change in control, fully vest all options granted to Mr. Fletcher upon the commencement of his employment.
- Our agreement to pay severance and benefits is subject to Mr. Fletcher's entering into a separation and release agreement.

Mark J. Casey

We are a party to an employment offer letter with Mr. Casey, who joined us in June 2015 as our Senior Vice President, General Counsel, and Secretary. Under the terms of the employment offer letter, Mr. Casey is entitled to receive an annual base salary of \$360,000 or such higher amount as our compensation committee or our board of directors may determine. In addition, under the employment offer letter, Mr. Casey is eligible to receive an annual bonus of up to 40% of his base salary based on the achievement of both individual and company performance objectives as established by our board of directors. Under the employment offer letter, if we terminate Mr. Casey's employment without cause at any time, or if he terminates his employment for good reason upon a change in control or within one year after a change in control, as such terms are defined in the agreement, we have agreed to:

- continue to pay Mr. Casey his base salary as severance for 12 months following such termination payable in accordance with our then current payroll practices plus bonus earned and approved by the board of directors but unpaid at the time of termination;



- continue to provide Mr. Casey with health and dental benefits for 12 months following such termination, except to the extent another employer provides Mr. Casey with comparable benefits; and
  - only in the event of a termination described above that occurs upon or within one year after a change in control, fully vest all options granted to Mr. Casey upon the commencement of his employment.
- Our agreement to pay severance and benefits is subject to Mr. Casey's entering into a separation and release agreement.

#### Formal Clawback Policy

In April 2015, ahead of any such requirement in the Dodd-Frank Wall Street Reform and Consumer Protection Act, our compensation committee adopted a formal clawback policy, which will apply in the event we are required to prepare an accounting restatement after the adoption of the clawback policy due to any material noncompliance with any financial reporting requirement under the U.S. federal securities laws. This policy requires us to use reasonable efforts to recover from any of our current or former executive officers who receive incentive-based compensation (including stock

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options awarded as compensation) during the three-year period preceding the date on which we are required to prepare an accounting restatement based on erroneous data, the excess of what would have been paid to such executive officer under the accounting restatement.

## Compensation Committee Report

The compensation committee has reviewed and discussed the Compensation Discussion and Analysis required by Item 402(b) of Regulation S-K with our management. Based on this review and discussion, the compensation committee recommended to our board of directors that the Compensation Discussion and Analysis be included in this proxy statement.

By the compensation committee of the board of directors,

Kelvin Neu, Chairman

Youssef El Zein

Maxine Gowen

Eve E. Slater

## Summary Compensation Table

The table below summarizes compensation paid to or earned by our named executive officers for 2015, 2014 and 2013.

## Summary Compensation Table for Fiscal Year 2015

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Option Awards (\$)(1)	Non-Equity Incentive Plan Compensation (\$)	All Other Compensation (\$)(2)	Total (\$)
Vincent J. Milano	2015	600,000	—	— (3)	288,120	32,950	921,070
President and Chief Executive Officer	2014	50,000	—	3,977,400		2,138	4,029,538

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Sudhir Agrawal, D. Phil. President of Research(4)	2015	588,100	—	— (3)	302,577	33,172	923,849
	2014	570,960	285,480	2,153,475		32,681	3,042,596
	2013	549,000	274,500	1,875,425		31,589	2,730,514
Louis J. Arcudi, III Senior Vice President of Operations, Chief Financial Officer, Treasurer and Assistant Secretary	2015	337,400	—	— (3)	132,261	26,989	496,650
	2014	327,600	98,300	506,700		29,690	962,290
	2013	315,000	94,500	581,957		31,033	1,022,490
Mark J. Casey(5) Senior Vice President, General Counsel and Secretary	2015	182,727	—	1,381,380(3)	71,629	17,614	1,653,350
R. Clayton Fletcher(6) Senior Vice President, Business Development and Strategy	2015	336,818	—	1,857,180(3)	132,032	22,794	2,348,824

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(1) Represents the aggregate grant date fair value of options granted to each of the named executive officers as computed in accordance with ASC 718. These amounts do not represent the actual amounts paid to or realized by the named executive officers. See Note 2(j) to the financial statements in our annual report on Form 10-K for the year ended December 31, 2015 regarding assumptions we made in determining the fair value of option awards.

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(2) “All Other Compensation” for 2015 for each of the named executive officers includes the following:

	Premiums paid by us for all insurance plans (\$)	Company match on 401(k) (\$)
Mr. Milano	25,000	7,950
Dr. Agrawal	25,222	7,950
Mr. Arcudi	19,039	7,950
Mr. Casey	12,132	5,482
Mr. Fletcher	22,794	—

(3) None of our executive officers received an annual equity grant during 2015. Each of Mr. Casey and Mr. Fletcher received a grant of 600,000 options upon commencement of their employment in 2015.

(4) Dr. Agrawal served as our President and Chief Executive Officer throughout 2013 and from January 2014 until November 2014.

(5) Mr. Casey joined our company and became our Senior Vice President, General Counsel and Secretary effective as of June 29, 2015.

(6) Mr. Fletcher joined our company and became our Senior Vice President, Business Development and Strategy effective as of January 26, 2015.

See “Compensation Discussion and Analysis” above for a discussion of annual cash bonuses and the amount of salary and bonus in proportion to total compensation.

## Grants of Plan-Based Awards

The following table sets forth information regarding stock options granted to our named executive officers during 2015.

## Grants of Plan-Based Awards for Fiscal Year 2015

Date of Approval of Grant if Different from Grant	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards Threshold	Target	Maximum	All Other Option Awards: Number of Securities Underlying Options	Exercise or Base Price of Option Awards	Grant Date Fair Value of Option Awards
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Name	Grant Date	Date	(\$)	(\$)	(\$)	(#)(1)	(\$/Sh)	\$(2)
Vincent J. Milano	(3)		—	300,000	468,750	—	—	—
Sudhir Agrawal, D. Phil.	(3)		—	294,050	459,453	—	—	—
Louis J. Arcudi, III	(3)		—	134,960	210,875	—	—	—
Mark J. Casey	(3)		—	144,000	225,000	—	—	—
		6/29/2015						
	(4)	6/9/2015				275,000	3.44	633,133
		6/29/2015						
	(5)	6/9/2015				325,000	3.44	748,247
R. Clayton Fletcher	(3)		—	144,000	225,000	—	—	—
		1/26/2015						
	(4)	12/9/2014				600,000	4.67	1,857,180

(1) The term of these options is ten years. The vesting of these stock options is time-based. See “Compensation Discussion and Analysis — Elements of Executive Compensation — Equity Compensation” for a full description of the vesting terms for these options. See “Agreements with our Named Executive Officers” for further information about acceleration of vesting of options in the event of the termination of employment and/or a change of control.

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- (2) Represents the aggregate grant date fair value of option awards made to the named executive officers in 2015 as computed in accordance with ASC 718. These amounts do not represent the actual amounts paid to or realized by the named executive officers during 2015. See Note 2(j) to the financial statements in our annual report on Form 10-K for the year ended December 31, 2015 regarding assumptions we made in determining the fair value of option awards.
- (3) None of our executive officers received an annual equity grant during 2015. Each of Mr. Casey and Mr. Fletcher received a grant of 600,000 options upon commencement of their employment in 2015.
- (4) Granted as an inducement grant pursuant to Nasdaq Listing Rule 5635(c)(4).
- (5) Granted pursuant to our 2013 Stock Incentive Plan.

## Outstanding Equity Awards at Fiscal Year-End

The following table sets forth information regarding the outstanding stock options held by our named executive officers as of December 31, 2015. None of our named executive officers held shares of unvested restricted stock as of December 31, 2015.

## Outstanding Equity Awards at Fiscal Year-End for 2015

Name	Number of Securities Underlying Unexercised Options (#) Exercisable		Number of Securities Underlying Unexercised Options (#) Unexercisable		Option Exercise Price (\$)	Option Expiration Date
Vincent J. Milano	500,000	(1)	1,500,000	(1)	3.12	12/1/2024
Sudhir Agrawal, D. Phil.(2)	125,000		—		5.1	12/14/2016
	62,500		—		7.05	6/25/2017
	125,000		—		13.28	1/2/2018
	200,000		—		8.7	12/16/2018
	300,000		—		5.24	12/23/2019
	231,000		—		2.74	12/27/2020
	365,000		—		1.157	11/28/2021
	25,551		—		1.16	11/28/2021
	500,000		—		0.69	5/22/2023
	500,000		—		1.5	8/16/2023

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	796,875	(3)	53,125	(3)	2.56	12/10/2023
	212,500	(4)	637,500	(4)	3.97	12/10/2024
Louis J. Arcudi, III	80,000		—		12.25	12/3/2017
	40,000		—		8.7	12/16/2018
	110,000		—		5.24	12/23/2019
	95,000		—		2.74	12/27/2020
	146,000		—		1.157	11/28/2021
	209,000	(5)	139,333	(5)	0.69	5/22/2023
	150,000	(3)	150,000	(3)	2.56	12/10/2023
	50,000	(4)	150,000	(4)	3.97	12/10/2024
Mark J. Casey			600,000	(6)	3.44	6/29/2025
R. Clayton Fletcher			600,000	(7)	4.67	1/26/2025

(1) The shares subject to this option vest as follows:

- 25% of the shares subject to the option vest on the first anniversary of the date of grant; and
- 6.25% of the shares subject to the option vest quarterly from the first anniversary of the date of grant until December 1, 2018 when all shares will be vested.

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(2) Pursuant to our December 2014 letter agreement with Dr. Agrawal, the vesting of all stock options held by Dr. Agrawal as of the letter agreement date was accelerated to the extent that such options would have been vested had Dr. Agrawal continued to be employed by us on October 19, 2017. Stock options that remained unvested after giving effect to this acceleration continue to vest in accordance with the terms of the underlying stock option agreement. See “Agreements with our Named Executive Officers” for further information about acceleration of vesting of Dr. Agrawal’s options in the event of the termination of his employment and/or a change of control.

(3) 6.25% of the shares subject to this option vest quarterly from the date of grant until December 10, 2017 when all shares will be vested. The total number of shares subject to the option equals the sum of the figures in the exercisable and unexercisable columns.

(4) 6.25% of the shares subject to this option vest quarterly from the date of grant until December 10, 2018 when all shares will be vested. The total number of shares subject to the option equals the sum of the figures in the exercisable and unexercisable columns.

(5) The shares subject to this option vest as follows:

- 40% of the shares subject to the option vest on the first anniversary of the date of grant; and
- 20% of the shares subject to the option vest on each of the second, third and fourth anniversaries of the date of grant.

The total number of shares subject to the option equals the sum of the figures in the exercisable and unexercisable columns.

(6) The shares subject to this option vest as follows:

- 25% of the shares subject to the option vest on the first anniversary of the date of grant; and
- 6.25% of the shares subject to the option vest quarterly from the first anniversary of the date of grant until June 29, 2019 when all shares will be vested.

(7) The shares subject to this option vest as follows:

- 25% of the shares subject to the option vest on the first anniversary of the date of grant; and



- 6.25% of the shares subject to the option vest quarterly from the first anniversary of the date of grant until January 26, 2019 when all shares will be vested.

#### Option Exercises and Stock Vested

None of our named executive officers exercised any options during the year ended December 31, 2015.

#### Potential Payments Upon Termination or Change in Control

Under our employment agreement and employment offer letters with our executive officers, we have agreed to provide severance and other benefits in the event of the termination of their employment under specified circumstances. These agreements are described above under the caption "Agreements with our Named Executive Officers." Certain of our named executive officers are entitled to acceleration of vesting in connection with a termination of employment upon or within one year after a change in control for the options the compensation committee granted in November 2011, effective December 5, 2011 and January 3, 2012.

#### Termination of Employment Not In Connection With or Following a Change in Control

The following table sets forth the estimated potential benefits that our named executive officers would be entitled to receive upon their termination of employment with our company (other than a termination in connection with or

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following a change in control of our company) if the named executive officers' employment terminated on December 31, 2015. This table represents estimates only and does not necessarily reflect the actual amounts that would be paid to our named executive officers, which would only be known at the time that they become eligible for payment following their termination.

## Termination of Employment Not In Connection With or Following a Change in Control

Name	Severance Payments (\$)	Bonus Amount (\$)	Value of Accelerated Vesting of Stock Options (\$)(1)	Value of Continuation of Benefits (\$)	Total (\$)
Vincent J. Milano(2)	1,200,000	—	—	31,188	(3) 1,231,188
Sudhir Agrawal, D. Phil.(4)	1,176,200	285,480	28,156	49,213	(5) 1,539,049
Louis J. Arcudi, III(6)	337,400	—	—	15,608	(3) 353,008
Mark J. Casey(6)	360,000	—	—	20,792	(3) 380,792
R. Clayton Fletcher(6)	360,000	—	—	20,792	(3) 380,792

- (1) Calculated by multiplying the number of shares subject to in-the-money options for which vesting would be accelerated by the excess of \$3.09, the closing price of our common stock on December 31, 2015, over the per share exercise prices for such options.
- (2) Following the termination of Mr. Milano's employment without cause, Mr. Milano will be entitled to severance payments for 24 months equivalent to his then-current base salary and benefits continuation for the shorter of 24 months or the date his COBRA continuation coverage expires and to receive any bonus that he earned and that our board of directors approved prior to the termination to the extent not then paid. See "Agreements with our Named Executive Officers" for further information about acceleration of vesting and severance payments.
- (3) This amount represents the estimated cost to us of continuing the named executive officer's healthcare and dental insurance benefits for the shorter of the severance period applicable to such named executive officer or the date his COBRA continuation coverage expires, in each case based on our costs for such benefits at December 31, 2015.
- (4) Following the termination of Dr. Agrawal's employment by him for good reason or by us other than for death, disability or cause, Dr. Agrawal will be entitled to severance payments, a pro rata portion of his bonus for the prior year, if any, benefits continuation and acceleration of vesting of his equity awards to the extent such options or equity incentive awards would have vested had he continued to be an employee until the final day of the term of the agreement in effect immediately prior to such termination. Upon termination of Dr. Agrawal's employment due to death or disability, we have agreed to pay a pro rata portion of his bonus for the prior year and to accelerate the vesting of his equity awards to the extent such options or equity incentive awards would have vested had he continued to be an employee until the final day of the term of the agreement in effect immediately prior to such

termination. See “Agreements with our Named Executive Officers” for further information about acceleration of vesting and severance payments in such circumstances.

- (5) This amount represents the estimated cost to us of continuing the named executive officer’s healthcare, disability, life and dental insurance benefits for the full severance period applicable to such named executive officer based on our costs for such benefits at December 31, 2015.
- (6) Severance payments and benefits continuation will only be paid following termination by us of the named executive officer without cause. See “Agreements with our Named Executive Officers” for further information.

#### Termination of Employment In Connection With or Following a Change in Control

The following table sets forth the estimated potential benefits that our named executive officers would be entitled to receive upon their termination of employment with our company in connection with or following a change in control of our company if the change of control occurred on December 31, 2015 and the named executive officer’s employment was immediately terminated and an estimate regarding any gross-up payments for certain taxes in the event that any payments made in connection with a change in control of our company would be subject to excise tax imposed by Section 4999 of the Code. This table represents estimates only and does not necessarily reflect the actual amounts that

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would be paid to our named executive officers, which would only be known at the time that they become eligible for payment following their termination.

## Termination of Employment In Connection With or Following a Change in Control

Name	Severance Payments (\$)	Bonus Amount (\$)	Value of Accelerated Vesting of Stock Options (\$)(1)	Value of Continuation of Benefits (\$)(2)	Tax Gross-Up Payments (\$)	Total (\$)
Vincent J. Milano(2)	1,200,000	—	—	31,188	(3) —	1,231,188
Sudhir Agrawal, D. Phil.(4)	1,176,200	285,480	28,156	49,213	(5) —	1,539,049
Louis J. Arcudi, III(6)	337,400	—	—	15,608	(3) —	353,008
Mark J. Casey(7)	360,000	—	—	20,792	(3) —	380,792
R. Clayton Fletcher(8)	360,000	—	—	20,792	(3) —	380,792

- (1) Calculated by multiplying the number of shares subject to in-the-money options for which vesting would be accelerated by the excess of \$3.09, the closing price of our common stock on December 31, 2015, and the per share exercise prices for such options.
- (2) Following the termination of Mr. Milano’s employment without cause or if Mr. Milano terminates his employment with us for good reason, upon or within one year after a change in control, he will be entitled to severance payments for 24 months equivalent to his then-current base salary and benefits continuation for the shorter of 24 months or the date his COBRA continuation coverage expires and to receive any bonus that he earned and that our board of directors approved prior to the termination to the extent not then paid and the inducement option award that he received upon his commencement of employment with us will vest in full and become immediately exercisable. See “Agreements with our Named Executive Officers” for further information about acceleration of vesting and severance payments.
- (3) Represents the estimated cost to us of continuing the named executive officers’ healthcare and dental insurance benefits for the shorter of the severance period applicable to such named executive officer or the date his COBRA continuation coverage expires, in each case based on our costs for such benefits at December 31, 2015.
- (4) Following the termination of Dr. Agrawal’s employment in connection with or following a change in control by him for good reason or by us other than for death, disability or cause, Dr. Agrawal will be entitled to a lump sum severance payment, a pro rata portion of his bonus for the prior year, benefits continuation and full acceleration of vesting of his option awards. See “Agreements with our Named Executive Officers” for further information about acceleration of vesting and severance payments in such circumstances.

- (5) Represents the estimated cost to us of continuing the named executive officers' healthcare, disability, life and dental insurance benefits for the applicable severance period based on our costs for such benefits at December 31, 2015.
- (6) Following the termination of Mr. Arcudi's employment in connection with or following a change in control by him for good reason or by us other than for death, disability or cause, Mr. Arcudi will be entitled to severance payments of his then current base salary and benefits continuation for a twelve-month period, payable in accordance with and at the times contemplated by our then current payroll practices.
- (7) Following the termination of Mr. Casey's employment without cause or if Mr. Casey terminated his employment with us for good reason, upon or within one year after a change in control, he will be entitled to 12 months' severance and benefits continuation and to receive any bonus that he earned and that our board of directors approved prior to the termination to the extent not then paid and the option and inducement awards that he received upon his commencement of employment with us would have vested in full and become immediately exercisable.
- (8) Following the termination of Mr. Fletcher's employment without cause or if Mr. Fletcher terminated his employment with us for good reason, upon or within one year after a change in control, he will be entitled to 12 months' severance and benefits continuation and to receive any bonus that he earned and that our board of directors approved prior to the termination to the extent not then paid and the inducement award that he received upon his commencement of employment with us would have vested in full and become immediately exercisable.

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## EQUITY COMPENSATION PLAN INFORMATION

The following table provides information about our common stock that may be issued upon exercise of options and warrants under all of our equity compensation plans as of December 31, 2015. In addition, from time to time, we grant “inducement grants” pursuant to Nasdaq Listing Rule 5635(c)(4).

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options and Warrants (a)	Weighted-Average Exercise Price of Outstanding Options and Warrants (b)	Number of Securities Remaining Available For Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (c)
Equity compensation plans approved by stockholders(1)	13,134,741	\$ 3.43	8,356,669
Equity compensation plans not approved by stockholders(2)	3,150,000	\$ 3.51	—
Total	16,284,741	\$ 3.45	8,356,669

(1) Consists of our:

- 1995 Employee Stock Purchase Plan;
- 1995 Director Stock Option Plan;
- 1997 Stock Incentive Plan;
- 2005 Stock Incentive Plan;
- 2008 Stock Incentive Plan; and
- 2013 Stock Incentive Plan.

Shares are available for future issuance only under our 1995 Employee Stock Purchase Plan and our 2013 Stock Incentive Plan.

(2) Consists of stock options issued as inducement grants as of December 31, 2015. These stock options are generally subject to the same terms and conditions as those awarded pursuant to the plans approved by our stockholders.

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PROPOSAL TWO

APPROVAL, BY NON-BINDING VOTE, OF EXECUTIVE COMPENSATION

We are providing our stockholders the opportunity to vote to approve, on an advisory, non-binding basis, the compensation of our named executive officers as disclosed in this proxy statement in accordance with the SEC's rules. This proposal, which is commonly referred to as "say-on-pay," is required by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, which added Section 14A to the Exchange Act. Consistent with the preference expressed by our stockholders at our 2011 annual meeting of stockholders, we have determined to hold an advisory vote on executive compensation annually.

The compensation committee of our board of directors seeks to achieve the following broad goals in connection with our executive compensation programs and decisions regarding individual compensation:

- attract, retain and motivate the best possible executive talent;
- ensure executive compensation is aligned with our corporate strategies and business objectives, including our short-term operating goals and longer-term strategic objectives;
- promote the achievement of key strategic and financial performance measures by linking short- and long-term cash and equity incentives to the achievement of measurable corporate and individual performance goals; and
- align executives' incentives with the creation of stockholder value.

Our compensation program for our executives generally consists of five elements based upon the foregoing objectives:

- base salary;
- annual cash bonuses;
- stock option awards;



- health care, life insurance and other employee benefits; and
- severance and change in control benefits.

The value of our variable, performance-based compensation is split between short-term compensation in the form of a cash bonus and long-term compensation in the form of stock option awards that vest over time from the date of grant of the option awards and from the time of achievement of performance milestones. The annual cash bonus is intended to provide an incentive to our executives to achieve short-term operational objectives. The stock option awards provide an incentive for our executives to achieve longer-term strategic business goals, which should lead to higher stock prices and increased stockholder value.

The “Executive Compensation” section set forth elsewhere in this proxy statement, including the “Compensation Discussion and Analysis,” describes in detail our executive compensation programs and the decisions made by the compensation committee and the board of directors with respect to the fiscal year ended December 31, 2015.

Our board of directors is asking stockholders to approve a non-binding advisory vote on the following resolution:

RESOLVED, that the compensation paid to the company’s named executive officers, as disclosed pursuant to the compensation disclosure rules of the Securities and Exchange Commission, including the compensation discussion and analysis, the compensation tables and any related material disclosed in this proxy statement, is hereby approved.

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As an advisory vote, this proposal is not binding. The outcome of this advisory vote will not overrule any decision by us or our board of directors (or any committee thereof), create or imply any change to our fiduciary duties or the fiduciary duties of our board of directors (or any committee thereof), or create or imply any additional fiduciary duties on us or our board of directors (or any committee thereof). However, our compensation committee and board of directors value the opinions expressed by our stockholders in their vote on this proposal and will consider the outcome of the vote when making future compensation decisions for named executive officers.

Recommendation of the Board of Directors

Our board of directors recommends that stockholders vote to approve the compensation of our named executive officers by voting FOR this proposal.

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PROPOSAL THREE

RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The audit committee of our board of directors has selected the firm of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2016. Ernst & Young LLP has served as our independent registered public accounting firm since 2002. Although stockholder approval of the audit committee's selection of Ernst & Young LLP is not required by law, our board of directors believes that it is advisable to give stockholders an opportunity to ratify this selection. If this proposal is not approved at the 2016 annual meeting, the audit committee of our board of directors may reconsider its selection.

Representatives of Ernst & Young LLP are expected to be present at the 2016 annual meeting. They will have the opportunity to make a statement if they desire to do so and will also be available to respond to appropriate questions from stockholders.

Recommendation of the Board of Directors

Our board of directors recommends that you vote FOR the ratification of the selection of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2016.

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ACCOUNTING MATTERS

Report of the Audit Committee

The audit committee has reviewed our audited financial statements for the fiscal year ended December 31, 2015 and discussed them with our management and our independent registered public accounting firm.

The audit committee has also received from, and discussed with, our independent registered public accounting firm various communications that our independent registered public accounting firm is required to provide to the audit committee, including the matters required to be discussed by the Auditing Standard No. 16, Communication with Audit Committees, as adopted by the Public Company Accounting Oversight Board.

The audit committee has received from Ernst & Young LLP the letter and other written disclosures required by applicable requirements of the Public Company Accounting Oversight Board regarding its communication with the audit committee concerning independence, and has discussed with Ernst & Young LLP its independence from the Company. The audit committee has also considered whether the provision of other non-audit services by Ernst & Young LLP is compatible with maintaining their independence.

Based on the review and discussions referred to above, the audit committee recommended to our board of directors that the audited financial statements be included in our annual report on Form 10-K for the year ended December 31, 2015.

By the audit committee of the board of directors,

William S. Reardon, Chairman

James Geraghty

Mark Goldberg, M.D.

Independent Registered Public Accounting Firm Fees

We paid Ernst & Young LLP a total of \$710,150 for professional services rendered for the year ended December 31, 2015 and \$628,650 for professional services rendered for the year ended December 31, 2014. The following table provides information about these fees.

Fee Category	2015	2014
Audit Fees	\$ 550,000	\$ 458,000
Audit-Related Fees	120,000	50,000
Tax Fees	38,155	120,650
All Other Fees	1,995	—
Total Fees	\$ 710,150	\$ 628,650

#### Audit Fees

Audit fees consist of fees for the audit of our financial statements, the review of the interim financial statements included in our quarterly reports on Form 10-Q and other professional services provided in connection with statutory and regulatory filings or engagements.

#### Audit-Related Fees

Audit-related fees consist of fees for assurance and related services that are reasonably related to the performance of audits and reviews of our financial statements that are not reported under “Audit Fees.” These services include consultations regarding internal controls, financial accounting and reporting standards and assistance with financings.

#### Tax Fees

Tax fees consist of fees for tax compliance, tax advice and tax planning services. Tax compliance services, which relate to preparation of tax returns, accounted for \$25,000 and \$22,000 of the total tax fees billed in 2015 and 2014,

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respectively. Tax advice and tax planning services primarily relate to consultations on our net operating loss carry forwards and payroll taxes.

All Other Fees

During 2015, all other fees related to our subscription to Ernst & Young's online accounting research tool. Ernst & Young LLP did not collect fees for any other services for 2014.

Our audit committee believes that the non-audit services described above did not compromise Ernst & Young LLP's independence. Our audit committee charter, which you can find by clicking "Investors" and "Corporate Governance" on our website, [www.iderapharma.com](http://www.iderapharma.com), requires that all proposals to engage Ernst & Young LLP for services, and all proposed fees for these services, be submitted to the audit committee for approval before Ernst & Young LLP may provide the services.

Pre-Approval Policies and Procedures

Our audit committee has adopted policies and procedures relating to the approval of all audit and non-audit services that are to be performed by our independent registered public accounting firm. This policy generally provides that we will not engage our independent registered public accounting firm to render audit or non-audit services unless the service is specifically approved in advance by the audit committee or the engagement is entered into pursuant to the pre-approval procedures described below.

From time to time, the audit committee may pre-approve specified types of services that are expected to be provided to us by our independent registered public accounting firm during the next 12 months. Any such pre-approval is detailed as to the particular service or type of services to be provided and is also generally subject to a maximum dollar amount. All of the services described above under the headings "Audit Fees," "Audit-Related Fees," "Tax Fees" and "All Other Fees" were pre-approved by our audit committee.

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TRANSACTIONS WITH RELATED PERSONS

Since January 1, 2015, except as discussed below regarding transactions with 667, L.P., Baker Brothers Life Sciences, L.P. and 14159, L.P., which we refer to collectively as the Funds, which are affiliated with Mr. Baker and Dr. Neu, who are currently members of our board of directors, we have not entered into or engaged in any related party transactions, as defined by the SEC, with our directors, officers and stockholders who beneficially owned more than 5% of our outstanding common stock, as well as affiliates or immediate family members of those directors, officers and stockholders. We believe that the terms of our transactions described below were no less favorable than those that we could have obtained from unaffiliated third parties.

Public Offering

On February 19, 2015, we consummated an underwritten public offering of 23,000,000 shares of our common stock, which we refer to as the February 2015 Offering. The gross proceeds to us from this offering were approximately \$86.25 million, before deducting underwriting discounts and commissions and other offering expenses payable by us.

Certain affiliates of the Funds participated in the February 2015 Offering and purchased in the aggregate 5,333,333 shares of our common stock for an aggregate purchase price of \$19,999,999.

Registration Rights Agreement

On February 9, 2015, we entered into a registration rights agreement with the Funds relating to the registration for resale of the shares of our common stock held by the Funds, including the shares of our common stock that may be issued upon the exercise of warrants. We refer to these securities collectively as the Registrable Shares.

Under the registration rights agreement, we agreed to file a registration statement on Form S-3 with the SEC within 60 days after demand by any of the Funds, to register for resale the Registrable Shares. We also agreed to use our reasonable best efforts to cause the registration statement to become effective as promptly as practicable after filing, and to remain effective until the shares being registered thereunder have been sold or may be sold freely without limitations or restrictions as to volume or manner of sale pursuant to Rule 144. We filed this registration statement with the SEC in March 2016.

The registration rights agreement contains customary covenants and agreements by us, customary indemnification obligations of us and the Funds, including for liabilities under the Securities Act of 1933, as amended. The registration rights agreement terminates upon the occurrence of certain events, including when all Registrable Shares have been sold pursuant to an effective registration statement or when all Registrable Shares have been or may be sold without limitations as to volume or manner of sale pursuant to Rule 144.

#### Policies and Procedures for Related Person Transactions

Our board of directors is committed to upholding the highest legal and ethical conduct in fulfilling its responsibilities and recognizes that related party transactions can present a heightened risk of potential or actual conflicts of interest. Accordingly, as a general matter, it is our preference to avoid related party transactions.

In accordance with our audit committee charter, members of the audit committee, all of whom are independent directors, review and approve all related party transactions for which approval is required under applicable laws or regulations, including SEC and the Nasdaq Listing Rules. Current SEC rules define a related party transaction to include any transaction, arrangement or relationship in which we are a participant and the amount involved exceeds \$120,000, and in which any of the following persons has or will have a direct or indirect interest:

- our executive officers, directors or director nominees;
- any person who is known to be the beneficial owner of more than 5% of our common stock;



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- any person who is an immediate family member, as defined under Item 404 of Regulation S-K, of any of our executive officers, directors or director nominees or beneficial owners of more than 5% of our common stock; or
- any firm, corporation or other entity in which any of the foregoing persons is employed or is a partner or principal or in a similar position or in which such person, together with any other of the foregoing persons, has a 5% or greater beneficial ownership interest.

In addition, the audit committee reviews and investigates any matters pertaining to the integrity of management, including conflicts of interest and adherence to our code of business conduct and ethics. Under our code of business conduct and ethics, our directors, officers and employees are expected to avoid any relationship, influence or activity that would cause or even appear to cause a conflict of interest. Under our code of business conduct and ethics, a director is required to promptly disclose to our board of directors any potential or actual conflict of interest involving him or her. In accordance with our code of business conduct and ethics, the board of directors will determine an appropriate resolution on a case-by-case basis. All directors must recuse themselves from any discussion or decision affecting their personal, business or professional interests.

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SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Based solely on our review of copies of reports filed by individuals and entities required to make filings pursuant to Section 16(a) of the Exchange Act or written representations from such individuals or entities, we believe that during 2015 all filings required to be made by such individuals or entities were timely made in accordance with the Exchange Act, with the exception of one late Form 4 filed by Mr. Geraghty on April 6, 2015 to report the issuance of stock under our director compensation program in lieu of cash and one late Form 4 filed by Dr. Slater on June 11, 2015 to report the grant of an option, which filings were filed late due to administrative error.

By order of the board of directors,  
/s/ Mark J. Casey  
Mark J. Casey, Secretary  
April 25, 2016

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000000000.000000 ext ENDORSEMENT\_LINE\_\_\_\_\_ SACKPACK\_\_\_\_\_ Electronic Voting  
Instructions Available 24 hours a day, 7 days a week! Instead of mailing your proxy, you may choose one of the  
voting methods outlined below to vote your proxy. VALIDATION DETAILS ARE LOCATED BELOW IN THE  
TITLE BAR. Proxies submitted by the Internet or telephone must be received by 11:59 p.m., Eastern Time, on June  
12, 2016. MR A SAMPLE DESIGNATION (IF ANY) ADD 1 ADD 2 ADD 3 ADD 4 ADD 5 ADD 6 Vote by  
Internet • Go to [www.investorvote.com/IDRA](http://www.investorvote.com/IDRA) • Or scan the QR code with your smartphone • Follow the steps outlined  
on the secure website Vote by telephone • Call toll free 1-800-652-VOTE (8683) within the USA, US territories &  
Canada on a touch tone telephone • Follow the instructions provided by the recorded message Using a black ink pen,  
mark your votes with an X as shown in this example. Please do not write outside the designated areas. q IF YOU  
HAVE NOT VOTED VIA THE INTERNET OR TELEPHONE, FOLD ALONG THE PERFORATION, DETACH  
AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE. q Proposals — The Board of Directors  
recommends a vote FOR all the nominees listed and FOR Proposals 2 and 3. + 1. Election of Directors: For Withhold  
For Withhold For Withhold 01 - Dr. Sudhir Agrawal 02 - Mr. Youssef El Zein 03 - Dr. Mark Goldberg For Against  
Abstain ForAgainst Abstain 2. Approval, by non-binding vote, of executive compensation. 3. Ratification of the  
selection of Ernst & Young LLP as our independent registered public accounting firm for the fiscal year ending  
December 31, 2016. Non-Voting Items Change of Address — Please print new address below. Comments — Please print  
your comments below. Authorized Signatures — This section must be completed for your vote to be counted. — Date and  
Sign Below Please sign this proxy exactly as your name appears hereon. Joint owners should each sign personally.  
Trustees and other fiduciaries should indicate the capacity in which they sign. If a corporation or partnership, this  
signature should be that of an authorized officer who should state his or her title. Date (mm/dd/yyyy) — Please print  
date below. Signature 1 — Please keep signature within the box. Signature 2 — Please keep signature within the box.  
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MEETING INFORMATION

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. q IF YOU HAVE NOT VOTED VIA THE INTERNET OR TELEPHONE, FOLD ALONG THE PERFORATION, DETACH AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE. q Proxy — IDERA PHARMACEUTICALS, INC. PROXY SOLICITED BY THE BOARD OF DIRECTORS Annual Meeting of Stockholders — June 13, 2016 Those signing on the reverse side, revoking all prior proxies, hereby appoint(s) Mr. Vincent J. Milano, Mr. Louis J. Arcudi, III and Mr. Mark J. Casey, or each or any of them with full power of substitution, as proxies for those signing on the reverse side to act and vote all shares of stock of Idera Pharmaceuticals, Inc. which the undersigned would be entitled to vote if personally present at the 2016 Annual Meeting of Stockholders of Idera Pharmaceuticals, Inc. (the “Meeting”) and at any adjournment or postponement thereof as indicated upon all matters referred to on the reverse side and described in the Proxy Statement for the Meeting, and, in their discretion, upon any other matters which may properly come before the Meeting. Attendance of the undersigned at the Meeting or at any adjournment or postponement thereof will not be deemed to revoke this proxy unless those signing on the reverse side shall revoke this proxy in writing. THIS PROXY WHEN PROPERLY EXECUTED WILL BE VOTED IN THE MANNER DIRECTED BY THE STOCKHOLDER(S) SIGNING THE REVERSE SIDE AND IN THE DISCRETION OF THE PROXIES UPON ANY OTHER MATTERS WHICH PROPERLY COME BEFORE THE MEETING. IF NO INDICATION IS MADE, THE PROXIES SHALL VOTE “FOR” THE DIRECTOR NOMINEES AND “FOR” PROPOSALS NUMBERED 2 AND 3. PLEASE VOTE, DATE AND SIGN ON OTHER SIDE AND RETURN PROMPTLY IN ENCLOSED ENVELOPE. YOUR VOTE IS IMPORTANT. PLEASE VOTE TODAY.

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