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

SCHEDULE 14A

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 under §240.14a-12

MIRNA THERAPEUTICS, 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:

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- 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.
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 - (2) Form, Schedule or Registration Statement No.:

 - (3) Filing Party:

 - (4) Date Filed:

MIRNA THERAPEUTICS, INC.

2150 Woodward Street, Suite 100
Austin, Texas 78744

**NOTICE OF ANNUAL MEETING OF STOCKHOLDERS
TO BE HELD ON JUNE 29, 2016**

To the Stockholders of Mirna Therapeutics, Inc.:

The Annual Meeting of Stockholders, or the Annual Meeting, of Mirna Therapeutics, Inc., a Delaware corporation, or the Company, will be held on Wednesday, June 29, 2016 at 8:00 a.m. local time at the offices of Latham & Watkins LLP, 885 Third Avenue, New York, New York for the following purposes:

1. To elect three Class I directors to hold office until the 2019 Annual Meeting of Stockholders or until their successors are elected;
2. To ratify the selection, by the audit committee of our board of directors, of Ernst & Young LLP as the independent registered public accounting firm of the Company for its fiscal year ending December 31, 2016; and
3. To transact such other business as may properly come before the Annual Meeting or any adjournment or postponement thereof.

The foregoing items of business are more fully described in the proxy statement accompanying this Notice. Only stockholders who owned the Company's common stock at the close of business on May 2, 2016 may vote at the Annual Meeting or any adjournments that take place.

We have elected to provide our proxy materials to our stockholders over the internet as permitted by the rules of the U.S. Securities and Exchange Commission. As a result, we are mailing most of our stockholders a paper copy of the Notice of Internet Availability of Proxy Materials, or the Notice, but not a paper copy of our proxy statement. This process allows us to provide our proxy materials to our stockholders in a timelier and more readily accessible manner, while reducing the environmental impact and lowering the costs of printing and distributing our proxy materials. The Notice contains instructions on how to access those documents over the internet. The Notice also contains instructions on how to request a paper copy of our proxy materials, including this proxy statement and a form of proxy card or voting instruction card. All stockholders who have previously requested a paper copy of our proxy materials will continue to receive a paper copy of the proxy materials by mail.

You are cordially invited to attend the Annual Meeting in person. Whether or not you plan to attend the Annual Meeting, please vote as soon as possible. You may vote over the internet or by a toll-free telephone number. If, however, you requested to receive paper proxy materials, then you may vote by mailing a complete, signed and dated proxy card or voting instruction card in the envelope provided. Please note that any stockholder attending the Annual Meeting may vote in person, even if the stockholder has already returned a proxy card or voting instruction card.

Our board of directors recommends that you vote "**FOR**" the election of the director nominees named in Proposal No. 1 of the proxy statement and "**FOR**" the ratification of the appointment of Ernst & Young LLP as our independent registered public accounting firm as described in Proposal No. 2 of the proxy statement.

By Order of the Board of Directors:

/s/ PAUL LAMMERS

Paul Lammers, M.D., M.Sc.
President and Chief Executive Officer

Austin, Texas
April 27, 2016

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MIRNA THERAPEUTICS, INC.
2150 Woodward Street, Suite 100
Austin, Texas 78744

**PROXY STATEMENT
FOR THE ANNUAL MEETING OF STOCKHOLDERS**

TO BE HELD ON JUNE 29, 2016

This proxy statement, which includes our Annual Report on Form 10-K for the fiscal year ended December 31, 2015, are available at our website at www.mirnarx.com and at www.proxyvote.com.

**QUESTIONS AND ANSWERS REGARDING THE PROXY MATERIALS
AND THE VOTING PROCESS**

Why am I receiving these proxy materials?

We have made these proxy materials available to you on the internet or, upon your request, have delivered paper proxy materials to you, because the board of directors of Mirna Therapeutics, Inc., or the Company, is soliciting your proxy to vote at the Annual Meeting of Stockholders, or the Annual Meeting, or any adjournments that take place. The Annual Meeting will be held on Wednesday, June 29, 2016 at 8:00 a.m. local time at the offices of Latham & Watkins LLP, 885 Third Avenue, New York, New York. As a stockholder, you are invited to attend the Annual Meeting and are requested to vote on the proposals described in this proxy statement. However, you do not need to attend the Annual Meeting to vote.

What is included in the proxy materials?

The proxy materials include:

- This proxy statement, which includes information regarding the proposals to be voted on at the Annual Meeting, the voting process, corporate governance, the compensation of our directors and certain executive officers, and other required information;
- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2015; and
- The proxy card or a voting instruction card for the Annual Meeting.

The proxy materials are being mailed or made available to stockholders on or about April 27, 2016.

Why did I receive a Notice of Internet Availability of Proxy Materials, or the Notice, in the mail instead of a complete set of paper proxy materials?

We have elected to provide our proxy materials to our stockholders over the internet as permitted by the rules of the U.S. Securities and Exchange Commission (the "SEC"). As a result, we are mailing most of our stockholders a paper copy of the Notice, but not a paper copy of the proxy materials. This process allows us to provide our proxy materials to our stockholders in a timelier and more readily accessible manner, while reducing the environmental impact and lowering the costs of printing and distributing our proxy materials. The Notice contains instructions on how to access the proxy materials over the Internet, and how to request a paper copy of the proxy materials. All stockholders who have

previously elected to receive a paper copy of our proxy materials will continue to receive a paper copy of the proxy materials by mail until the stockholder terminates such election.

Why did I receive a complete set of paper proxy materials in the mail instead of a Notice of Internet Availability of Proxy Materials?

We are providing stockholders who have previously requested to receive paper copies of the proxy materials with paper copies of the proxy materials instead of the Notice. If you would like to reduce the environmental impact and the costs incurred by us in printing and distributing the proxy materials, you may elect to receive all future proxy materials electronically via email or the internet. To sign up for electronic delivery, please follow the instructions provided with your proxy materials and on your proxy card or voting instruction card.

Who can vote at the 2015 Annual Meeting?

Only stockholders of record at the close of business on May 2, 2016 (the "Record Date") will be entitled to vote at the Annual Meeting. As of April 20, 2016, there were 20,830,555 shares of common stock outstanding and entitled to vote.

Stockholder of Record: Shares Registered in Your Name

If, at the close of business on the Record Date, your shares were registered directly in your name with our transfer agent, American Stock Transfer & Trust Company, LLC, then you are a stockholder of record. As a stockholder of record, you may vote in person at the Annual Meeting or vote by proxy. Whether or not you plan to attend the Annual Meeting, please vote as soon as possible by completing and returning the enclosed proxy card or vote by proxy over the telephone or on the internet as instructed below to ensure your vote is counted.

Beneficial Owner: Shares Registered in the Name of a Broker or Bank

If, at the close of business on the Record Date, your shares were not held in your name, but rather in an account at a brokerage firm, bank, dealer or other similar organization, then you are the beneficial owner of shares held in "street name" and these proxy materials are being forwarded to you by that organization. The organization holding your account is considered to be the stockholder of record for purposes of voting at the Annual Meeting. As a beneficial owner, you have the right to direct your broker or other agent how to vote the shares in your account. You are also invited to attend the Annual Meeting. However, because you are not the stockholder of record, you may not vote your shares in person at the Annual Meeting unless you request and obtain a valid proxy from your broker or other agent.

What proposals are scheduled for a vote?

There are two proposals scheduled for a vote at the Annual Meeting:

- Proposal No. 1—To elect three Class I directors to hold office until the 2019 Annual Meeting of Stockholders or until their successors are elected; and
- Proposal No. 2—To ratify the selection, by the audit committee of our board of directors, of Ernst & Young LLP as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2016.

How do I vote?

For Proposal No. 1, you may either vote "**FOR**" all nominees to the board of directors or you may "**WITHHOLD**" your vote for any nominee you specify. For Proposal No. 2, you may either vote "**FOR**" or "**AGAINST**" or you may abstain from voting.

The procedures for voting are as follows:

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record, you may vote in person at the Annual Meeting or vote by proxy by telephone or internet or by mail. Whether or not you plan to attend the Annual Meeting, please vote as soon as possible to ensure your vote is counted. You may still attend the Annual Meeting and vote in person even if you have already voted by proxy.

- **To vote in person.** You may attend the Annual Meeting and we will give you a ballot when you arrive. If you need directions to the meeting, please visit <http://investor.mimmarx.com/events.cfm>.
- **To vote by proxy by telephone or internet.** If you have telephone or internet access, you may submit your proxy by following the instructions provided in the Notice, or if you received paper proxy materials by mail, by following the instructions provided with your proxy materials and on your proxy card or voting instruction card.
- **To vote by proxy by mail.** If you received paper proxy materials, you may submit your proxy by mail by completing and signing your proxy card and mailing it in the enclosed envelope. Your shares will be voted as you have instructed.

Beneficial Owner: Shares Registered in the Name of Broker or Bank

If you are a beneficial owner of shares registered in the name of your broker, bank, dealer or other similar organization, you should have received a proxy card and voting instructions with these proxy materials from that organization rather than from us. Simply complete and mail the proxy card to ensure that your vote is counted. Alternatively, you may vote by telephone or over the internet as instructed by your broker or other agent. To vote in person at the Annual Meeting, you must obtain a valid proxy from your broker or other agent. Follow the instructions from your broker or other agent included with these proxy materials, or contact your broker or bank to request a proxy form.

Can I vote my shares by completing and returning the Notice?

No. The Notice will, however, provide instructions on how to vote by telephone, by internet, by requesting and returning a paper proxy card or voting instruction card, or by submitting a ballot in person at the Annual Meeting.

How many votes do I have?

On each matter to be voted upon, you have one vote for each share of the Company's common stock you own as of the Record Date.

What if I return a proxy card but do not make specific choices?

If you return a signed and dated proxy card without marking any voting selections, your shares will be voted "**FOR**" the election of each nominee for director (Proposal No. 1) and "**FOR**" the ratification of the selection of Ernst & Young LLP as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2016 (Proposal No. 2). If any other matter is properly presented at the Annual Meeting, your proxyholder (one of the individuals named on your proxy card) will vote your shares in his or her discretion.

Who is paying for this proxy solicitation?

We will pay for the entire cost of soliciting proxies. In addition to these mailed proxy materials, our directors, officers and employees may also solicit proxies in person, by telephone, or by other means of communication. Directors, officers and employees will not be paid any additional compensation for soliciting proxies.

What does it mean if I receive more than one proxy card?

If you receive more than one proxy card, your shares are registered in more than one name or are registered in different accounts. Please complete, sign and return each proxy card to ensure that all of your shares are voted.

Can I change my vote after submitting my proxy?

Yes. You can revoke your proxy at any time before the final vote at the Annual Meeting. If you are the stockholder of record of your shares, you may revoke your proxy in any one of three ways:

- You may submit another properly completed proxy with a later date.
- You may send a timely written notice that you are revoking your proxy to the Company's Corporate Secretary at Mirna Therapeutics, Inc., 2150 Woodward Street, Austin, Texas 78744.
- You may attend the Annual Meeting and vote in person. Simply attending the Annual Meeting will not, by itself, revoke your proxy.

If your shares are held by your broker or other agent, you should follow the instructions provided by your broker or agent.

What is the quorum requirement?

A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if stockholders holding at least a majority of the outstanding shares entitled to vote are present at the Annual Meeting. On April 20, 2016, there were 20,830,555 shares outstanding and entitled to vote. Accordingly, we expect that the holders of at least 10,415,278 shares must be present at the Annual Meeting to have a quorum. Your shares will be counted toward the quorum at the Annual Meeting only if you vote in person at the meeting, or you submit a valid proxy vote.

Abstentions and broker non-votes (as described below) will be counted towards the quorum requirement. If there is no quorum, the holders of a majority of shares present and entitled to vote at the meeting in person or represented by proxy may adjourn the Annual Meeting to another date.

How are votes counted?

Votes will be counted by the Inspector of Elections appointed for the Annual Meeting. The Inspector of Elections will separately count "**FOR**," "**WITHHOLD**" and broker non-votes for Proposal No. 1 (the election of directors) and "**FOR**" and "**AGAINST**" votes, abstentions and, if any, broker non-votes for Proposal No. 2 (the ratification of the selection of Ernst & Young LLP as the independent registered accounting firm of the Company for the fiscal year ending December 31, 2016).

If your shares are held by your broker or other agent as your nominee (that is, held beneficially in "street name"), you will need to obtain a proxy form from the institution that holds your shares and follow the instructions included on that form regarding how to instruct your broker or other agent to vote your shares. If you do not give voting instructions to your broker or other agent, your broker or other agent can only vote your shares with respect to "routine" matters (as described below).

What are "broker non-votes"?

If you hold shares beneficially in street name and do not provide your broker with voting instructions, your shares may constitute "broker non-votes." Broker non-votes occur on a matter when a broker is not permitted to vote on that matter without instructions from the beneficial owner and instructions are not given. These matters are referred to as "non-routine" matters. Proposal No. 1, to elect directors, is a non-routine matter, but Proposal No. 2, to ratify the selection of our independent registered public accounting firm, is a "routine" matter. Broker non-votes will not be counted toward the vote total for any proposal at the Annual Meeting.

How many votes are needed to approve each proposal?

- Proposal No. 1—To elect three Class I directors to hold office until the 2019 Annual Meeting of Stockholders or until their successors are elected. The two nominees receiving the most "**FOR**" votes (from the votes of shares present in person or represented by proxy and entitled to vote on the election of directors) will be elected. Broker non-votes will not be counted towards the vote total for this proposal.
- Proposal No. 2—To ratify the selection, by the audit committee of our board of directors, of Ernst & Young LLP as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2016. "**FOR**" votes from the holders of a majority of the shares cast (excluding abstentions and broker non-votes) are required to approve this proposal. Because Proposal No. 2 is considered a "routine" matter, broker non-votes are not expected in connection with this proposal.

How can I find out the results of the voting at the Annual Meeting?

We will disclose final voting results in a Current Report on Form 8-K filed with the SEC within four business days after the Annual Meeting. If final voting results are unavailable at that time, then we intend to file a Current Report on Form 8-K to disclose preliminary voting results and file an amended Current Report on Form 8-K within four business days after the date the final voting results are available.

When are stockholder proposals due for next year's annual meeting?

To be considered for inclusion in the proxy materials for the 2017 Annual Meeting of Stockholders, your proposal must be submitted in writing by December 27, 2016 to the Company's Corporate Secretary at Mirna Therapeutics, Inc., 2150 Woodward Street, Suite 100, Austin, Texas 78744. However, if the meeting is more than 30 days from June 29, 2017, then the deadline will be a reasonable time before we begin to print and mail our proxy materials for that meeting.

If you wish to submit a proposal before the stockholders or nominate a director at the 2017 Annual Meeting of Stockholders, but you are not requesting that your proposal or nomination be included in the proxy materials for that meeting, then you must follow the procedures set forth in our bylaws and, among other things, notify the Company's Corporate Secretary in writing between March 1, 2017 and March 31, 2017. However, if the date of the 2017 Annual Meeting of Stockholders is more than 30 days before or more than 60 days after June 29, 2017, then you must give notice not later than the 90th day prior to that meeting or, if later, the 10th day following the day on which public disclosure of that annual meeting date is first made. You are also advised to review our bylaws, which contain additional requirements regarding advance notice of stockholder proposals and director nominations.

**PROPOSAL NO. 1
ELECTION OF DIRECTORS**

Our board of directors is divided into three classes. Each class consists, as nearly as possible, of one-third of the total number of directors, and each class has a three-year term. Except as otherwise provided by law, vacancies on the board of directors may be filled only by individuals elected by a majority of the remaining directors. A director elected by the board of directors to fill a vacancy in a particular class, including a vacancy created by an increase in the number of directors, shall serve for the remainder of the full term of that class and until such director's successor is elected and qualified, or until such director's earlier death, resignation or removal.

Our board of directors currently consists of eight directors and no vacancies, divided into the three following classes:

- The Class I directors are Elaine V. Jones, Ph.D., Matthew Winkler, Ph.D. and Peter S. Greenleaf, whose current terms will expire at the Annual Meeting;
- The Class II directors are Lawrence M. Alleva and Michael Powell, Ph.D., whose current terms will expire at the 2017 Annual Meeting of Stockholders; and
- The Class III directors are Paul Lammers, M.D., M.Sc., Edward Mathers and Clay B. Siegall, Ph.D., whose current terms will expire at the 2018 Annual Meeting of Stockholders.

Dr. Winkler, Mr. Greenleaf and Dr. Perry Nisen, M.D., Ph.D. have been nominated to serve as Class I directors and have agreed to stand for election. If the nominees for Class I are elected at the Annual Meeting, then each nominee will serve for a three-year term expiring at the 2019 Annual Meeting of Stockholders, or until his or her successor is elected and qualified, or until his or her earlier death, resignation or removal.

Our directors are elected by a plurality of the votes cast. If a choice is specified on the proxy card by a stockholder, the shares will be voted as specified. If a choice is not specified on the proxy card, and authority to do so is not withheld, the shares will be voted "**FOR**" the election of the three nominees for Class I above. If any of the nominees becomes unavailable for election as a result of an unexpected occurrence, shares that would have been voted for the nominee will instead be voted for the election of a substitute nominee proposed by the Company's management or the board of directors. Each person nominated for election has agreed to serve if elected. Our management has no reason to believe that any nominee will be unable to serve.

The following is a brief biography and discussion of the specific attributes, qualifications, experience and skills of each nominee for director and each director whose term will continue after the Annual Meeting. Our board of directors and management encourage each nominee for director and each continuing director to attend the Annual Meeting.

**THE BOARD OF DIRECTORS RECOMMENDS A VOTE
"FOR" EACH OF THE THREE CLASS I NOMINEES FOR DIRECTOR.**

The following table sets forth, for the Class I nominees and for our other current directors who will continue in office after the Annual Meeting, information with respect to their ages and position held within the Company. Dr. Winkler is standing for re-election and Dr. Nisen and Mr. Greenleaf are standing for their initial election by our stockholders.

<u>Name</u>	<u>Age</u>	<u>Position/Office Held With the Company</u>	<u>Director Since</u>
<i>Class I Directors whose terms expire at the Annual Meeting</i>			
Matthew Winkler, Ph.D.		Director	2007
Peter S. Greenleaf		Director	2016
Perry Nisen, M.D., Ph.D.(1)		—	—
<i>Class II Directors whose terms expire at the 2017 Annual Meeting of Stockholders</i>			
Lawrence M. Alleva(1)(3)		Director	2014
Michael Powell, Ph.D.(2)		Director	2012
<i>Class III Directors whose terms expire at the 2018 Annual Meeting of Stockholders</i>			
Paul Lammers, M.D., M.Sc.		Director and Chief Executive Officer	2009
Edward Mathers(2)(3)		Director	2012
Clay B. Siegall, Ph.D.(1)(2)(3)		Director	2013

- (1) Member of the audit committee.
- (2) Member of the compensation committee.
- (3) Member of the nominating and corporate governance committee.

Nominees for Election to a Three-Year Term Expiring at the 2019 Annual Meeting of Stockholders

Perry Nisen, M.D., Ph.D. Dr. Nisen is standing for election at our Annual Meeting. He has been Chief Executive Officer of Sanford Burnham Prebys Medical Discovery Institute, a non-profit medical research institute, since August 2014 and holds the Donald Bren Chief Executive Chair. From June 2004 to September 2014, Dr. Nisen served in various roles at GlaxoSmithKline, including most recently Senior Vice President of Science and Innovation, as well as Chief Medical Officer, Senior Vice President and Oncology Therapy Area Head, Senior Vice President of Cancer Research, Senior Vice President of Clinical Pharmacology and Discovery Medicine. Before that, Dr. Nisen was Divisional Vice President of Cancer Research and Oncology Development at Abbott Laboratories. Dr. Nisen holds a B.S. from Stanford University and M.D. and Ph.D. degrees from the Albert Einstein College of Medicine. Dr. Nisen has been chosen to join our Board because of his medical and scientific expertise, experience in the healthcare industry and broad management experience.

Matthew Winkler, Ph.D. Dr. Matthew Winkler was our founder and has served as a member of our board of directors since December 2007, including as Chairman until October 2012. During 2008 to 2009, Dr. Winkler served as our Executive Chairman. Since January 2013, Dr. Winkler has been the Chairman of the board of directors of Asuragen, Inc. ("Asuragen"), a molecular diagnostic and pharmacogenomics service company, where he also served as the Chief Executive Officer from 2006 to December 2012. Prior to Asuragen, Dr. Winkler was the founder and Chief Executive Officer of Ambion, Inc., a privately held company that developed and sold research reagents for RNA analysis. Until March 2016, Dr. Winkler served on the board of Second Genome, a biotherapeutics company. Dr. Winkler received a B.S. in Genetics and a Ph.D. in Zoology from the University of California at Berkeley. Dr. Winkler was an Assistant and Associate Professor of Zoology at the University of Texas from 1983 to 1991. Dr. Winkler has been chosen to serve on our board of directors due to his management experience in the life sciences and pharmaceutical industries.

Peter S. Greenleaf. Mr. Greenleaf has been the Chief Executive Officer and a Director of Sucampo Pharmaceuticals, Inc. since March 2014 and was appointed chairman of the board in January

2016. In addition, Mr. Greenleaf is currently a Director of Mast Therapeutics, Inc. and has served since November 2015. Prior to his leadership of Sucampo, Mr. Greenleaf was CEO and a board member of Histogenics Corporation, a regenerative medicine company, from June 2013 through February 2014. From April 2006 to June 2013, Mr. Greenleaf was employed by MedImmune LLC, the global biologics arm of AstraZeneca, where he most recently served as President. While at MedImmune, Mr. Greenleaf was instrumental in driving the expansion of MedImmune's pipeline into over 120 clinical and pre-clinical programs and the commercialization of its marketed products. Mr. Greenleaf also served as President of MedImmune Ventures from January 2010 to June 2013, a wholly owned venture capital fund within the AstraZeneca Group, where he led investment in emerging biopharmaceutical, medical device, and diagnostic companies. Prior to serving as President of MedImmune, Mr. Greenleaf was the Chief Commercial Officer of the company, responsible for its commercial, corporate development and strategy functions. Mr. Greenleaf has also held senior commercial roles at Centocor Biotech, Inc. (now Jansen Biotechnology, Johnson & Johnson) from 1998 to 2006 and prior to that Boehringer Mannheim G.m.b.H. (now Roche Holdings) from 1996 to 1998. Mr. Greenleaf currently chairs the Maryland Venture Fund Authority, whose vision is to oversee implementation of InvestMaryland, a public-private partnership to spur venture capital investment in the state. Mr. Greenleaf is also a member of the board of directors of the Biotechnology Industry Organization (BIO), where he also serves on the Governing Board of the Emerging Companies Section. He is also a member of the board of directors of the Pharmaceutical Research and Manufacturers of America (PhRMA). Mr. Greenleaf's previous Board appointments include the University of Maryland Baltimore Foundation, Inc.; Rib-X Pharmaceuticals; LigoCyte Pharmaceuticals; and Corridor Pharmaceuticals. He received a Master of Business Administration degree from St. Joseph's University and a Bachelor of Science degree from Western Connecticut State University. Mr. Greenleaf has been chosen to serve on our board of directors due to his leadership experience and extensive commercialization, strategic planning, and drug development experience in the biopharmaceutical industry.

**THE BOARD OF DIRECTORS RECOMMENDS A VOTE
FOR THE ELECTION OF EACH OF THE ABOVE NAMED NOMINEES**

Directors Continuing in Office Until the 2017 Annual Meeting of Stockholders

Lawrence M. Alleva. Mr. Lawrence M. Alleva joined our board in July 2014. Prior to his retirement in June 2010, Mr. Alleva worked with PricewaterhouseCoopers LLP, or PwC, for 39 years, 28 of which as a partner with the firm. Mr. Alleva served clients primarily in the technology sector, including numerous pharmaceutical and biotechnology companies. Additionally, he served PwC in a variety of office, regional and national practice leadership roles, most recently as the U.S. Ethics and Compliance Leader (Assurance) for PwC from 2006 until his retirement. Mr. Alleva is a Certified Public Accountant (inactive). Mr. Alleva received a Bachelor of Science degree from Ithaca College (magna cum laude) and attended Columbia University's Executive MBA program. Mr. Alleva also serves as a director for public companies Tesaro Inc. and Bright Horizons Family Solutions, and previously served on the board of GlobalLogic Inc. Mr. Alleva has been chosen to serve on our board of directors due to his financial and accounting experience as a director and a public accounting partner serving multiple healthcare, pharmaceutical and biopharmaceutical companies.

Michael Powell, Ph.D. Dr. Michael Powell has served as Chairman of our board of directors since October 2012. Since 1997, Dr. Powell has been a General Partner of Sofinnova Ventures, a venture capital firm. Previously, Dr. Powell has held positions at Genentech, a biotechnology company, Cytel, a research and development company, and Syntex Research Group, a pharmaceutical company. Dr. Powell is currently a director of Dauntless Pharmaceuticals, a biopharmaceutical company, Alvine Pharmaceuticals, a biopharmaceutical company, Ascenta Therapeutics, a biopharmaceutical company, Checkmate Pharmaceuticals, a biopharmaceutical company, Dauntless 1, a biopharmaceutical company, and Ocera Therapeutics, a publicly traded biopharmaceutical company. Dr. Powell is an Adjunct

Professor at the University of Kansas. Dr. Powell is the Board President of the AIDS Vaccine Advocacy Coalition and serves on the advisory board of the Institute for the Advancement of Medical Innovation at the University of Kansas. Dr. Powell received a B.S. in Chemistry from Scarborough College, a Ph.D. in Physical Chemistry from the University of Toronto and completed his post-doctorate work in Bioorganic Chemistry at the University of California. Dr. Powell has been chosen to serve on our board of directors due to his experience with the life sciences and pharmaceutical industries and the venture capital industry.

Directors Continuing in Office Until the 2018 Annual Meeting of Stockholders

Paul Lammers, M.D., M.Sc. Dr. Paul Lammers has served as a member of our board of directors and as our President and Chief Executive Officer since November 2009. Previously, Dr. Lammers was the President of Repros Therapeutics Inc., or Repros Therapeutics, a biopharmaceutical company, from February 2009 until October 2009. From August 2002 until September 2008, Dr. Lammers served as the Chief Medical Officer for EMD Serono, Inc., a biopharmaceutical division of Merck KGaA, a global pharmaceutical and chemical group. Previously, Dr. Lammers served as the Senior Vice President of clinical and regulatory affairs at Zonagen, Inc., which later became Repros Therapeutics. Dr. Lammers began his career with Organon International, a pharmaceutical company, spending eight years in the commercial and clinical operations in Europe and the United States. Dr. Lammers received a M.Sc. and M.D. from the Catholic University (Radboud University) in Nijmegen, The Netherlands. Dr. Lammers has been chosen to serve on our board of directors due to his management experience in multiple pharmaceutical and biopharmaceutical companies and drug development.

Edward Mathers. Mr. Edward Mathers has served as a member of our board of directors since October 2012. Since August 2008, Mr. Mathers has been a Partner at New Enterprise Associates, Inc., or NEA, a private venture capital firm focusing on technology and healthcare investments. Mr. Mathers serves on the board of directors of the following pharmaceutical companies: Amplyx Pharmaceuticals, Inc., ObsEva SA, SunLogic, LLC, Ziarco Group Limited, Envisia Therapeutics, Inc., Ra Pharmaceuticals, Inc., Rhythm Pharmaceuticals, and Lumos Pharma. Mr. Mathers also serves on the board of directors of Liquidia Technologies, a biotechnology company. From 2002 to 2008, Mr. Mathers served as Executive Vice President, Corporate Development and Venture at MedImmune, Inc. ("MedImmune"), and led its venture capital subsidiary, MedImmune Ventures, Inc. Before joining MedImmune in 2002, he was Vice President, Marketing and Corporate Licensing and Acquisitions at Inhale Therapeutic Systems. Previously, Mr. Mathers spent 15 years at Glaxo Wellcome, Inc. where he held various sales and marketing positions. Mr. Mathers received a B.S. in Chemistry from North Carolina State University. Mr. Mathers has been chosen to serve on our board of directors due to his experience with the healthcare and pharmaceutical industries and his broad management experience.

Clay B. Siegall, Ph.D. Dr. Clay B. Siegall has served a member of our board of directors since January 2013. Dr. Siegall founded Seattle Genetics, Inc. ("Seattle Genetics"), a biotechnology company, in 1997, where he has served as the Chief Executive Officer since November 2002, as the President since June 2000 and as the Chairman of the board of directors since March 2004. Dr. Siegall also served as the Chief Scientific Officer of Seattle Genetics from December 1997 until November 2002. Dr. Siegall currently serves on the board of directors of Alder BioPharmaceuticals, Inc., a biopharmaceutical company, and Ultragenyx Pharmaceutical, a pharmaceutical company. Prior to co-founding Seattle Genetics, Dr. Siegall was with the Bristol-Myers Squibb Pharmaceutical Research Institute from 1991 to 1997, most recently as a Principal Scientist. From 1988 to 1991, Dr. Siegall was a Staff Fellow/Biotechnology Fellow at the National Cancer Institute, National Institutes of Health. Dr. Siegall received a B.S. in Zoology from the University of Maryland and a Ph.D. in Genetics from George Washington University. Dr. Siegall has been chosen to serve on our board of directors due to his experience as a director and executive of multiple healthcare and biopharmaceutical companies.

PROPOSAL NO. 2
RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The audit committee of our board of directors has selected Ernst & Young LLP, or EY, as our independent registered public accounting firm for the year ending December 31, 2016, and is seeking ratification of such selection by our stockholders at the Annual Meeting. EY has audited our financial statements for the fiscal years ended December 31, 2015 and 2014. Representatives of EY are expected to be present at the Annual Meeting. They will have an opportunity to make a statement if they so desire and will be available to respond to appropriate questions

Neither our bylaws nor other governing documents or law require stockholder ratification of the selection of EY as our independent registered public accounting firm. However, the audit committee is submitting the selection of EY to our stockholders for ratification as a matter of good corporate practice. If our stockholders fail to ratify the selection, the audit committee will reconsider whether or not to retain EY. Even if the selection is ratified, the audit committee in its discretion may select a different independent registered public accounting firm at any time during the year if they determine that such a change would be in the best interests of the Company and our stockholders.

Principal Accountant Fees and Services

For the fiscal years ended December 31, 2015 and 2014, EY billed the approximate fees set forth below. All fees included below were approved by the audit committee.

	Year Ended December 31,	
	2015	2014
Audit Fees(1)	\$ 634,206	\$ 550,000
Audit-Related Fees	—	—
Tax Fees	—	—
All Other Fees	—	—
Total All Fees	\$ 634,206	\$ 550,000

- (1) Consists of fees billed for professional services rendered for the audit of our annual financial statements, quarterly interim reviews, and services provided in connection with our securities offerings and registration statements.

Pre-Approval Policies and Procedures

The audit committee has adopted a policy for the pre-approval of all audit and non-audit services to be performed for the Company by the independent registered public accounting firm. This policy is set forth in the charter of the audit committee and available at <http://investor.mirnarx.com/corporate-governance.cfm>. The audit committee approved all of the audit, audit-related, tax and other services provided by EY since our initial public offering in September 2015 and the estimated costs of those services. Actual amounts billed, to the extent in excess of the estimated amounts, are periodically reviewed and approved by the audit committee. The audit committee has considered the role of EY in providing audit and audit-related services to the Company and has concluded that such services are compatible with EY's role as the Company's independent registered public accounting firm.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE FOR RATIFICATION OF OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM.

REPORT OF THE AUDIT COMMITTEE OF THE BOARD OF DIRECTORS

The material in this report is not "soliciting material," is not deemed "filed" with the SEC, and is not to be incorporated by reference into any filing of the Company under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.

The primary purpose of the audit committee is to oversee our financial reporting processes on behalf of our board of directors. The audit committee's functions are more fully described in its charter, which is available on our website at <http://investor.mirnarx.com/corporate-governance.cfm>.

In fulfilling its oversight responsibilities, the audit committee reviewed and discussed with management the Company's audited financial statements for the fiscal year ended December 31, 2015. The audit committee has discussed with EY, the Company's independent registered public accounting firm, the matters required to be discussed by Auditing Standard No. 16, "Communications with Audit Committees," issued by the Public Company Accounting Oversight Board, or PCAOB. In addition, the audit committee has discussed with EY their independence, and received from EY the written disclosures and the letter required by Ethics and Independence Rule 3526 of the PCAOB. Finally, the audit committee discussed with EY, with and without management present, the scope and results of EY's audit of the financial statements for the fiscal year ended December 31, 2015.

Based on these reviews and discussions, the audit committee has recommended to our board of directors that such audited financial statements be included in our Annual Report on Form 10-K for the year ended December 31, 2015 for filing with the SEC.

Audit Committee

Lawrence M. Alleva, Chairman

Elaine V. Jones

Clay B. Siegall, Ph.D.

CORPORATE GOVERNANCE

Board Composition

Director Independence

Our board of directors currently consists of eight members. Our board of directors has determined that all of our directors, other than Dr. Paul Lammers, qualify as "independent" directors in accordance with the NASDAQ listing requirements. Dr. Lammers is not considered independent because he is an employee of Mirra. The NASDAQ independence definition includes a series of objective tests, such as that the director is not, and has not been for at least three years, one of our employees and that neither the director nor any of his family members has engaged in various types of business dealings with us. In addition, as required by NASDAQ rules, our board of directors has made a subjective determination as to each independent director that no relationships exist, which, in the opinion of our board of directors, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In making these determinations, our board of directors reviewed and discussed information provided by the directors and us with regard to each director's business and personal activities and relationships as they may relate to us and our management. There are no family relationships among any of our directors or executive officers.

Classified Board of Directors

In accordance with our amended and restated certificate of incorporation, our board of directors is divided into three classes with staggered, three-year terms as set forth below. At each annual meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election.

- The Class I directors are Dr. Jones, Dr. Winkler and Mr. Greenleaf, and their terms will expire at the Annual Meeting;
- The Class II directors are Mr. Alleva and Dr. Powell, and their terms will expire at the 2017 Annual Meeting of Stockholders; and
- The Class III directors are Dr. Lammers, Mr. Mathers and Dr. Siegall, and their terms will expire at 2018 Annual Meeting of Stockholders.

The authorized number of directors may be changed only by resolution of the board of directors. Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. The division of our board of directors into three classes with staggered three-year terms may delay or prevent a change of our management or a change in control of our company.

Leadership Structure of the Board

Our board of directors has separated the positions of Chairman of the board and Chief Executive Officer. Separating these positions 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. The board recognizes the time, effort and energy that the Chief Executive Officer is required to devote to his position in the current business environment, as well as the commitment required to serve as Chairman of the board, particularly as the board's oversight responsibilities continue to grow. While our bylaws and corporate governance guidelines do not require that our Chairman and Chief Executive Officer positions be separate, the board believes that having separate positions and having an independent outside director serve as Chairman is the appropriate leadership structure for us and demonstrates our commitment to good

corporate governance. However, our board of directors will continue to periodically review our leadership structure and may make such changes in the future as it deems appropriate.

Role of Board in Risk Oversight Process

Risk assessment and oversight are an integral part of our governance and management processes. Our board of directors encourages management to promote a culture that incorporates risk management into our corporate strategy and day-to-day business operations. Management discusses strategic and operational risks at regular management meetings, and conducts specific strategic planning and review sessions during the year that include a focused discussion and analysis of the risks facing us. Throughout the year, senior management reviews these risks with the board of directors at regular board meetings as part of management presentations that focus on particular business functions, operations or strategies, and presents the steps taken by management to mitigate or eliminate such risks.

Our board of directors does not have a standing risk management committee, but rather administers this oversight function directly through our board of directors as a whole, as well as through various standing committees of our board of directors that address risks inherent in their respective areas of oversight. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure, our audit committee is responsible for overseeing our major financial risk exposures and the steps our management has taken to monitor and control these exposures. The audit committee also monitors compliance with legal and regulatory requirements. Our nominating and governance committee monitors the effectiveness of our corporate governance guidelines and considers and approves or disapproves any related-persons transactions. Our compensation committee assesses and monitors whether any of our compensation policies and programs has the potential to encourage excessive risk-taking.

Meetings of the Board of Directors and Committees

During 2015, the board of directors met thirteen times, the audit committee met six times, and the compensation committee met one time. The nominating and corporate governance committee did not meet during 2015. In that year, each incumbent director attended at least 75% of the meetings of the board of directors and the committees on which he served.

Board Committees

Audit Committee

Our audit committee oversees our corporate accounting and financial reporting process. Among other matters, the audit committee:

- appoints our independent registered public accounting firm;
- evaluates the independent registered public accounting firm's qualifications, independence and performance;
- determines the engagement of the independent registered public accounting firm;
- reviews and approves the scope of the annual audit and the audit fee;
- discusses with management and the independent registered public accounting firm the results of the annual audit and the review of our quarterly financial statements;
- approves the retention of the independent registered public accounting firm to perform any proposed permissible non-audit services;

- monitors the rotation of partners of the independent registered public accounting firm on our engagement team as required by law;
- is responsible for reviewing our financial statements and our management's discussion and analysis of financial condition and results of operations to be included in our annual and quarterly reports to be filed with the SEC;
- reviews our critical accounting policies and estimates; and
- annually reviews the audit committee charter and the committee's performance.

The current members of our audit committee are Mr. Alleva, who serves as the chairman of the committee, Dr. Jones and Dr. Siegall. After the Annual Meeting, assuming the election of the three Class I nominees set forth herein, our audit committee will be composed of Mr. Alleva, as chairman, Mr. Greenleaf and Dr. Nisen.

Assuming the election of the three Class I nominees set forth herein, each of the expected members of our audit committee will meet the requirements for financial literacy under the applicable rules and regulations of the SEC and NASDAQ. Our board of directors has determined that Mr. Alleva is an audit committee financial expert as defined under the applicable rules of the SEC and has the requisite financial sophistication as defined under the applicable rules and regulations of NASDAQ. Under the rules of the SEC, members of the audit committee must also meet heightened independence standards. Our board of directors has determined that, assuming the election of the three Class I nominees set forth herein, each the expected members of our audit committee will be independent under the heightened independence standards under the applicable rules of NASDAQ. The audit committee operates under a written charter that satisfies the applicable standards of the SEC and NASDAQ. A copy of the audit committee charter is available to security holders on the Company's website at <http://investor.mimmarx.com/corporate-governance.cfm>.

Compensation Committee

Our compensation committee reviews and recommends policies relating to compensation and benefits of our officers and employees. The compensation committee reviews and recommends corporate goals and objectives relevant to compensation of our Chief Executive Officer and other executive officers, evaluates the performance of these officers in light of those goals and objectives and recommends to our board of directors the compensation of these officers based on such evaluations. The compensation committee also recommends to our board of directors the issuance of stock options and other awards under our stock plans. The compensation committee will review and evaluate, at least annually, the performance of the compensation committee and its members, including compliance by the compensation committee with its charter. The current members of our compensation committee are Dr. Powell, who serves as the chairperson of the committee, Dr. Siegall and Mr. Mathers. Each of the members of our compensation committee is independent under the applicable rules and regulations of NASDAQ, is a "non-employee director" as defined in Rule 16b-3 promulgated under the Exchange Act and is an "outside director" as that term is defined in Section 162(m) of the U.S. Internal Revenue Code of 1986, as amended, or Section 162(m). The compensation committee operates under a written charter that satisfies the applicable standards of the SEC and NASDAQ. A copy of the compensation committee charter is available to security holders on the Company's website at <http://investor.mimmarx.com/corporate-governance.cfm>.

Our compensation committee has retained Radford, Inc. ("Radford") a nationally recognized compensation consulting firm, to serve as its independent compensation consultant and to conduct market research and analysis on our various executive positions, to assist the committee in developing appropriate incentive plans for our executives on an annual basis, to provide the committee with advice and ongoing recommendations regarding material executive compensation decisions, and to review

compensation proposals of management. Radford reports directly to the compensation committee and does not provide any non-compensation related services to us. In compliance with the disclosure requirements of the SEC regarding the independence of compensation consultants, Radford addressed each of the six independence factors established by the SEC with our compensation committee. Its responses affirmed the independence of Radford on executive compensation matters. Based on this assessment, our compensation committee determined that the engagement of Radford does not raise any conflicts of interest or similar concerns. In addition, our compensation committee evaluated the independence of its other outside advisors to the compensation committee, including outside legal counsel, considering the same independence factors and concluded their work for our compensation committee does not raise any conflicts of interest. Our compensation committee operates under a written charter that satisfies the applicable standards of the SEC and NASDAQ.

Nominating and Corporate Governance Committee

The nominating and corporate governance committee is responsible for making recommendations to our board of directors regarding candidates for directorships and the size and composition of our board of directors. In addition, the nominating and corporate governance committee is responsible for overseeing our corporate governance policies and reporting and making recommendations to our board of directors concerning governance matters. The current members of our nominating and corporate governance committee are Mr. Mathers, who serves as the chairman of the committee, Dr. Siegall and Mr. Alleva. Mr. Mathers serves as the chairman of the committee. Each of the members of our nominating and corporate governance committee is an independent director under the applicable rules and regulations of NASDAQ relating to nominating and corporate governance committee independence. The nominating and corporate governance committee operates under a written charter. A copy of the nominating and corporate governance committee charter is available to security holders on the Company's website at <http://investor.mimnarx.com/corporate-governance.cfm>.

Board Diversity

Our nominating and corporate governance committee is responsible for reviewing with the board of directors, on an annual basis, the appropriate characteristics, skills and experience required for the board of directors as a whole and its individual members. In evaluating the suitability of individual candidates (both new candidates and current members), the nominating and corporate governance committee, in recommending candidates for election (and, in the case of vacancies, appointing), and the board of directors, in approving such candidates, will take into account many factors, including the following:

- personal and professional integrity;
- ethics and values;
- experience in corporate management, such as serving as an officer or former officer of a publicly held company;
- experience in the industries in which we compete;
- experience as a board member or executive officer of another publicly held company;
- diversity of expertise and experience in substantive matters pertaining to our business relative to other board members;
- conflicts of interest; and
- practical and mature business judgment.

Currently, our board of directors evaluates each individual in the context of the board of directors as a whole, with the objective of assembling a group that can best maximize the success of the business and represent stockholder interests through the exercise of sound judgment using its diversity of experience in these various areas.

Code of Business Conduct and Ethics

We have adopted a code of business conduct and ethics that applies to all of our employees, officers and directors, including those officers responsible for financial reporting. The code of business conduct and ethics is available on our website at <http://investor.mirnarx.com/corporate-governance.cfm>. We will disclose any substantive amendments to the code of business conduct and ethics, or any waiver of its provisions, on our website. The reference to our website does not constitute incorporation by reference of the information contained at or available through our website.

Limitation on Liability and Indemnification Matters

Our amended and restated certificate of incorporation contains provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which the director derived an improper personal benefit.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that we are required to indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. Our amended and restated bylaws also provide that we are obligated to advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether we would otherwise be permitted to indemnify him or her under Delaware law.

We have entered and expect to continue to enter into agreements to indemnify our directors, executive officers and other employees as determined by our board of directors. With specified exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or proceeding brought against them by reason of the fact that they are or were our agents. We believe that these provisions in our amended and restated certificate of incorporation and amended and restated bylaws and indemnification agreements are necessary to attract and retain qualified directors and officers. We also maintain directors' and officers' liability insurance. This description of the limitation of liability and indemnification provisions of our amended and restated certificate of incorporation, of our amended and restated bylaws and of our indemnification agreements is qualified in its entirety by reference to these documents.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against our directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful,

might benefit us and our stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage. To the extent the indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. At present, there is no pending litigation or proceeding involving any of our directors, officers or employees for which indemnification is sought, and we are not aware of any threatened litigation that may result in claims for indemnification.

Director Attendance at Annual Meetings

Our board of directors has a policy of encouraging director attendance at our annual meetings of stockholders, but attendance is not mandatory. Our board of directors and management team encourage all of our directors to attend the Annual Meeting.

Stockholder Communications with the Board of Directors

A stockholder may communicate with the board of directors, or an individual director, by sending written correspondence to the Company's Corporate Secretary at Mirna Therapeutics, Inc., 2150 Woodward Street, Suite 100, Austin, Texas 78744. The Corporate Secretary will review such correspondence and forward it to the board of directors, or an individual director, as appropriate.

Compensation Committee Interlocks and Insider Participation

During 2015, Dr. Powell, Mr. Mathers, and Dr. Siegall served as members of our compensation committee. During 2015, none of the members of our compensation committee has at any time been one of our officers or employees. None of our executive officers currently serves, or in the past year has served, as a member of the board of directors or compensation committee of any entity that has one or more executive officers on our board of directors or compensation committee.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following is a description of transactions since January 1, 2015 to which we have been a party, in which the amount involved exceeds \$120,000, and in which any of our directors, executive officers or holders of more than 5% of our capital stock, or an affiliate or immediate family member thereof, had or will have a direct or indirect material interest.

Indemnification Agreements and Directors' and Officers' Liability Insurance

We have entered into indemnification agreements with each of our directors and executive officers. These agreements, among other things, require us to indemnify each director and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, penalties fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer.

Investor Rights Agreements

We have entered into an amended and restated investor rights agreement with certain holders of our common stock. As of December 31, 2015, the holders of approximately 13.9 million shares of our common stock are entitled to rights with respect to the registration of their shares under the Securities Act.

Policies and Procedures for Related Party Transactions

Our board of directors has adopted a written related person transaction policy setting forth the policies and procedures for the review and approval or ratification of related person transactions. This policy covers, with certain exceptions set forth in Item 404 of Regulation S-K under the Securities Act, any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships in which we were or are to be a participant, where the amount involved exceeds \$120,000 and a related person had or will have a direct or indirect material interest, including, without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related person. In reviewing and approving any such transactions, our audit committee is tasked to consider all relevant facts and circumstances, including, but not limited to, whether the transaction is on terms comparable to those that could be obtained in an arm's length transaction with an unrelated third party and the extent of the related person's interest in the transaction.

NON-EMPLOYEE DIRECTOR COMPENSATION

While we did not maintain a formal director compensation policy from January 1, 2015 until our initial public offering in October 2015, during this period, our independent directors, who we considered to be those non-employee directors not associated with a principal investor in our company, including Drs. Goodman and Siegall and Mr. Alleva, received an annual cash retainer of \$25,000 for service as a director, pro-rated for partial years of service, and an additional cash retainer of \$3,000 per meeting of the board or a committee of the board attended in person and \$2,000 per meeting of the board or committee of the board attended telephonically.

In connection with our initial public offering in October 2015, we approved a compensation policy for our non-employee directors, or the Director Compensation Program. Pursuant to the Director Compensation Program, our non-employee directors are entitled to receive cash compensation, paid quarterly in arrears, as follows:

- Each non-employee director receives an annual cash retainer in the amount of \$35,000 per year.
- Any non-employee Chairman receives an additional annual cash retainer in the amount of \$25,000 per year.
- The chairperson of the audit committee receives additional annual cash compensation in the amount of \$15,000 per year for such chairperson's service on the audit committee. Each non-chairperson member of the audit committee receives additional annual cash compensation in the amount of \$7,500 per year for such member's service on the audit committee.
- The chairperson of the compensation committee receives additional annual cash compensation in the amount of \$10,000 per year for such chairperson's service on the compensation committee. Each non-chairperson member of the compensation committee receives additional annual cash compensation in the amount of \$5,000 per year for such member's service on the compensation committee.
- The chairperson of the nominating and corporate governance committee receives additional annual cash compensation in the amount of \$7,500 per year for such chairperson's service on the nominating and corporate governance committee. Each non-chairperson member of the nominating and corporate governance committee receives additional annual cash compensation in the amount of \$3,750 per year for such member's service on the nominating and corporate governance committee.

Under the Director Compensation Program, upon a director's initial appointment or election to our board of directors, such non-employee director will receive an option (the Initial Grant) to purchase 12,000 shares of our common stock (subject to adjustment as provided in the applicable equity plan). In addition, each non-employee director who has been serving as a director for at least three months prior to any annual stockholder meeting following the date of this offering and will continue to serve as a director immediately following such annual stockholder meeting will be automatically granted, on the date of such annual stockholder meeting, an option (the Annual Grant) to purchase 6,000 shares of our common stock (subject to adjustment as provided in the applicable equity plan). The Initial Grant will vest in substantially equal installments on each of the first three anniversaries of the applicable grant date, subject to continued service through each applicable vesting date, and the Annual Grant will vest in full on the earlier of the first anniversary of the applicable grant date or immediately prior to the next annual stockholder meeting after the applicable grant date, subject to continued service through such vesting date. In addition, pursuant to the terms of the Director Compensation Program, all equity awards outstanding and held by a non-employee director will vest in full immediately prior to the occurrence of a change in control. No Initial Grants or Annual Grants were made to our directors during fiscal year 2015, although we did grant options to our directors in connection with our initial public offering as described in more detail below. In March

2016, the Director Compensation Program was amended to increase the Initial Grant to be an option to purchase 20,000 shares and the Annual Grant to be an option to purchase 10,000 shares.

In fiscal 2015, prior to our initial public offering, our board of directors granted options to purchase shares of our common stock to each independent director pursuant to our 2008 Long term Incentive Plan, as amended. In March 2015, we granted to each of Drs. Siegall and Goodman an option to purchase 4,000 shares of our common stock and Mr. Alleva an option to purchase 2,666 shares of our common stock, in consideration for their service as independent directors on our board and each having an exercise price equal to \$6.15. In June 2015, we granted to (i) each of Drs. Powell and Siegall an option to purchase 6,666 shares of our common stock, (ii) each of Drs. Jones and Winkler and Mr. Mathers an option to purchase 4,000 shares of our common stock, (iii) Dr. Goodman an option to purchase 13,333 shares of our common stock and (iv) Mr. Alleva an option to purchase 8,000 shares of our common stock, all having an exercise price equal to \$6.45. Each option grant made to our independent directors was immediately vested and exercisable with respect to 20% of the shares underlying the option and the remaining shares vest and become exercisable in substantially equal installments every six months over four years, subject to continued service. In the event of a change of control while an independent director is still providing services to us, the options held by the independent director will become fully vested and exercisable immediately prior to such change in control.

Upon the pricing of our initial public offering in October 2015, each of Drs. Powell, Jones and Winkler and Mr. Mathers was granted an option to purchase 7,200 shares of our common stock, Mr. Alleva was granted an option to purchase 10,533 shares of our common stock and Dr. Siegall was granted an option to purchase 12,000 shares of our common stock, each having an exercise price per share equal to \$7.00 per share. The options vest and become exercisable in substantially equal installments on each of the first three anniversaries of the applicable grant date, subject to continued service through each applicable vesting date.

We reimburse all of our non-employee directors for all reasonable and customary business expenses incurred providing services to us in accordance with Company policy.

2015 Director Compensation Table

The following table sets forth information for the year ended December 31, 2015 regarding the compensation awarded to, earned by or paid to our non-employee directors:

<u>Name(1)</u>	<u>Fees Earned or Paid in Cash (\$)</u>	<u>Option Awards (\$)(1)(2)</u>	<u>Total (\$)</u>
Michael Powell, Ph.D.	17,500	65,064	82,564
Elaine V. Jones, Ph.D.	10,625	53,227	63,852
Edward Mathers	11,875	53,227	65,102
Matthew Winkler, Ph.D.	8,750	53,227	61,977
Lawrence M. Alleva	60,438	100,962	161,400
Clay B. Siegall, Ph.D.	57,813	109,049	166,862
Corey Goodman, Ph.D.(3)	33,000	79,547	112,547

- (1) The amounts reported in the Option Awards column represent the grant date fair value of the stock options granted to the non-employee members of our board of directors during 2015 as computed in accordance with ASC Topic 718, excluding the impact of estimated forfeitures related to service-based vesting provisions. The assumptions used in calculating the grant date fair value of the stock options reported in the Option Awards column are set forth in Note 8 to the audited financial statements included in our Annual Report on Form 10-K filed on March 29, 2016. Note that the amounts reported in this column reflect the accounting cost for these stock options, and

do not correspond to the actual economic value that may be received by the non-employee members of our board of directors from the options.

- (2) As of December 31, 2015, our non-employee directors held the following outstanding options to purchase our common stock:

<u>Name</u>	<u>Shares Underlying Outstanding Options</u>
Michael Powell, Ph.D	13,866
Elaine V. Jones, Ph.D.	11,200
Edward Mathers	11,200
Matthew Winkler, Ph.D	11,200
Lawrence Alleva	34,532
Clay Siegall, Ph.D	50,885
Corey Goodman, Ph.D	35,948

Our non-employee directors did not hold any other outstanding equity awards as of December 31, 2015.

- (3) Effective July 10, 2015, Dr. Goodman resigned from our board of directors and joined our Scientific Advisory Board as Chairman.

EXECUTIVE OFFICERS

The following table sets forth information regarding our executive officers as of March 31, 2016.

<u>Name</u>	<u>Age</u>	<u>Position(s)</u>
Paul Lammers, M.D., M.Sc.	58	Director, President and Chief Executive Officer
Miguel Barbosa, Ph.D.	58	Chief Scientific Officer
Vincent O'Neill, M.D.	47	Chief Medical Officer
Alan Fuhrman	59	Chief Financial Officer
Casi DeYoung	45	Chief Business Officer
Jon Irvin	58	Vice President of Finance

Dr. Lammers' biographical information is set forth in "*Proposal No. 1—Election of Directors*" in this proxy statement.

Miguel Barbosa, Ph.D. Dr. Barbosa has served as our Chief Scientific Officer since September 2015. From April 2015 to September 2015, Dr. Barbosa served as an Executive in Residence, Therapeutic Innovation, at Johnson & Johnson Innovation, a pharmaceutical company and part of The Johnson & Johnson Family of Companies ("J&J") where he led the identification and development of new research and development and business models. Previously, Dr. Barbosa served as Vice President, Immunology Research & External Innovation, from June 2010 to March 2015 and as Vice President, Immunology Research, from June 2009 to June 2010 at Janssen Research & Development L.L.C., a J&J company. From 2005 to 2009, Dr. Barbosa served in various roles, including Vice President, Discovery Research, at Centocor Research & Development, Inc., a J&J company. Dr. Barbosa received a B.S. in Genetics from the University of California, Davis, and a Ph.D. in Microbiology & Immunology from the University of California, Los Angeles.

Vincent O'Neill, M.D. Dr. O'Neill has served as Chief Medical Officer since April 2016. He previously served as the Chief Medical Officer of Exosome Diagnostics, a healthcare company, from June 2014 to March 2016. From June 2012 to May 2014, Dr. O'Neill served as the Global Head of Personalized Medicine and Companion Diagnostics at Sanofi S.A., a multinational pharmaceutical company. Before that, Dr. O'Neill was employed as a Group Director at Genentech, Inc. from February 2009 to June 2012. Dr. O'Neill has also served at GlaxoSmithKline, Beatson Oncology Centre, F. Hoffmann La-Roche and the University of Glasgow. Dr. O'Neill holds a BSc (Hons), MBChB and an M.D. from the University of Glasgow.

Alan Fuhrman. Alan Fuhrman has served as our Chief Financial Officer since September 2015. Mr. Fuhrman previously served as the Chief Financial Officer of Ambit Biosciences Corporation, a biopharmaceutical company, from October 2010 through the company's initial public offering in 2013 and until its sale to Daiichi Sankyo for up to \$410 million. Prior to this role, Mr. Fuhrman served as Chief Financial Officer of Naviscan, Inc., a privately-held medical imaging company, from November 2008 until September 2010, and as Chief Financial Officer of Sonus Pharmaceuticals, Inc., a pharmaceutical company, from September 2004 until August 2008. Mr. Fuhrman is a member of the board of directors of Loxo Oncology, Inc. Earlier in Mr. Fuhrman's career he practiced as a CPA with Coopers and Lybrand. Mr. Fuhrman received a B.S. in both Business Administration and Agricultural Economics from Montana State University.

Casi DeYoung. Ms. Casi DeYoung has served as our Chief Business Officer since March 2014. From May 2008 to December 2013, Ms. DeYoung served as the Vice President of Business Development for Reata Pharmaceuticals, Inc., a biopharmaceutical company. Previously, Ms. DeYoung served as the Vice President of Business Development for ODC Therapy, Inc., an immunotherapy company. From 2000 to 2005, Ms. DeYoung served in various roles, including the Director of Global Oncology Operations, for EMD Pharmaceuticals, Inc., the U.S. affiliate of Merk KGaA, a global

healthcare company. Ms. DeYoung received a B.S. in Chemistry from Southwestern University and an M.B.A. from the University of Texas at Austin.

Jon Irvin. Mr. Jon Irvin has served at our company since November 2012, first as a Chief Financial Officer Consultant with Bridgepoint Consulting, LLC, or Bridgepoint, a consulting firm providing financial consulting assistance to various organizations, and then as our employee beginning in April 2013. Mr. Irvin currently serves as our Vice President of Finance. From December 2010 to March 2012, Mr. Irvin was an independent consultant in Austin, Texas. From September 2005 to December 2010, Mr. Irvin served as the Chief Executive Officer and Vice President of Finance for Voxpath Networks, Inc., a telecommunications and intellectual property company. Previously, Mr. Irvin held various finance positions at Reddwerks Corporation, a software company, Esoterix, Inc., a medical labs company, Topaz Technologies, a pharmaceutical software company, and BioNumerik Pharmaceuticals, Inc., a pharmaceutical company. Mr. Irvin was previously an accountant with Price Waterhouse and Ernst & Young. Mr. Irvin received a B.S. in Accounting from the University of Illinois.

EXECUTIVE COMPENSATION

The following is a discussion and analysis of compensation arrangements of our named executive officers ("NEOs"). As an "emerging growth company" as defined in the JOBS Act, we are not required to include a Compensation Discussion and Analysis section and have elected to comply with the scaled disclosure requirements applicable to emerging growth companies.

We seek to ensure that the total compensation paid to our executive officers is reasonable and competitive. Compensation of our executives is structured around the achievement of individual performance and near-term corporate targets as well as long-term business objectives.

Our NEOs for fiscal year 2015 were as follows:

- Paul Lammers, M.D., M.Sc., President and Chief Executive Officer;
- Miguel Barbosa, Ph.D., Chief Scientific Officer; and
- Alan Fuhrman, Chief Financial Officer.

Dr. Barbosa and Mr. Fuhrman each commenced employment with us in September 2015.

2015 Summary Compensation Table

The following table shows information regarding the compensation of our named executive officers for services performed in the year ended December 31, 2015.

<u>Name and Principal Position</u>	<u>Year</u>	<u>Salary (\$)</u>	<u>Bonus \$(1)</u>	<u>Option Awards \$(2)</u>	<u>Non-Equity Incentive Plan Compensation \$(3)</u>	<u>All Other Compensation \$(4)</u>	<u>Total (\$)</u>
Paul Lammers, M.D., M.Sc. <i>President and Chief Executive Officer</i>	2015	387,625	135,700	1,045,503	128,885	10,600	1,708,313
	2014	375,829	0	390,780	0	11,275	777,884
Miguel Barbosa, Ph. D. <i>Chief Scientific Officer</i>	2015	74,038	84,902	1,354,768	21,689	16,583	1,551,980
Alan Fuhrman <i>Chief Financial Officer</i>	2015	86,250	0	825,840	24,425	25,407	961,922

- (1) The amount reported in the Bonus column for Dr. Lammers represents the one-time discretionary bonus we paid to Dr. Lammers in July 2015 and for Dr. Barbosa represents the portion of the sign-on bonus we paid to him in January 2016 that was earned in 2015, pursuant to the terms and conditions of his employment agreement with us. The remaining portion of Dr. Barbosa's sign-on bonus \$245,673 will be earned by Dr. Barbosa if he remains our employee through September 28, 2016. Please see the description of Dr. Lammers one-time discretionary bonus in "Narrative to Summary Compensation Table and Outstanding Equity Awards at 2015 Fiscal Year End Terms and Conditions of Annual Bonuses" below and Dr. Barbosa's sign-on bonus in "Narrative to Summary Compensation Table and Outstanding Equity Awards at 2015 Fiscal Year End Terms and Conditions of Employment Arrangements with our NEOs" below.
- (2) For the option awards column, amounts shown represents the grant date fair value of stock options granted during fiscal year 2015 as calculated in accordance with ASC Topic 718, excluding the impact of estimated forfeitures related to service-based vesting provisions. See Note 8 to the financial statements included in our Annual Report on Form 10-K filed on March 29, 2016 for the assumptions used in calculating this amount.

- (3) The amounts reported in the Non-Equity Incentive Plan Compensation column represent the annual cash bonuses earned by our NEOs pursuant to the achievement of certain performance objectives in 2015, which were paid in early 2016. Please see the descriptions of the NEOs' annual performance cash bonuses in "Narrative to Summary Compensation Table and Outstanding Equity Awards at 2015 Fiscal Year End Terms and Conditions of Annual Bonuses" below.
- (4) The amounts reported in the All Other Compensation column represent: for Dr. Lammers, 401(k) plan matching contributions; for Dr. Barbosa, moving reimbursements we paid to Dr. Barbosa, pursuant to his employment agreement, in connection with his relocation to the Austin, Texas area in September 2015, including \$1,346 for travel expenses, \$754 for moving expenses and \$14,483 for temporary housing expenses; and for Mr. Fuhrman, moving reimbursements we paid to Mr. Fuhrman, pursuant to his employment agreement, in connection with his relocation to the Austin, Texas area in September 2015, including \$3,768 for travel expenses, \$13,403 for moving expenses and \$8,236 for temporary housing expenses. Please see the descriptions of Dr. Barbosa's and Mr. Fuhrman's relocation reimbursements pursuant to their employment agreements in "Narrative to Summary Compensation Table and Outstanding Equity Awards at 2015 Fiscal Year End Terms and Conditions of Employment Arrangements with our NEOs" below.

Outstanding Equity Awards at 2015 Fiscal Year End

The following table sets forth all outstanding equity awards held by each of the named executive officers as of December 31, 2015.

Name	Vesting Commencement Date(1)	Option Awards		Option Exercise Price (\$)	Option Expiration Date
		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable		
Paul Lammers, M.D., M.Sc.	11/4/2009	10,565	0	7.50	12/31/2019
	1/10/2013(2)	113,400	2,811	1.65	1/10/2023
	3/6/2014	31,607	40,639	8.10	3/10/2024
	1/1/2015	0	20,000	6.15	3/1/2025
	5/1/2015(3)	19,201	112,465	6.45	6/4/2025
	9/30/2015	0	76,666	7.00	9/30/2025
Miguel Barbosa, Ph.D.	9/28/2015	0	284,206	7.00	9/30/2025
Alan Fuhrman	9/8/2015	0	167,180	7.00	9/30/2025

- (1) Except as otherwise noted, the shares subject to the options shall vest and become exercisable as to 1/4th of the shares subject to the option on the first anniversary of the vesting commencement date, and thereafter as to 1/48th of the shares subject to such option on each monthly anniversary of the vesting commencement date, such that all shares subject to the option will be vested on the fourth anniversary of the vesting commencement date, subject to the holder continuing to provide services to us through such vesting date.
- (2) The shares subject to the option shall vest and become exercisable as to 1/4th of the shares subject to the option on the vesting commencement date, and thereafter as to 1/48th of the shares subject to such option on each monthly anniversary of the vesting commencement date, such that all shares subject to the option will be vested on the third anniversary of the vesting commencement date, subject to the holder continuing to provide services to us through such vesting date.

- (3) The shares subject to the option vest and become exercisable as to 1/48th of the shares subject to such option on each monthly anniversary of the vesting commencement date, such that all shares subject to the option will be vested on the fourth anniversary of the vesting commencement date, subject to the holder continuing to provide services to us through such vesting date.

Narrative to 2015 Summary Compensation Table and Outstanding Equity Awards at 2015 Fiscal Year End

Terms and Conditions of Employee Arrangements with our NEOs

We have entered into agreements with each of the NEOs in connection with his or her employment with us. These agreements set forth the terms and conditions of employment of each named executive officer, including base salary, initial stock option grants, and standard employee benefit plan participation. Our board of directors or the compensation committee reviews each NEO's base salary from time to time to ensure compensation adequately reflects the NEO's qualifications, experience, role and responsibilities. Each of the NEOs are also subject to certain confidentiality, non-competition, non-solicitation and arbitration restrictive covenants. For fiscal year 2015, Dr. Lammers' annual base salary was \$387,625 Miguel Barbosa's base salary was \$350,000 and Alan Fuhrman's annual base salary was \$325,000.

Pursuant to Mr. Fuhrman's employment agreement, we reimbursed Mr. Fuhrman for his reasonable and necessary documented moving expenses, including the incidental expenses to the sale of his primary residence in Escondido, California and the purchase of his primary residence in the Austin, Texas area (which amounted to a total of \$25,407 in fiscal 2015). These relocation expenses will not be earned until September 8, 2016, and if Mr. Fuhrman resigns his employment with us on or prior to September 8, 2016, he will be required to repay us in full for all of the relocation expenses we reimbursed.

Pursuant to Dr. Barbosa's employment agreement, we reimbursed Dr. Barbosa for his reasonable and necessary documented moving expenses, including the incidental expenses to the sale of his primary residence in San Diego, California and the purchase of his primary residence in the Austin, Texas area (which amounted to a total of \$16,583 in fiscal 2015). The relocation expenses will not be earned until September 28, 2016, and if Dr. Barbosa resigns his employment with us on or prior to such date, he will be required to repay us in full for all of the relocation expenses we reimbursed. In addition, pursuant to his employment agreement, Dr. Barbosa was awarded a sign-on bonus of \$330,575 in connection with his commencement of employment with us, which was paid to him in January 2016. The signing bonus is subject to claw back if Dr. Barbosa's employment with us is terminated for cause or partial claw back if he voluntarily terminates employment, in each case, prior to September 28, 2016. As a result, Dr. Barbosa earned \$84,902 of the sign-on bonus based on his service in 2015 from September 28 through December 31.

In connection with our initial public offering in October 2015, we entered into change in control severance agreements with each of our NEOs that provide for severance payments and benefits upon certain qualifying terminations of employment. Pursuant to the terms of the change in control severance agreements, in the event an NEO's employment is terminated by us other than for "cause" or the executive experiences a "constructive termination" (each as defined below), then the NEO will receive as severance nine months (or 12 months in the case of Dr. Lammers) of base salary in a single cash lump sum payment and up to nine months (or 12 months in the case of Dr. Lammers) of healthcare continuation coverage premium reimbursement; provided, that if the termination or resignation occurs within the period commencing on a "change in control" (as defined below) and ending 12 months after a change in control, the severance will consist of 12 months (or 18 months in the case of Dr. Lammers) of base salary paid in a single cash lump sum, 100% (or 150% in the case of Dr. Lammers) of the executive's target bonus paid in a single cash lump sum, up to 12 months (or

18 months in the case of Dr. Lammers) of healthcare continuation coverage premium reimbursement and full vesting acceleration for each stock option and other equity award held by the NEO. The NEO must timely deliver an effective release of claims to us in order to be eligible for the foregoing severance benefits.

For purposes of the change in control severance agreements, "cause" means (i) the conviction of the NEO by a court of competent jurisdiction of a crime involving moral turpitude; (ii) the commission, or attempted commission, by the NEO of an act of fraud on us; (iii) the misappropriation, or attempted misappropriation, by the NEO of any of our funds or property; (iv) the failure by the NEO to perform in any material respect his or her obligations under the terms of his or her agreement, which such failure has gone unremedied within 10 days after we provide the NEO with written notice of such failure; (v) the knowing engagement by the NEO, without the written approval of our board of directors, in any direct, material conflict of interest with us without compliance with our conflict of interest policy; (vi) the knowing engagement by the NEO, without written approval of our board of directors, in any activity which competes with our business or which would result in a material injury to us or which otherwise violates any provision of his or her agreement, employment agreement or any confidentiality agreement; or (vii) the knowing engagement by the NEO in any activity that would constitute a material violation of the provisions of our business ethics policy, employee handbook or similar policies, if any, then in effect.

For purposes of the change in control severance agreements, "constructive termination" means the NEO's resignation from all positions he or she then holds with us if: (i) without the NEO's prior written consent, (a) there is a material diminution in his or her duties and responsibilities with us; *provided, however*, that a change in title or reporting relationship will not be a constructive termination; (b) there is a material reduction of the NEO's then-existing base salary; *provided, however*, that a material reduction in his or her base salary pursuant to a salary reduction program affecting all or substantially all of our employees and that does not adversely affect the NEO to a greater extent than other similarly situated employees will not be a constructive termination; or (c) the NEO is required to relocate his or her primary work location to a facility or location that would increase his or her one-way commute distance by more than 50 miles from his or her primary work location as of immediately prior to such change, (ii) the NEO provides written notice outlining such conditions, acts or omissions to us within 30 days immediately following such material change or reduction, (iii) such material change or reduction is not remedied by us within 30 days following our receipt of such written notice and (iv) the NEO's resignation is effective not later than 30 days after the expiration of such 30 day cure period.

For purposes of the change in control severance agreements, "change in control" generally means (i) the transfer or exchange in a single transaction or series of related transactions by our stockholders of more than 50% of our voting stock to a person or group; (ii) a change in the composition of our board of directors over a two-year period such that 50% or more of the members of the board of directors were elected through one or more contested elections; (iii) a merger, consolidation, reorganization or business combination in which we are involved, directly or indirectly, other than a merger, consolidation, reorganization or business combination which results in our outstanding voting securities immediately before the transaction continuing to represent a majority of the voting power of the acquiring company's outstanding voting securities and after which no person or group beneficially owns 50% or more of the outstanding voting securities of the surviving entity immediately after the transaction; or (iv) the sale, exchange, or transfer of all or substantially all of our assets.

Terms and Conditions of Annual Bonuses

For 2015, all of the NEOs were eligible for cash performance-based bonuses pursuant to the achievement of certain performance objectives. The performance targets are approved annually by our board of directors. When determining the 2015 performance bonus program for the NEOs, the board

of directors set certain performance goals, using a mixture of performance objectives after receiving recommendations from the compensation committee and input from our Chief Executive Officer. These performance objectives included certain financial, organizational, clinical, intellectual property and development measures. After determining performance targets, each performance target is given a different weight when determining the overall bonus amount based on the importance to the success of the Company for each performance target. For fiscal year 2015, the financial performance targets were weighted at 45%, the organizational and clinical targets were each weighted at 20% and the intellectual property and development targets were each weighted at 7.5%. For each of these performance targets under the annual bonus program, the board of directors set general performance goals, but there was no minimum or maximum achievement for each performance target; instead, the board of directors weighed the achievement, partial achievement or non-achievement for each performance target when deciding the overall achievement level. These performance goals were not expected to be attained based on average or below-average performance. The board of directors intended for the performance targets to require significant effort on the part of the NEOs and, therefore, set these targets at levels they believed would be difficult to achieve, such that average or below-average performance would not satisfy these targets.

Each NEO's target bonus opportunity is expressed as a percentage of base salary which can be achieved by meeting the corporate performance goals. For each of the NEOs, the compensation committee (or, for Dr. Lammers, the board of directors) originally set these target percentages and review them annually to ensure they are adequate, and, while reviewing these target percentages the compensation committee (or, for Dr. Lammers, the board of directors) does not follow a formula but rather uses the factors as general background information prior to determining the target bonus opportunity rates for the participating NEOs. The compensation committee (or, for Dr. Lammers, the board of directors) sets these rates based on each participating executive's experience in his role with the company and the level of responsibility held by each executive, which the board of directors believes directly correlates to his ability to influence corporate results. For 2015, the board of directors used a guideline target bonus opportunity of 35% for Dr. Lammers and 25% for Dr. Barbosa and Mr. Fuhrman (pro-rated for their partial service in 2015).

Corporate goals and performance targets are reviewed and approved by the compensation committee (or, for Dr. Lammers, the board of directors) prior to any allocation of the annual bonuses. In early 2016, the compensation committee (or, for Dr. Lammers, the board of directors) reviewed our 2015 company-wide performance with respect to determining bonuses for executive officers and determined achievement of the performance goals at 113%. Following its review and determinations, the compensation committee (or, for Dr. Lammers, our board of directors) awarded 2015 cash bonuses to the NEOs of \$128,885 for Dr. Lammers, \$21,689 for Dr. Barbosa and \$24,425 for Mr. Fuhrman, which was equal to 113% of their target bonus amount. Dr. Barbosa's and Mr. Fuhrman's bonuses were each pro-rated for their partial service in 2015. The NEOs' 2015 bonuses are set forth in the "2015 Summary Compensation Table" above.

In addition, in July 2015, at the recommendation of our compensation committee, our board of directors approved a one-time discretionary performance bonus to Dr. Lammers equal to \$135,700. Dr. Lammers' one-time discretionary bonus is set forth in the "2015 Summary Compensation Table" above.

Terms and Conditions of Equity Award Grants

Each of our NEOs received an option to purchase our common stock in fiscal year 2015. The table above entitled "Outstanding Equity Awards at 2015 Fiscal Year End" describes the material terms of other option awards made in past fiscal years to our NEOs.

In March 2015, we granted Dr. Lammers an option to purchase 20,000 shares of our common stock having an exercise price per share equal to \$6.15. The option vests and becomes exercisable as to 25% of the shares subject to the option on January 1, 2016, and as to 1/48th of the shares subject to the option on each monthly anniversary thereafter, subject to Dr. Lammers continuing to provide services to us through such vesting date. In June 2015, we awarded Dr. Lammers another option to purchase 112,885 shares of our common stock having an exercise price per share equal to \$6.45. The option vests and becomes exercisable as to 1/48th of the shares subject to the option on each monthly anniversary of May 1, 2015, subject to Dr. Lammers continuing to provide services to us through such vesting date.

In connection with our initial public offering in October 2015 and pursuant to Dr. Barbosa's and Mr. Fuhrman's employment agreements, each of Drs. Lammers and Barbosa and Mr. Fuhrman were granted an option to purchase 76,666, 284,206 and 167,180 shares of our common stock, respectively, having an exercise price per share equal to \$7.00. The options vest and become exercisable as to 25% of the shares subject to the option on the first anniversary of the pricing of the offering for Dr. Lammers and the commencement of employment for Dr. Barbosa and Mr. Fuhrman, and as to 1/48th of the shares subject to the option on each monthly anniversary thereafter, subject to the NEOs continuing to provide services to us through such vesting date.

Terms and Conditions of 401(k) Plan

Our U.S. eligible employees, including our NEOs, participate in our 401(k) plan. Enrollment in the 401(k) plan is automatic for employees who meet eligibility requirements unless they decline participation. The 401(k) plan is intended to qualify under Section 401(k) of the Internal Revenue Service Code of 1986, as amended, so that contributions to the 401(k) plan by employees or by us, and the investment earnings thereon, are not taxable to the employees until withdrawn from the 401(k) plan, and so that contributions by us, if any, will be deductible by us when made. Under the 401(k) plan, employees may elect to reduce their current compensation by up to the statutorily prescribed annual limit and to have the amount of such reduction contributed to the 401(k) plan. Under the 401(k), for fiscal year 2015, we provide matching contributions of \$0.50 per dollar up to 8% of an employee's compensation.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth information relating to the beneficial ownership of our common stock as of March 31, 2016 by:

- each person, or group of affiliated persons, known by us to beneficially own more than 5% of our outstanding shares of common stock;
- each of our directors and nominees for director;
- each of our NEOs; and
- all directors, nominees and executive officers as a group.

The number of shares beneficially owned by each entity, person, director, nominee or executive officer is determined in accordance with the rules of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. Under such rules, beneficial ownership includes any shares over which the individual has sole or shared voting power or investment power as well as any shares that the individual has the right to acquire within 60 days of March 31, 2016 through the exercise of stock options or other rights. Except as otherwise indicated, and subject to applicable community property laws, the persons named in the table have sole voting and investment power with respect to all shares of common stock held by that person.

The percentage of shares beneficially owned is computed on the basis of 20,830,555 shares of our common stock outstanding as of March 31, 2016. Shares of our common stock that a person has the right to acquire within 60 days of March 31, 2016 are deemed outstanding for purposes of computing the percentage ownership of the person holding such rights, but are not deemed outstanding for purposes of computing the percentage ownership of any other person, except with respect to the percentage ownership of all directors and executive officers as a group. Unless otherwise indicated below, the address for each beneficial owner listed is c/o Mirna Therapeutics, Inc., at 2150 Woodward Street, Suite 100, Austin, Texas 78744.

Name and Address of Beneficial Owner	Beneficial Ownership			
	Number of Outstanding Shares Beneficially Owned	Number of Shares Exercisable Within 60 Days	Number of Shares Beneficially Owned	Percentage of Beneficial Ownership
5% and Greater Stockholders				
Sofinnova Venture Partners VIII, L.P.(1)	2,974,812	—	2,974,812	14.3%
Entities Associated with New Enterprise Associates(2)	2,974,811	—	2,974,811	14.3%
Pfizer Inc.(3)	2,497,586	—	2,497,586	12.0%
Cancer Prevention and Research Institute of Texas(4)	2,395,010	—	2,395,010	11.5%
Franklin Resources(5)	1,428,571	—	1,428,571	6.8%
FMR LLC(6)	1,428,500	—	1,428,500	6.8%
Eastern Capital Limited(7)	1,118,741	—	1,118,741	5.4%

<u>Name and Address of Beneficial Owner</u>	<u>Beneficial Ownership</u>			
	<u>Number of Outstanding Shares Beneficially Owned</u>	<u>Number of Shares Exercisable Within 60 Days</u>	<u>Number of Shares Beneficially Owned</u>	<u>Percentage of Beneficial Ownership</u>
Named Executive Officers, Directors and Nominees				
Paul Lammers, M.D., M.Sc.	18,787	197,339	216,126	1.0%
Alan Fuhrman	—	—	—	*
Miguel Barbosa, Ph.D.	—	—	—	*
Michael Powell, Ph.D.(1)	2,974,812	2,000	2,976,812	14.3%
Elaine V. Jones, Ph.D.	—	1,200	1,200	*
Edward Mathers	—	1,200	1,200	*
Matthew Winkler, Ph.D.	649,175	1,200	650,375	3.1%
Lawrence M. Alleva(8)	4,025	8,799	12,824	*
Clay B. Siegall Ph.D.	—	22,709	22,709	*
Peter Greenleaf	—	—	—	*
Perry Nisen M.D., Ph.D.	—	—	—	*
All directors, nominees and executive officers as a group (14 persons)	3,655,534	280,885	3,936,419	18.6%

* Indicates beneficial ownership of less than 1% of the total outstanding shares of common stock.

- (1) As reported on Schedule 13D, filed with the SEC on October 8, 2015 by Sofinnova Ventures Partners VIII, L.P. ("SVP VIII"), Sofinnova Management VIII, L.L.C. ("SM VIII"), Dr. Srinivas Akkaraju, Dr. Michael F. Powell, Dr. James I. Healy, and Dr. Anand Mehra. SM VIII is the general partner of SVP VIII. The individual Managers, or the Managing Members, of SVP VIII are Michael Powell, James Healy, Srinivas Akkaraju and Anand Mehra. The Managers share voting and dispositive power with regard to the shares held directly by SVP VIII. The address of SVP VIII is 3000 Sand Hill Road, Bldg. 4, Suite 250, Menlo Park, CA 94025.
- (2) As reported on Schedule 13D, filed with the SEC on October 14, 2015, by New Enterprise Associates 14, L.P. ("NEA 14"), NEA Partners 14, L.P. ("NEA Partners 14"), NEA 14 GP, LTD ("NEA 14 LTD"), M. James Barrett, Peter J. Barris, Forest Baskett, Anthony A. Florence, Jr., Patrick J. Kerins, Krishna S. Kolluri, David M. Mott, Scott D. Sandell, Peter W. Sonsini, Ravi Viswanathan and Harry R. Weller. The shares directly held by NEA 14 are indirectly held by NEA Partners 14, the sole general partner of NEA 14. NEA 14 LTD is the sole general partner of NEA Partners 14. The individual Managers, or the Managers, of NEA 14 LTD are M. James Barrett, Peter J. Barris, Forest Baskett, Ryan D. Drant, Anthony A. Florence, Jr., Patrick J. Kerins, Krishna Kolluri, David M. Mott, Scott D. Sandell, Peter Sonsini, Ravi Viswanathan and Harry R. Weller. The Managers share voting and dispositive power with regard to shares held directly by NEA 14. Also includes 3,294 shares held by certain entities associated with New Enterprise Associates. The address of NEA 14 is 1954 Greenspring Drive, Suite 600, Timonium, MD 21903.
- (3) As reported on Schedule 13G/A, filed with the SEC on February 11, 2016 by Pfizer, Inc. The address for this entity is 235 E. 42nd Street, New York, NY 10017.
- (4) As reported on Schedule 13G, filed with the SEC on October 8, 2015, by Cancer Prevention and Research Institute of Texas. The address for this entity is 1701 N. Congress Avenue, Suite 6-127 Austin, TX 78701.
- (5) As reported on Schedule 13G, filed with the SEC on February 9, 2016 by Franklin Resources, Inc. ("FRI"), Charles B. Johnson ("Charles Johnson"), Rupert H. Johnson, Jr. ("Rupert Johnson") and Franklin Advisers, Inc. ("Advisers"). Charles Johnson and Rupert Johnson each own in excess of

10% of the outstanding common stock of FRI and are the principal stockholders of FRI. Accordingly, FRI, Charles Johnson and Rupert Johnson may be deemed to be the beneficial owners of securities held by persons and entities for whom or for which FRI subsidiaries provide investment management services. FRI, Charles Johnson and Rupert Johnson disclaim any pecuniary interest in any of the securities. The address of FRI, Charles Johnson, Rupert Johnson and Advisers is One Franklin Parkway, San Mateo, CA 94403-1906.

- (6) As reported on Schedule 13G, filed with the SEC on February 12, 2016 by FMR LLC ("FMR"), Abigail P. Johnson ("Ms. Johnson") and Select Biotechnology Portfolio (the "Portfolio"). Ms. Johnson is a Director, the Vice Chairman, the Chief Executive Officer and the President of FMR. Accordingly, Ms. Johnson may be deemed to have voting and investment power over the shares held by FMR. The address of FMR, Ms. Johnson and the Portfolio is 245 Summer Street, Boston, Massachusetts 02210.
- (7) As reported on Schedule 13G, filed with the SEC on October 15, 2015 by Eastern Capital Limited, Portfolio Services Ltd. and Kenneth B. Dart. Eastern Capital Limited is a Cayman Islands corporation. Portfolio Services Ltd., a Cayman Islands corporation, owns all of the outstanding stock of Eastern Capital Limited. Kenneth B. Dart is the beneficial owner of all of the outstanding stock of Portfolio Services Ltd. Kenneth B. Dart is a director of both Eastern Capital Limited and Portfolio Services Ltd. The address for these entities is 10 Market Street #773, Camana Bay, Grand Cayman, KY1-9006, Cayman Islands.
- (8) Consists of: (i) 8,799 shares that may be acquired pursuant to the exercise of stock options within 60 days of March 31, 2016 by Mr. Alleva and (ii) 4,025 shares held by the Lawrence M. Alleva Profit Sharing Plan.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, requires the Company's directors and executive officers, and persons who own more than 10% of a registered class of the Company's equity securities, to file with the SEC initial reports of ownership and reports of changes in ownership of common stock and other equity securities of the Company. Officers, directors and greater than 10% stockholders are required by SEC regulations to furnish the Company with copies of all Section 16(a) forms they file.

To the Company's knowledge, based solely on a review of the copies of such reports furnished to the Company and written representations that no other reports were required, during the year ended December 31, 2015, all Section 16(a) filing requirements applicable to our officers, directors and greater than 10% beneficial owners were complied with.

ADDITIONAL INFORMATION

Householding of Proxy Materials

The SEC has adopted rules known as "householding" that permit companies and intermediaries (such as brokers) to deliver one set of proxy materials to multiple stockholders residing at the same address. This process enables us to reduce our printing and distribution costs, and reduce our environmental impact. Householding is available to both registered stockholders and beneficial owners of shares held in street name.

Registered Stockholders

If you are a registered stockholder and have consented to householding, then we will deliver or mail one set of our proxy materials, as applicable, for all registered stockholders residing at the same address. Your consent will continue unless you revoke it, which you may do at any time by providing notice to the Company's Corporate Secretary by telephone at (512) 901-0900 or by mail at 2150 Woodward Street, Suite 1000, Austin, TX, 78744.

If you are a registered stockholder who has not consented to householding, then we will continue to deliver or mail copies of our proxy materials, as applicable, to each registered stockholder residing at the same address. You may elect to participate in householding and receive only one set of proxy materials for all registered stockholders residing at the same address by providing notice to the Company as described above.

Street Name Holders

Stockholders who hold their shares through a brokerage may elect to participate in householding, or revoke their consent to participate in householding, by contacting their respective brokers.

Annual Reports

This proxy statement is accompanied by our Annual Report on Form 10-K for the fiscal year ended December 31, 2015 (the "Form 10-K"). The Form 10-K includes our audited financial statements. We have filed the Form 10-K with the SEC, and it is available free of charge at the SEC's website at www.sec.gov and on our website at www.mirnarx.com. In addition, upon written request to the Company's Corporate Secretary at 2150 Woodward Street, Suite 100, Austin, Texas 78744, we will mail a paper copy of our Form 10-K, including the financial statements and the financial statement schedules, to you free of charge.

Other Matters

As of the date of this proxy statement, our board of directors knows of no other matters that will be presented for consideration at the Annual Meeting other than the matters described in this proxy statement. If other matters are properly brought before the Annual Meeting, then proxies will be voted in accordance with the recommendation of the board of directors or, in the absence of such a recommendation, in accordance with the best judgment of the proxy holder.

By Order of the Board of Directors:

/s/ PAUL LAMMERS

Paul Lammers, M.D., M.Sc.
President and Chief Executive Officer

Austin, Texas
April 27, 2016

MIRNA THERAPEUTICS, INC.
2150 WOODWARD STREET, SUITE 100
AUSTIN, TX 78744

VOTE BY INTERNET - www.proxyvote.com

Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 PM, Eastern Time the day before the cut-off date or meeting date. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

ELECTRONIC DELIVERY OF FUTURE PROXY MATERIALS

If you would like to reduce the costs incurred by our company in mailing proxy materials, you can consent to receiving all future proxy statements, proxy cards and annual reports electronically via e-mail or the Internet. To sign up for electronic delivery, please follow the instructions above to vote using the Internet and, when prompted, indicate that you agree to receive or access proxy materials electronically in future years.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions up until 11:59 PM, Eastern Time the day before the cut-off date or meeting date. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL

Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS

E10451-P78446

KEEP THIS PORTION FOR YOUR RECORDS
 DETACH AND RETURN THIS PORTION ONLY

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

MIRNA THERAPEUTICS, INC.		For All	Withhold All	For All Except	To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the number(s) of the nominee(s) on the line below.		
The Board of Directors recommends you vote FOR the following:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
1. To elect three Class I directors to hold office until the 2019 Annual Meeting of Stockholders or until their successors are elected.					_____		
Nominees:							
01) Perry Nisen, M.D., Ph.D.							
02) Matthew Winkler, Ph.D.							
03) Peter S. Greenleaf							
The Board of Directors recommends you vote FOR the following proposal:					For	Against	Abstain
2. To ratify the selection, by the audit committee of our Board of Directors, of Ernst & Young LLP as the independent registered public accounting firm of the Company for its fiscal year ending December 31, 2016.					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOTE: The proxies are authorized to vote in their discretion upon such other business as may properly come before the Annual Meeting or any adjournment or postponement thereof.							
For address changes and/or comments, please check this box and write them on the back where indicated.		Yes	No	<input type="checkbox"/>			
Please indicate if you plan to attend this meeting.		<input type="checkbox"/>	<input type="checkbox"/>				
Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by authorized officer.							
<input type="text"/> Signature [PLEASE SIGN WITHIN BOX]		<input type="text"/> Date		<input type="text"/> Signature (Joint Owners)		<input type="text"/> Date	

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting:
The Notice and Proxy Statement and Form 10-K are available at www.proxyvote.com.

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MIRNA THERAPEUTICS, INC.
Annual Meeting of Stockholders
June 29, 2016 8:00 AM
This proxy is solicited by the Board of Directors

The stockholder(s) hereby appoint(s) Paul Lammers and Alan Fuhrman, or either of them, as proxies, each with the power to appoint his substitute, and hereby authorize(s) them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of Common Stock of MIRNA THERAPEUTICS, INC. that the stockholder(s) is/are entitled to vote at the Annual Meeting of Stockholders to be held at 8:00 AM, EDT on June 29, 2016, at the offices of Latham & Watkins LLP, 885 Third Avenue, New York, New York, and any adjournment or postponement thereof, on all matters set forth on the reverse side and in the discretion of the proxies upon such other matters as may properly come before the Annual Meeting.

This proxy, when properly executed, will be voted in the manner directed herein. If no such direction is made, this proxy will be voted in accordance with the Board of Directors' recommendations.

Address Changes/Comments: _____

(If you noted any Address Changes/Comments above, please mark corresponding box on the reverse side.)

Continued and to be signed on reverse side