

ALNYLAM PHARMACEUTICALS, INC.

Form DEF 14A

May 02, 2011

Table of Contents

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
SCHEDULE 14A
(Rule 14a-101)
INFORMATION REQUIRED IN PROXY STATEMENT
SCHEDULE 14A INFORMATION
Proxy Statement Pursuant to Section 14(a) of the Securities
Exchange Act of 1934**

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

Preliminary Proxy Statement

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

Definitive Proxy Statement

Definitive Additional Materials

Soliciting Material Pursuant to §240.14a-12

ALNYLAM PHARMACEUTICALS, INC.

(Name of Registrant as Specified in Its Charter)

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

Payment of Filing Fee (Check the appropriate box):

No fee required.

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

(1) Title of each class of securities to which transaction applies:

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

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

(1) Amount previously paid:

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

(3) Filing Party:

(4) Date Filed:

Table of Contents

**ALNYLAM PHARMACEUTICALS, INC.
300 THIRD STREET
CAMBRIDGE, MASSACHUSETTS 02142**

**NOTICE OF 2011 ANNUAL MEETING OF STOCKHOLDERS
To Be Held On June 9, 2011**

To our Stockholders:

NOTICE IS HEREBY GIVEN that the 2011 Annual Meeting of Stockholders of Alnylam Pharmaceuticals, Inc. will be held on Thursday, June 9, 2011 at 9:00 a.m., Eastern Time, at the offices of Alnylam Pharmaceuticals, Inc., 300 Third Street, Cambridge, Massachusetts. At the meeting, stockholders will consider and vote on the following matters:

1. To elect three (3) members to our board of directors, each to serve as a Class I director for a term ending in 2014, or until a successor has been duly elected and qualified;
2. To approve, in a non-binding advisory say-on-pay vote, the compensation of our named executive officers, as described in the Compensation Discussion and Analysis, executive compensation tables and accompanying narrative disclosures in this proxy statement;
3. To recommend, in a non-binding advisory say-on-frequency vote, the frequency of future advisory say-on-pay votes; and
4. To ratify the appointment of PricewaterhouseCoopers LLP, an independent registered public accounting firm, as our independent auditors for the fiscal year ending December 31, 2011.

The stockholders will also act on any other business that may properly come before the annual meeting or any adjournment thereof.

Stockholders of record at the close of business on April 29, 2011, the record date for the annual meeting, are entitled to notice of, and to vote at, the annual meeting or any adjournment thereof. Your vote is important regardless of the number of shares you own. If you are a stockholder of record, please vote in one of these three ways:

Vote Over the Internet, by going to the website of our tabulator, Computershare Trust Company, N.A., at www.investorvote.com/ALNY and following the instructions for Internet voting shown on the enclosed proxy card;

Vote by Telephone, by calling 1-800-652-VOTE (8683) and following the recorded instructions; or

Vote by Mail, by completing and signing your enclosed proxy card and mailing it in the enclosed postage prepaid envelope. If you vote over the Internet or by telephone, please do not mail your proxy.

If your shares are held in street name, that is, held for your account by a broker or other nominee, you will receive instructions from the holder of record that you must follow for your shares to be voted.

We encourage all stockholders to attend the annual meeting in person. You may obtain directions to the location of the annual meeting on our website at www.alnylam.com. Whether or not you plan to attend the annual meeting in person, we hope you will take the time to vote your shares.

By Order of the Board of Directors

John M. Maraganore, Ph.D.
Chief Executive Officer

Cambridge, Massachusetts
May 2, 2011

TABLE OF CONTENTS

	Page
<u>PROXY STATEMENT</u>	1
<u>IMPORTANT INFORMATION ABOUT THE ANNUAL MEETING AND VOTING</u>	1
<u>OWNERSHIP OF OUR COMMON STOCK</u>	7
<u>PROPOSAL 1 ELECTION OF CLASS I DIRECTORS</u>	9
<u>CORPORATE GOVERNANCE</u>	14
<u>CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS</u>	21
<u>INFORMATION ABOUT EXECUTIVE OFFICER AND DIRECTOR COMPENSATION</u>	23
<u>PROPOSAL 2 ADVISORY VOTE ON EXECUTIVE COMPENSATION</u>	45
<u>PROPOSAL 3 ADVISORY VOTE ON THE FREQUENCY OF FUTURE EXECUTIVE COMPENSATION ADVISORY VOTES</u>	46
<u>PROPOSAL 4 RATIFICATION OF APPOINTMENT OF INDEPENDENT AUDITORS</u>	46
<u>OTHER MATTERS</u>	47
<u>STOCKHOLDER PROPOSALS</u>	47
<u>Appendix A</u>	A-1

Table of Contents

**ALNYLAM PHARMACEUTICALS, INC.
300 THIRD STREET
CAMBRIDGE, MASSACHUSETTS 02142**

PROXY STATEMENT

**for the 2011 Annual Meeting of Stockholders
to be held on June 9, 2011**

This proxy statement and the enclosed proxy card are being furnished in connection with the solicitation of proxies by the board of directors of Alnylam Pharmaceuticals, Inc. for use at the 2011 Annual Meeting of Stockholders to be held on Thursday, June 9, 2011 at 9:00 a.m., Eastern Time, at the offices of Alnylam Pharmaceuticals, Inc., 300 Third Street, Cambridge, Massachusetts, and at any adjournment thereof.

All proxies will be voted in accordance with the instructions contained in those proxies. If no choice is specified, the proxies will be voted in favor of an annual non-binding stockholder vote to approve the compensation of our named executive officers and for all other proposals set forth in the accompanying Notice of Meeting.

Our Annual Report to Stockholders and our Annual Report on Form 10-K for the fiscal year ended December 31, 2010 are being mailed to stockholders with these proxy materials on or about May 6, 2011.

**Important Notice Regarding the Availability of Proxy Materials for
the Annual Meeting of Stockholders to be Held on June 9, 2011:**

This proxy statement and our 2010 Annual Report to Stockholders are available for viewing, printing and downloading at www.alnylam.com/AnnualMeeting.

A copy of our Annual Report on Form 10-K for the fiscal year ended December 31, 2010, as filed with the Securities and Exchange Commission, or SEC, will be furnished without charge to any stockholder upon written request to Alnylam Pharmaceuticals, Inc., 300 Third Street, Cambridge, Massachusetts 02142, Attention: Investor Relations and Corporate Communications. This proxy statement and our Annual Report on Form 10-K for the fiscal year ended December 31, 2010 are also available on the SEC's website at www.sec.gov.

IMPORTANT INFORMATION ABOUT THE ANNUAL MEETING AND VOTING

- Q. Why did I receive these proxy materials?**
- A.** We are providing these proxy materials to you in connection with the solicitation by our board of directors of proxies to be voted at our 2011 annual meeting of stockholders to be held at our offices at 300 Third Street, Cambridge, Massachusetts on Thursday, June 9, 2011 at 9:00 a.m., Eastern Time. As a stockholder of Alnylam, you are invited to attend our annual meeting and are entitled and requested to vote on the proposals described in this proxy statement.

- Q. Who can vote at the annual meeting?**
- A.** To be entitled to vote, you must have been a stockholder of record at the close of business on April 29, 2011, the record date for our annual meeting. The holders of the 42,359,262 shares of our common stock outstanding as of the record date are entitled to vote at the annual meeting.
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Table of Contents

If you were a stockholder of record on April 29, 2011, you are entitled to vote all of the shares that you held on that date at the annual meeting and at any postponements or adjournments thereof.

Q. What are the voting rights of the holders of common stock? **A.** Each outstanding share of our common stock will be entitled to one vote on each matter considered at the annual meeting.

Q. How do I vote? **A. If your shares are registered directly in your name, you may vote:**

(1) **Over the Internet:** Go to the website of our tabulator, Computershare Trust Company, N.A., at www.investorvote.com/ALNY. Use the vote control number printed on your enclosed proxy card to access your account and vote your shares. You must specify how you want your shares voted or your Internet vote cannot be completed and you will receive an error message. Your shares will be voted according to your instructions. You must submit your Internet proxy before 11:59 p.m., Eastern Time, on June 8, 2011, the day before the annual meeting, for your proxy to be valid and your vote to count.

(2) **By Telephone:** Call 1-800-652-VOTE (8683), toll free from the United States, Canada and Puerto Rico, and follow the recorded instructions. You must specify how you want your shares voted and confirm your vote at the end of the call or your telephone vote cannot be completed. Your shares will be voted according to your instructions. You must submit your telephonic proxy before 11:59 p.m., Eastern Time, on June 8, 2011, the day before the annual meeting, for your proxy to be valid and your vote to count.

(3) **By Mail:** Complete and sign your enclosed proxy card and mail it in the enclosed postage prepaid envelope to Computershare. Computershare must receive the proxy card not later than June 8, 2011, the day before the annual meeting, for your proxy to be valid and your vote to count. Your shares will be voted according to your instructions. If you do not specify how you want your shares voted, they will be voted as recommended by our board.

(4) **In Person at the Meeting:** If you attend the annual meeting, you may deliver your completed proxy card in person or you may vote by completing a ballot, which we will provide to you at the meeting.

If your shares are held in street name, meaning they are held for your account by a broker or other nominee, you may vote:

(1) **Over the Internet or by Telephone:** You will receive instructions from your broker or other nominee if they permit Internet or telephone voting. You should follow those instructions.

(2) **By Mail:** You will receive instructions from your broker or other nominee explaining how you can vote your shares by mail. You should follow those instructions.

(3) **In Person at the Meeting:** Contact your broker or other nominee who holds your shares to obtain a broker's proxy card and bring it with you to the annual meeting. A broker's proxy is *not* the form of proxy enclosed with this proxy statement. **You will not be able to vote shares you hold in street name in person at the annual meeting unless you have a proxy from your broker issued in your name giving you the right to vote your shares.**

Table of Contents

Q. Can I change my vote? **A. If your shares are registered directly in your name,** you may revoke your proxy and change your vote at any time before the annual meeting. To do so, you must do one of the following:

(1) Vote over the Internet or by telephone as instructed above. Only your latest Internet or telephone vote is counted. You may not change your vote over the Internet or by telephone after 11:59 p.m., Eastern Time, on June 8, 2011.

(2) Sign a new proxy and submit it as instructed above. Only your latest dated proxy will be counted.

(3) Attend the annual meeting, request that your proxy be revoked and vote in person as instructed above. Attending the annual meeting will not revoke your Internet vote, telephone vote or proxy, as the case may be, unless you specifically request it.

If your shares are held in street name, you may submit new voting instructions by contacting your broker, bank or nominee. You may also vote in person at the annual meeting if you obtain a broker's proxy as described in the answer above.

Q. Will my shares be voted if I do not return my proxy? **A. If your shares are registered directly in your name,** your shares will not be voted if you do not vote over the Internet, by telephone, by returning your proxy or by ballot at the annual meeting.

If your shares are held in street name, your brokerage firm may under certain circumstances vote your shares if you do not return your proxy. Brokerage firms can vote customers' unvoted shares on routine matters. If you do not return a proxy to your brokerage firm to vote your shares, your brokerage firm may, on routine matters, either vote your shares or leave your shares unvoted. **Your brokerage firm cannot vote your shares on any matter that is not considered routine.**

Proposal 1, election of directors, Proposal 2, advisory say-on-pay vote, and Proposal 3, advisory say-on-frequency vote, are not considered routine matters. Proposal 4, ratification of the appointment of our independent auditors, is considered a routine matter. We encourage you to provide voting instructions to your brokerage firm or other nominee by giving your proxy to them. This ensures that your shares will be voted at the annual meeting according to your instructions. You should receive directions from your brokerage firm about how to submit your proxy to them at the time you receive this proxy statement.

Q. How many shares must be present to hold the annual **A.** A majority of our outstanding shares of common stock must be present to hold the annual meeting and conduct business. This is called a quorum. For purposes of determining whether a quorum exists, we count as present any

meeting?

shares that are voted over the Internet, by telephone, by completing and submitting a proxy or that are represented in person at the meeting. Further, for purposes of establishing a quorum, we will count as present shares that a stockholder holds even if the stockholder votes to abstain or only votes on one of the proposals. In addition, we will count as present shares held in street name by brokers or nominees who indicate on their proxies that they do not have authority to vote those shares on Proposals 1, 2 and 3. If a quorum is not present, we expect to adjourn the annual meeting until we obtain a quorum.

3

Table of Contents

Q. What vote is required to approve each matter and how are votes counted?

A. Proposal 1 Election of Three Class I Directors

The three nominees for director to receive the highest number of votes FOR election will be elected as directors. This is called a plurality. **Proposal 1 is not considered a routine matter.** Therefore, if your shares are held by your broker in street name and you do not vote your shares, your broker cannot vote your shares on Proposal 1. Shares held in street name by brokers or nominees who indicate on their proxies that they do not have authority to vote the shares on Proposal 1 will not be counted as votes FOR or WITHHELD from any nominee. As a result, broker non-votes will have no effect on the voting on Proposal 1. With respect to Proposal 1, you may:

vote FOR all nominees;

vote FOR one or more nominee(s) and WITHHOLD your vote from the other nominee(s); or

WITHHOLD your vote from all nominees.

Votes that are withheld will not be included in the vote tally for the election of directors and will not affect the results of the vote.

Proposal 2 Non-binding Say-on-Pay Vote on the Compensation of Our Named Executive Officers

To approve Proposal 2, stockholders holding a majority of the votes cast on the matter must vote FOR the approval of the compensation of our named executive officers, as described in the Compensation Discussion and Analysis, executive compensation tables and accompanying narrative disclosures in this proxy statement. **Proposal 2 is not considered a routine matter.** Therefore, if your shares are held by your broker in street name and you do not vote your shares, your broker cannot vote your shares on Proposal 2. Shares held in street name by brokers or nominees who indicate on their proxies that they do not have authority to vote the shares on Proposal 2 will not be counted as votes FOR or ABSTAIN from the proposal. As a result, broker non-votes will have no effect on the voting on Proposal 2. With respect to Proposal 2, you may:

vote FOR the non-binding resolution;

vote AGAINST the non-binding resolution; or

ABSTAIN from voting on the non-binding resolution.

As an advisory vote, this proposal is not binding. The outcome of this advisory vote will not overrule any decision by us or our board of directors

(or any committee thereof). However, our compensation committee and our board of directors value the opinions expressed by our stockholders in their vote on this proposal and will consider the outcome of the vote when making future compensation decisions for our named executive officers.

Proposal 3 Non-binding Say-on-Frequency Vote to Recommend Whether Future Say-on-Pay Votes Should Occur Every One, Two or Three Years

To recommend the frequency of future non-binding stockholder Say-on-Pay votes, you may:

vote CHOICE 1 (every year);

vote CHOICE 2 (every two years);

4

Table of Contents

vote CHOICE 3 (every three years); or

ABSTAIN from voting on the non-binding resolution.

The frequency choice that receives the highest number of votes cast will be considered to be the preferred frequency of our stockholders with which we are to hold future non-binding stockholder advisory say-on-pay votes on executive compensation. **Proposal 3 is not considered a routine matter.** Therefore, if your shares are held by your broker in street name and you do not vote your shares, your broker cannot vote your shares on Proposal 3. Shares held in street name by brokers or nominees who indicate on their proxies that they do not have authority to vote the shares on Proposal 3 will not be counted as votes for any of the frequency choices or an abstention from the proposal. As a result, broker non-votes will have no effect on the voting on Proposal 3.

Our board of directors will take into consideration the outcome of this vote in determining the frequency of future executive compensation advisory votes. However, because this vote is advisory and non-binding, our board of directors may decide that it is in our best interests and those of our stockholders to hold the advisory vote to approve executive compensation more or less frequently.

Proposal 4 Ratification of Appointment of Independent Auditors

To approve Proposal 4, stockholders holding a majority of the votes cast on the matter must vote FOR the proposal. **Proposal 4 is considered a routine matter.** If your shares are held by your broker in street name and you do not vote your shares, your brokerage firm may vote your unvoted shares on Proposal 4. If you vote to ABSTAIN on Proposal 4, your shares will not be voted FOR or AGAINST the proposal and will also not be counted as votes cast or shares voting on the proposal. As a result, voting to ABSTAIN will have no effect on the voting on Proposal 4.

Although stockholder approval of our audit committee's appointment of PricewaterhouseCoopers LLP as our independent auditors for the year ended December 31, 2011 is not required, we believe that it is advisable to give stockholders an opportunity to ratify this appointment. If this proposal is not approved at the annual meeting, our audit committee will reconsider its appointment of PricewaterhouseCoopers LLP as our independent auditors for the year ended December 31, 2011.

- Q. Are there other matters to be voted on at the annual meeting?**
- A.** We do not know of any matters that may come before the annual meeting other than the election of three Class I directors, the advisory say-on-pay and say-on-frequency votes, and the ratification of the appointment of our independent auditors. If any other matters are properly presented at the annual meeting, the persons named in the accompanying proxy intend to

vote, or otherwise act, in accordance with their judgment on the matter.

- Q. Where can I find the voting results?**
- A.** We will report the voting results in a Current Report on Form 8-K within four business days following the adjournment of our annual meeting.

5

Table of Contents

- Q. What are the costs of soliciting these proxies?**
- A.** We will bear the cost of soliciting proxies. In addition to these proxy materials, our directors, officers and employees may solicit proxies by telephone, e-mail, facsimile and in person, without additional compensation. We have also retained Alliance Advisors to solicit proxies by mail, courier, telephone and facsimile and to request brokers, custodians and fiduciaries to forward proxy soliciting materials to the owners of stock held in their names. For these services, we have paid a fee of \$6,500, plus expenses. We may reimburse brokers or persons holding stock in their names, or in the names of their nominees, for their expenses in sending proxies and proxy material to beneficial owners.
- Q: How do I vote my 401(k) shares?**
- A.** You may give voting instructions for the number of shares of Alnylam common stock equal to the interest in Alnylam common stock credited to your 401(k) plan account as of the record date. To vote these shares, complete and return to Computershare the proxy card sent to you with this proxy statement. The 401(k) plan trustee will vote your shares according to your instructions. Only Computershare and its affiliates or agents will have access to your individual voting instructions. You may revoke previously given voting instructions by filing with the trustee either a written revocation or a properly completed and signed proxy bearing a later date. To vote your 401(k) plan shares, you must provide your voting instructions to Computershare before 11:59 p.m., Eastern Time, on June 7, 2011, for your proxy to be valid and your vote to count. If you do not provide voting instructions to the 401(k) plan trustee, the 401(k) plan trustee will not vote your shares.

Householding of Annual Meeting Materials

Some banks, brokers and other nominee record holders may be participating in the practice of householding proxy statements and annual reports. This means that only one copy of our proxy statement and annual report to stockholders may have been sent to multiple stockholders in your household. We will promptly deliver a separate copy of either document to you upon written or oral request to Alnylam Pharmaceuticals, Inc., 300 Third Street, Cambridge, Massachusetts 02142, Attention: Investor Relations and Corporate Communications, telephone: (617) 551-8200. If you want to receive separate copies of the proxy statement or annual report to stockholders in the future, or if you are receiving multiple copies and would like to receive only one copy per household, you should contact your bank, broker or other nominee record holder, or you may contact us at the above address and phone number.

Table of Contents**OWNERSHIP OF OUR COMMON STOCK**

The following table sets forth information regarding beneficial ownership of our common stock as of February 28, 2011 by:

each person, or group of affiliated persons, known to us to be the beneficial owner of 5% or more of the outstanding shares of our common stock;

each of our directors;

our principal executive officer, our principal financial officer and other executive officers who served during the year ended December 31, 2010, whom, collectively, we refer to as our named executive officers; and

all of our directors and executive officers as a group.

The number of shares of common stock beneficially owned by each person or entity is determined in accordance with the applicable rules of the SEC and includes voting or investment power with respect to shares of our common stock. The information is not necessarily indicative of beneficial ownership for any other purpose. Unless otherwise indicated, to our knowledge, all persons named in the table have sole voting and investment power with respect to their shares of common stock, except to the extent authority is shared by spouses under community property laws. The inclusion herein of any shares as beneficially owned does not constitute an admission of beneficial ownership.

Name and Address of Beneficial Owner(1)	Number of Shares Owned	+	Common Stock Underlying Options Acquirable Within 60 Days(2)	=	Total Beneficial Ownership	Percentage of Common Stock Beneficially Owned(3)
Holders of more than 5% of our common stock						
FMR LLC(4)	5,800,765				5,800,765	13.8%
Novartis Pharma AG(5)	5,602,898				5,602,898	13.3%
Eastern Capital Limited(6)	3,783,179				3,783,179	9.0%
BlackRock, Inc.(7)	2,303,590				2,303,590	5.5%
Directors and Named Executive Officers						
John K. Clarke	8,891		65,000		73,891	*
Victor J. Dzau, M.D.			60,000		60,000	*
Marsha H. Fanucci(8)						*
John M. Maraganore, Ph.D.	51,430(13)		1,088,980		1,140,410	2.6%
Steven M. Paul, M.D.(9)						*
Paul R. Schimmel, Ph.D.	221,473(14)		45,000		266,473	*
Phillip A. Sharp, Ph.D.	252,630(15)		255,000		507,630	1.2%

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Kevin P. Starr		167,631	167,631	*
Barry E. Greene	1,303(13)	416,815	418,118	1.0%
Laurence E. Reid, Ph.D.(10)	487(13)		487	*
Kenneth S. Koblan, Ph.D.(11)	399(13)	25,000	25,399	*
Akshay K.				
Vaishnaw, M.D., Ph.D.	1,383(13)	145,241	146,624	*
Patricia L. Allen(12)	2,235(13)	154,825	157,060	*
All directors and executive officers as a group (13 persons)	540,231	2,423,492	2,963,723	6.6%

* Less than 1% of our outstanding common stock.

Table of Contents

- (1) Unless otherwise indicated, the address of each stockholder is c/o Alnylam Pharmaceuticals, Inc., 300 Third Street, Cambridge, MA 02142.
- (2) For purposes of calculating beneficial ownership for this table, shares underlying options that will vest within 60 days after February 28, 2011 are deemed outstanding.
- (3) Percentage of beneficial ownership is based on 42,345,186 shares of our common stock outstanding as of February 28, 2011. Shares of common stock subject to options currently exercisable, or exercisable within 60 days of February 28, 2011, are deemed outstanding for computing the percentage of the common stock beneficially owned by the person holding such options but are not deemed outstanding for computing the percentage ownership of any other person.
- (4) According to Amendment No. 6 to a Schedule 13G filed by FMR LLC (previously known as FMR Corp.) with the SEC on February 14, 2011, as of December 31, 2010, Fidelity Management & Research Company, a wholly owned subsidiary of FMR LLC and an investment adviser registered under Section 203 of the Investment Advisers Act of 1940, is the beneficial owner of 5,800,765 shares, as a result of acting as an investment advisor to various investment companies registered under Section 8 of the Investment Company Act of 1940. The ownership of one investment company, Fidelity Growth Company Fund, amounted to 4,214,665 shares, or approximately 10% of our outstanding common stock. Edward C. Johnson 3d, Chairman of FMR LLC, and FMR LLC, through its control of Fidelity Management & Research Company, and the funds, each has sole power to dispose of the 5,800,765 shares owned by such funds. Neither FMR LLC nor Edward C. Johnson 3d has the sole power to vote or direct the voting of the shares owned directly by such funds, which power resides with the funds' Boards of Trustees. Fidelity Management & Research Company carries out the voting of the shares under written guidelines established by the funds' Boards of Trustees. Various persons have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, the shares of our common stock held by these funds. The address of FMR LLC is 82 Devonshire Street, Boston, MA 02109.
- (5) According to Amendment No. 3 to a Schedule 13G filed by Novartis AG and Novartis Pharma AG with the SEC on February 7, 2011, as of December 31, 2010, Novartis Pharma AG is the record and beneficial owner of 5,602,898 shares and Novartis AG, as parent of Novartis Pharma AG, is the indirect beneficial owner of such shares. Our investor rights agreement with Novartis Pharma AG provides Novartis Pharma AG with the right to acquire additional equity securities of Alnylam in the event that we propose to sell or issue any equity securities, subject to specified exceptions, as described in the investor rights agreement, such that Novartis would be able generally to maintain its ownership percentage in Alnylam. The address of Novartis Pharma AG is Lichtstrasse 35, V8 CH-4002, Basel, Switzerland.
- (6) According to Amendment No. 3 to a Schedule 13G filed by Eastern Capital Limited with the SEC on February 14, 2011, as of December 31, 2010, Eastern Capital Limited, a direct wholly owned subsidiary of Portfolio Services Ltd., a Cayman Islands company, and Kenneth B. Dart, beneficially own 3,783,179 shares. Mr. Dart is the beneficial owner of all of the outstanding shares of Portfolio Services Ltd., which in turn owns all the outstanding shares of Eastern Capital Limited. Eastern Capital Limited and Mr. Dart have shared voting and dispositive power with respect to the shares held. The address of Eastern Capital Limited is P.O. Box 31363, Grand Cayman, KY1-1206, Cayman Islands.
- (7) According to Amendment No. 3 to a Schedule 13G filed by BlackRock, Inc. with the SEC on February 3, 2011, as of December 31, 2010, BlackRock, Inc. has the sole power to vote or direct the voting of the shares owned. Various persons have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, the shares of our common stock held by BlackRock, Inc. and/or its subsidiaries. The address of

BlackRock, Inc. is 40 East 52nd Street, New York, NY 10022.

- (8) Ms. Fanucci was elected to our board of directors in December 2010. Ms. Fanucci filled a vacancy created in 2010 upon the retirement of one of our directors.
- (9) Dr. Paul was elected to our board of directors in September 2010. Dr. Paul filled a vacancy created in 2010 upon the retirement of one of our directors.
- (10) Dr. Reid joined Alnylam as our senior vice president and chief business officer in June 2010.

Table of Contents

- (11) Dr. Koblan joined Alnylam in April 2010 as our vice president, distinguished Alnylam fellow, and was promoted to our chief scientific officer in September 2010. He was designated as an executive officer by our board in November 2010.
- (12) In February 2011, Ms. Allen resigned from her position as vice president of finance and treasurer.
- (13) Includes shares contributed by Alnylam to our 401(k) plan for the benefit of our named executive officers as of February 28, 2011: Dr. Maraganore, 1,430 shares; Mr. Greene, 1,303 shares; Dr. Reid, 487 shares; Dr. Koblan, 399; Dr. Vaishnav, 1,383 shares; and Ms. Allen, 1,165 shares.
- (14) Includes shares held by the Paul Schimmel Prototype PSP, of which Dr. Schimmel is the trustee and over which he has sole investment and voting power.
- (15) Includes shares held by the Phillip A. Sharp 2009 Grantor Retained Annuity Trust, of which Dr. Sharp is the trustee and over which he has sole investment and voting power.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, requires our directors, executive officers and the holders of more than 10% of our common stock to file with the SEC initial reports of ownership of our common stock and other equity securities on a Form 3 and reports of changes in such ownership on a Form 4 or Form 5. Officers, directors and 10% stockholders are required by SEC regulations to furnish us with copies of all Section 16(a) forms they file. Based solely on a review of our records and written representations by the persons required to file these reports, we believe that all filing requirements of Section 16(a) were satisfied with respect to 2010.

PROPOSAL 1 ELECTION OF CLASS I DIRECTORS

We have three classes of directors, Class I, Class II and Class III, and the board has set the number of directors at nine. At each annual meeting, directors are elected for a term of three years to succeed those whose terms are expiring. The directors are divided as equally as possible among the three classes and the terms of the three classes are staggered so that only one class is elected by stockholders annually. We currently have a vacancy on our board of directors as a result of the retirement of Vicki L. Sato, Ph.D. effective as of April 30, 2011. Dr. Sato served as a Class II director. We intend to fill this vacancy by a vote of the majority of our remaining directors, which is expected to occur after the 2011 annual meeting, pursuant to our amended and restated bylaws.

John M. Maraganore, Ph.D., Paul R. Schimmel, Ph.D. and Phillip A. Sharp, Ph.D. are currently serving as Class I directors. Each of Drs. Maraganore, Schimmel and Sharp has served as a director since 2002. The Class I directors elected this year will serve as members of our board until the 2014 annual meeting of stockholders, or until their respective successors are elected and qualified.

The persons named in the enclosed proxy will vote to elect Drs. Maraganore, Schimmel and Sharp as Class I directors unless the proxy is marked otherwise. Drs. Maraganore, Schimmel and Sharp have indicated their willingness to serve on our board, if elected; however, if any nominee should be unable to serve, the person acting under the proxy may vote the proxy for a substitute nominee designated by our board. Our board has no reason to believe that Drs. Maraganore, Schimmel or Sharp would be unable to serve if elected.

Table of Contents**Board Recommendation**

Our board of directors recommends a vote FOR the election of each of the Class I director nominees.

Set forth below for each director, including the Class I director nominees, Drs. Maraganore, Schimmel and Sharp, is information as of January 31, 2011 with respect to his or her (a) name and age, (b) positions and offices at Alnylam, if any, (c) principal occupation and business experience during at least the past five years, (d) directorships, if any, of other publicly-held companies, held currently or during the past five years, and (e) the year such person became a member of our board of directors. The duration of an individual's service on our board or as an officer described below includes service on the board of directors or as an officer of our predecessor company, which was also known as Alnylam Pharmaceuticals, Inc.

We have also included information below regarding each director's specific experience, qualifications, attributes and skills that led our board of directors to the conclusion that he or she should serve as a director in light of our business and structure. There are no family relationships among any of our directors or executive officers.

Name	Age	Director Since	Principal Occupation, Other Business Experience and Other Directorships During the Past Five Years, and Other Specific Experience, Qualifications, Attributes and Skills
Class I directors, nominees to be elected at the 2011 annual meeting (terms expiring in 2014)			
John M. Maraganore, Ph.D.	48	2002	<p>Dr. Maraganore has served as our Chief Executive Officer and as a member of our board of directors since December 2002. Dr. Maraganore also served as our President from December 2002 to December 2007. From April 2000 to December 2002, Dr. Maraganore served as Senior Vice President, Strategic Product Development for Millennium Pharmaceuticals, Inc., a biopharmaceutical company. He also serves as a director of the Biotechnology Industry Organization.</p>
			<p>Dr. Maraganore has 25 years of experience in the biotechnology industry, bringing to our board critical scientific, research and development, and general management expertise. In prior roles, Dr. Maraganore has led the research, development and FDA approval and commercialization of important drug therapies, including Angiomax[®], an anticoagulant for patients undergoing coronary angioplasty procedures, of which Dr. Maraganore was an inventor. As a founder and leader of new businesses, he has developed high-performing organizations and created shareholder value while focusing on leading-edge scientific research. A true visionary, strategist and innovator, Dr. Maraganore's broad experience and personal passion bring an invaluable perspective to our board.</p>
Paul R. Schimmel, Ph.D. <i>Compensation Committee</i>	70	2002	<p>Dr. Schimmel is a scientific founder of Alnylam and has served as a member of our board of directors since June 2002. Dr. Schimmel has</p>

been the Ernest and Jean Hahn Professor of Molecular Biology and Chemistry and a member of the Skaggs Institute for Chemical Biology at the Scripps Research Institute since 1997. Dr. Schimmel is a member of the National Academy of Sciences, the Institute of Medicine and the American Academy of Arts and Sciences.

Table of Contents

Name	Age	Director Since	Principal Occupation, Other Business Experience and Other Directorships During the Past Five Years, and Other Specific Experience, Qualifications, Attributes and Skills
			<p>Dr. Schimmel is a noted academic scholar, and his knowledge and experience offer a critical scientific perspective to our board. Dr. Schimmel has authored or co-authored more than 450 scientific papers, and has been active in many scientific and academic organizations and committees. Having a longstanding interest in the applications of basic biomedical research to human health, Dr. Schimmel holds several patents and is a co-founder or founding director of a number of biotechnology companies, of which six, including Alnylam, became publicly traded on the NASDAQ Stock Market, or NASDAQ. As one of our scientific founders, Dr. Schimmel's insight and scientific expertise are invaluable assets to our board when evaluating our strategy and unique challenges as one of the first companies focused on the discovery and development of therapeutics based on RNA interference, or RNAi.</p>
Phillip A. Sharp, Ph.D.	66	2002	<p>Dr. Sharp is a scientific founder of Alnylam and has served as a member of our board of directors since June 2002. Dr. Sharp is currently an Institute Professor at the David H. Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology, and was the Founding Director of the McGovern Institute for Brain Research at the Massachusetts Institute of Technology. Dr. Sharp has been a professor at the Massachusetts Institute of Technology since 1974. He is a member of the National Academy of Sciences, the Institute of Medicine and American Academy of Arts and Sciences. Dr. Sharp received the Nobel Prize for Physiology or Medicine in 1993. He also formerly served as a director of Biogen, Inc. (now Biogen Idec Inc.), a biotechnology company, which he co-founded in 1978.</p> <p>Dr. Sharp, a leading researcher in molecular biology and biochemistry, brings to our board a fundamental understanding of the core scientific principles of our business. A Nobel Prize recipient, Dr. Sharp has authored over 350 scientific papers, received numerous awards and honorary degrees for his scientific work, and served on many advisory boards for the government, academic institutions, scientific societies and companies. Dr. Sharp has strategic expertise based upon his role as a co-founder and former director of Biogen Idec Inc. As one of our scientific founders, Dr. Sharp's insight and scientific expertise are invaluable assets to our board when evaluating our strategy and unique challenges as one of the first companies focused on the discovery and development of RNAi therapeutics.</p>

Table of Contents

Name	Age	Director Since	Principal Occupation, Other Business Experience and Other Directorships During the Past Five Years, and Other Specific Experience, Qualifications, Attributes and Skills
Class II directors (terms expiring in 2012)			
John K. Clarke <i>Chairman of the Board Audit Committee Nominating and Corporate Governance Committee (Chair)</i>	57	2002	<p>Mr. Clarke is a founder of Alnylam and has served as the chairman of our board of directors since June 2002. Since founding Cardinal Partners, a venture capital firm focused on healthcare, in 1997, Mr. Clarke has served as its Managing General Partner. Mr. Clarke also serves as a director of Momenta Pharmaceuticals, Inc. and formerly served as a director of Sirtris Pharmaceuticals, Inc. and Visicu, Inc.</p> <p>Mr. Clarke has over 28 years of experience as a venture capitalist in the life sciences and healthcare industries, bringing a deep understanding to our board of the challenges of building a successful biotechnology company. He co-founded and served as interim chief executive officer of numerous successful private and publicly traded biotechnology companies. Mr. Clarke has a keen understanding of the interplay between management and the board and is well-versed in the current best practices in corporate governance, making him well-suited to serve as the chairman of our board and our nominating and corporate governance committee.</p>
Marsha H. Fanucci <i>Audit Committee</i>	57	2010	<p>Ms. Fanucci has served as a member of our board of directors since December 2010. Ms. Fanucci served as Senior Vice President and Chief Financial Officer of Millennium Pharmaceuticals, Inc., a biopharmaceutical company, from July 2004 to January 2009. While at Millennium, she also served as Vice President, Finance and Corporate Strategy from July 2003 to June 2004, and prior to that as Vice President of Corporate Development from 2000. Prior to joining Millennium, Ms. Fanucci served as Vice President of Corporate Development and Strategy at Genzyme Corporation, a biotechnology company, from 1998 to 2000. Ms. Fanucci also serves as a director of Ironwood Pharmaceuticals, Inc. and Momenta Pharmaceuticals, Inc.</p> <p>Ms. Fanucci has demonstrated an expertise with respect to public company and financial accounting matters, including over 23 years of leadership and consulting experience in biotechnology and healthcare companies. Her leadership in the areas of corporate strategy, financial planning and reporting, and operations, will be an asset to our board, and in particular, our audit committee, as we continue to grow our company, advance our clinical development pipeline and partner additional programs and technologies.</p>

Table of Contents

Name	Age	Director Since	Principal Occupation, Other Business Experience and Other Directorships During the Past Five Years, and Other Specific Experience, Qualifications, Attributes and Skills
Class III directors (terms expiring in 2013)			
Victor J. Dzau, M.D. <i>Nominating and Corporate Governance Committee</i>	65	2007	<p>Dr. Dzau has served as a member of our board of directors since April 2007. Dr. Dzau has been the Chancellor for Health Affairs at Duke University and President and Chief Executive Officer of the Duke University Health System since July 2004. From July 1996 to September 2004, he was the Hersey Professor of Theory and Practice of Medicine at Harvard Medical School and Chair of the Department of Medicine, Physician in Chief and Director of Research at Brigham and Women's Hospital. He is a former Chairman of the National Institutes of Health (NIH) Cardiovascular Disease Advisory Committee and served on the Advisory Committee to the Director of the NIH. He is a member of the Institute of Medicine. He also serves as a director of Duke University Health System, Medtronic, Inc., PepsiCo, Inc. and Genzyme Corporation.</p> <p>Dr. Dzau brings to our board extensive experience in the medical field, both in the hospital, as a practicing physician, and the academic research settings. As the President and Chief Executive Officer of the Duke University Health System, Dr. Dzau has a deep understanding of health care providers and of physicians, who are key opinion leaders and partners to Alnylam as we continue to advance our clinical development pipeline and initiate additional clinical trials.</p>
Steven M. Paul, M.D. <i>Compensation Committee (Chair)</i>	60	2010	<p>Dr. Paul has served as a member of our board of directors since September 2010. Dr. Paul is currently the Director of the Appel Alzheimer's Disease Research Institute and a Professor of Neurology (Neuroscience) and Psychiatry at Weill Cornell Medical College of Cornell University. Dr. Paul served for 17 years at Eli Lilly and Company, a pharmaceutical company, most recently as the Executive Vice President for Science and Technology and President of the Lilly Research Laboratories, a division of Eli Lilly and Company, from July 2003 to his retirement in February 2010. Prior to this, he served as Group Vice President of Therapeutic Area Discovery Research and Clinical Investigation for Lilly Research Laboratories for more than five years. He is a member the Institute of Medicine of the National Academy of Sciences and a Fellow of the American Association for the Advancement of Science. Prior to joining Lilly, Dr. Paul served in several senior roles at the National Institute of Mental Health, including serving as the Scientific Director of the Intramural Research Program. Dr. Paul also serves as a director of the Sigma-Aldrich Corporation and the Foundation of the National Institutes of Health, and is a Venture Partner at Third Rock Ventures.</p>

Table of Contents

Name	Age	Director Since	Principal Occupation, Other Business Experience and Other Directorships During the Past Five Years, and Other Specific Experience, Qualifications, Attributes and Skills
Kevin P. Starr <i>Audit Committee (Chair)</i> <i>Compensation Committee</i>	48	2003	<p data-bbox="660 396 1497 705">Dr. Paul brings to our board more than 17 years of management experience in the pharmaceutical industry and 35 years of scientific research experience. He has been the recipient of many awards and honors and has served on numerous committees and advisory boards. He has also authored or co-authored over 500 papers and book chapters. Dr. Paul is widely recognized as a leader across many dimensions of medical research and drug development, and this expertise will be important to our board as we continue to advance our clinical development pipeline and initiate additional clinical trials.</p> <p data-bbox="660 743 1497 1016">Mr. Starr has served as a member of our board of directors since September 2003. Since April 2007, Mr. Starr has been a Partner of Third Rock Ventures, a venture capital firm. From December 2002 to March 2007, Mr. Starr was an entrepreneur. From December 2001 to December 2002, Mr. Starr served as Chief Operating Officer of Millennium Pharmaceuticals, Inc., a biopharmaceutical company. He also served as Millennium's Chief Financial Officer from December 1998 to December 2002.</p> <p data-bbox="660 1094 1497 1509">Mr. Starr is a proven operational leader who brings to our board over 25 years of experience building and leading biotechnology companies. Mr. Starr's background includes executive management roles with responsibility over key financial and business planning functions, including extensive experience in the oversight of financial audits, the design and implementation of financial controls, and corporate governance best practices. In addition, as an entrepreneur and venture capitalist, Mr. Starr has focused on the formation, development and business strategy of multiple start-up companies. Mr. Starr's depth and breadth of financial expertise and his experience handling complex financial and business issues also position him well to serve as chair and financial expert of our audit committee.</p>

CORPORATE GOVERNANCE**General**

We believe that good corporate governance is important to ensure that Alnylam is managed for the long-term benefit of our stockholders. This section describes key corporate governance practices that we have adopted.

We have adopted a Code of Business Conduct and Ethics, which applies to all of our officers, directors and employees, as well as charters for our audit committee, our compensation committee and our nominating and corporate governance committee, and corporate governance guidelines. We have posted copies of these documents on the Corporate Governance page of the Investors section of our website, www.alnylam.com. We intend to disclose on

our website any amendments to, or waivers from, our Code of Business Conduct and Ethics required to be disclosed by law or NASDAQ Global Market listing standards.

Table of Contents

Corporate Governance Guidelines

Our board of directors has adopted corporate governance guidelines to assist in the exercise of its duties and responsibilities and to serve the best interests of Alnylam and our stockholders. These guidelines, which provide a framework for the conduct of our board of directors' business, provide that:

our board's principal responsibility is to oversee the management of Alnylam;

a majority of the members of our board shall be independent directors;

the independent directors meet regularly in executive session;

directors have full and free access to management and, as necessary and appropriate, independent advisors; and

periodically, our board and its committees will conduct a self-evaluation to determine whether they are functioning effectively.

We have posted a copy of our corporate governance guidelines on the Corporate Governance page of the Investors section of our website, www.alnylam.com.

Board Determination of Independence

Under the NASDAQ Marketplace Rules, a director only will qualify as an independent director if, in the opinion of our board, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. Our board has determined that none of Ms. Fannuci, Drs. Dzau, Paul, Sato and Schimmel and Messrs. Clarke and Starr have a relationship which would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is an independent director as defined under NASDAQ Rule 5605(a)(2). In making such determination, our board considered relationships, if any, that each non-employee director has with Alnylam, their beneficial ownership of our outstanding common stock and all other facts and circumstances our board deemed relevant in determining their independence.

Role of the Board

Our board of directors is responsible for establishing broad corporate policies and reviewing our overall performance rather than day-to-day operations. The primary responsibility of our board is to oversee the management of our company and, in doing so, serve the best interests of the company and our stockholders. Our board selects, evaluates and provides for the succession of executive officers and, subject to stockholder election, directors. It reviews and approves corporate objectives and strategies, and evaluates significant policies and proposed major commitments of corporate resources. Our board also participates in decisions that have a potential major economic impact on our company. Management keeps our directors informed of company activity through regular communication, including written reports and presentations at board of directors and committee meetings.

Board Leadership Structure

Our board has determined that the roles of chief executive officer and chairman of the board should be separated at the current time. Mr. Clarke, an independent director, has served as our chairman since the founding of Alnylam in 2002, and Dr. Maraganore has served as our chief executive officer and a director since 2002. Separating these positions allows our chief executive officer to focus on our day-to-day business operations, while allowing the chairman 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 our chairman, 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, our board believes that our current leadership structure is appropriate

Table of Contents

because it provides an effective balance between strategy development and independent leadership and management oversight.

The Board's Role in Risk Oversight

We face a number of risks in our business, including risks related to: pre-clinical and clinical research and development; regulatory reviews, approvals and oversight; intellectual property filings, prosecution, maintenance and challenges; the establishment and maintenance of strategic alliances; competition; and the ability to access additional funding for our business; as well as other risks. Our management is responsible for the day-to-day management of the risks that we face, while our board of directors, as a whole and through its committees, has responsibility for the oversight of risk management.

Our board administers its risk oversight function directly and through its three committees. Our chairman meets regularly with our chief executive officer and other executive officers to discuss strategy and risks facing the company. Members of senior management attend the quarterly board meetings and are available to address any questions or concerns raised by the board on risk management-related and any other matters. Each quarter, the board of directors receives presentations from members of senior management on strategic matters involving our business. In addition, as part of its charter, the audit committee regularly discusses with management our risk exposures in the areas of financial reporting, internal controls and compliance with legal and financial regulatory requirements, their potential impact on our company and the steps we take to manage them. The compensation committee assists the board in fulfilling its oversight responsibilities with respect to the management of risks arising from our compensation policies and programs. The nominating and governance committee assists the board in fulfilling its oversight responsibilities with respect to the management of risks associated with board organization, membership and structure, succession planning for our directors and executive officers, and corporate governance.

Board of Directors Meetings and Attendance

Our board met five times during 2010, either in person or by teleconference. During 2010, each of our directors attended at least 75% of the aggregate number of board meetings and meetings of the committees on which he or she then served.

Our directors are expected to attend the annual meeting of stockholders. All of our directors attended the 2010 annual meeting of stockholders. We expect substantially all of our directors to attend the 2011 annual meeting.

Board Committees

Our board of directors has established three standing committees – audit, compensation, and nominating and corporate governance – each of which operates under a written charter that has been approved by our board. We have posted copies of each committee's charter on the Corporate Governance page of the Investors section of our website, www.alnylam.com. The members of each committee are appointed by our board, upon recommendation of our nominating and corporate governance committee.

Our board has determined that all of the members of each of its three standing committees are independent as defined under the NASDAQ Marketplace rules, and, in the case of all members of our audit committee, the independence requirements of Rule 10A-3 under the Exchange Act.

Audit Committee

Our audit committee is responsible for:

appointing, evaluating, retaining, approving the compensation of and, when necessary, terminating the engagement of our independent auditors;

taking appropriate action, or recommending that our board of directors take appropriate action, to oversee the independence of our independent auditors;

Table of Contents

reviewing and discussing with management and the independent auditors our annual and quarterly financial statements and related disclosures;

monitoring our internal control over financial reporting, disclosure controls and procedures, and Code of Business Conduct and Ethics;

reviewing and discussing our financial risk management policies;

establishing policies regarding hiring employees from our independent auditors and procedures for the receipt and retention of accounting related complaints and concerns;

meeting independently with our independent auditors and management; and

preparing the audit committee report required by SEC rules, which is included below under the heading Report of the Audit Committee.

In addition, our audit committee must approve or ratify any related party transaction entered into by us. Our policies and procedures for the review and approval of related person transactions are summarized under the heading Policies and Procedures for Related Person Transactions, which appears below.

The members of our audit committee are Messrs. Starr (Chair) and Clarke and Ms. Fanucci. Through April 1, 2011, the members of our audit committee were Messrs. Starr (Chair) and Clarke and Dr. Schimmel. We believe that each member of our audit committee satisfies the requirements for membership, including independence, established by NASDAQ and the SEC. Our board has determined that Mr. Starr is an audit committee financial expert as defined in Item 407(d)(5) of Regulation S-K. No member of our audit committee is the beneficial owner of more than 10% of our common stock.

Our audit committee met four times during 2010, either in person or by teleconference.

Compensation Committee

Our compensation committee is responsible for:

annually reviewing and approving corporate goals and objectives relevant to compensation of our executive officers;

reviewing and approving, or making recommendations to our board with respect to, the compensation of our chief executive officer and other executive officers;

overseeing an evaluation of our senior executives;

overseeing and administering our stock-based compensation plans and 401(k) plan, and performing the duties imposed on the compensation committee by the terms of those plans;

reviewing and making recommendations to our board with respect to director compensation;

reviewing, and amending as necessary, our compensation philosophy and objectives;

reviewing and discussing annually with management our Compensation Discussion and Analysis, which is included beginning on page 23 of this proxy statement; and

preparing the compensation committee report required by SEC rules, which is included immediately following the Compensation Discussion and Analysis section appearing below.

Our compensation committee has retained Towers Watson, an independent, nationally recognized compensation consultant, to provide assistance from time to time in reviewing the compensation paid to our senior management team, which is comprised of our named executive officers and all of our vice presidents, and our non-employee directors, and to review our compensation programs and practices generally. In 2010, our compensation committee engaged Towers Watson to assist it in: assessing competitive compensation levels and pay mix (base salary, target annual incentive award and long-term incentive compensation) for our senior management team based upon comparison with our peer group, which peer group is described below under the heading Compensation Discussion and Analysis, and market survey data; and reviewing equity utilization

Table of Contents

and annual stock option awards as compared to our peer group. In connection with its work for the compensation committee during 2010, Towers Watson prepared reports for the compensation committee, met with the Chair of the committee as necessary and attended certain committee meetings to present its findings and recommendations.

The processes and procedures followed by our compensation committee in considering and determining executive compensation is described below under the heading Compensation Discussion and Analysis.

The members of our compensation committee are Drs. Paul (Chair) and Schimmel and Mr. Starr. Through April 1, 2011, the members of our compensation committee were Drs. Sato (Chair) and Paul and Mr. Starr. We believe that each member of our compensation committee satisfies the requirements for membership, including independence, as established by NASDAQ.

Our compensation committee met six times during 2010, either in person or by teleconference, and acted by written consent seven times.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee is responsible for:

identifying individuals qualified to become members of our board;

recommending to our board the persons to be nominated for election as directors and the persons to be appointed to each of our board committees;

reviewing and making recommendations to our board with respect to management succession planning;

developing and recommending to our board a set of corporate governance principles; and

overseeing the evaluation of our board.

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

The members of our nominating and corporate governance committee are Mr. Clarke (Chair) and Dr. Dzau. We believe that each member of our nominating and corporate governance committee satisfies the requirements for membership, including independence, as established by NASDAQ.

Our nominating and corporate governance committee met five times during 2010, either in person or by teleconference.

Director Nomination Process

Our nominating and corporate governance committee is responsible for identifying individuals qualified to become directors, consistent with criteria approved by our board, and recommending the persons to be nominated for election as directors, except where we are legally required by contract, law or otherwise to provide third parties with the right to nominate.

The process followed by our nominating and corporate governance committee to identify and evaluate director candidates includes requests to board members and others for recommendations, meetings from time to time to

evaluate biographical information and background material relating to potential candidates and interviews of selected candidates by members of the committee and our board.

Criteria and Diversity

Our corporate governance guidelines specify that diversity on the board should be considered by the nominating and corporate governance committee in the director identification and nomination process. In considering whether to recommend any particular candidate for inclusion in our board's slate of recommended director nominees, our nominating and corporate governance committee will apply certain criteria, including

Table of Contents

the candidate's integrity, business acumen, knowledge of our business and industry, experience, diligence, conflicts of interest and ability to act in the interests of all stockholders. Our nominating and corporate governance committee also considers issues of diversity, such as diversity of gender, race and national origin, education, professional experience and differences in viewpoints and skills. While our nominating and corporate governance committee does not have a formal policy with respect to diversity, our board and nominating and corporate governance committee believe that it is essential that the board members represent diverse viewpoints. The committee does not assign specific weights to particular criteria and no particular criterion is a prerequisite for each prospective nominee. We believe that the backgrounds and qualifications of our directors, considered as a group, should provide a composite mix of experience, knowledge and abilities that will allow our board to promote our strategic objectives and fulfill its responsibilities to our stockholders.

The director biographies appearing above under Proposal 1 Election of Class I Directors indicate each nominee's experience, qualifications, attributes and skills that led our board to conclude that he should continue to serve as a member of our board. Our board believes that each of the nominees has had substantial achievement in his professional and personal pursuits, and possesses the background, talents and experience that our board desires and that will contribute to the best interests of our company and to long-term stockholder value.

Stockholder Nominations

Stockholders may recommend individuals to our nominating and corporate governance committee for consideration as potential director candidates by submitting their names, together with appropriate biographical information and background materials and, if the stockholder is not a stockholder of record, a statement as to whether the stockholder or group of stockholders making the recommendation has beneficially owned more than 5% of our common stock for at least a year as of the date such recommendation is made, to the nominating and corporate governance committee, c/o Corporate Secretary, Alnylam Pharmaceuticals, Inc., 300 Third Street, Cambridge, Massachusetts 02142. Assuming that appropriate biographical and background material has been provided on a timely basis, the committee will evaluate stockholder-recommended candidates by following substantially the same process, and applying substantially the same criteria, as it follows for candidates submitted by others. Stockholders also have the right under our bylaws to nominate director candidates directly, without any action or recommendation on the part of the committee or the board, by following the procedures set forth below under the heading Stockholder Proposals.

At the annual meeting, stockholders will be asked to consider the election of Drs. Maraganore, Schimmel and Sharp, each of whom currently serves on our board of directors. Drs. Maraganore, Schimmel and Sharp were proposed to our board by our nominating and corporate governance committee and our board determined to include them as its nominees.

Communicating with the Independent Directors

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

Communications are forwarded to all directors if they relate to important substantive matters and include suggestions or comments that the chair of our board (if an independent director), or the lead director (if one is appointed), or otherwise the chair of our nominating and corporate governance committee, considers to be important for the directors to know. In general, communications relating to corporate governance and long-term corporate strategy are more likely to be forwarded than communications relating to ordinary business affairs, personal grievances and matters as to

which we tend to receive repetitive communications.

Stockholders who wish to send communications on any topic to our board should address such communications to the Board of Directors, c/o Corporate Secretary, Alnylam Pharmaceuticals, Inc., 300 Third Street, Cambridge, Massachusetts 02142.

Table of Contents

Risk Considerations in Executive Compensation

Our compensation committee has discussed the concept of risk as it relates to our executive compensation program and our compensation committee does not believe our executive compensation program encourages excessive or inappropriate risk taking. As described more fully below in Compensation Discussion and Analysis, we structure our pay to consist of both fixed and variable compensation to motivate our executives to produce superior short- and long-term results that are in the best interests of our company and stockholders in order to attain our ultimate objective of increasing stockholder value. We believe that any risks that may arise from our compensation policies and practices for our employees are not reasonably likely to have a material adverse effect on our company.

Report of the Audit Committee

Our audit committee reports to and acts on behalf of our board by providing oversight of our financial management, related person transaction policies and procedures, audits of our financial statements and financial reporting controls and accounting policies and procedures. Our management is responsible for the preparation, presentation and integrity of our financial statements, the appropriateness of our accounting principles and reporting policies, and for establishing and maintaining adequate internal control over financial reporting. The independent registered public accounting firm is responsible for conducting an independent audit of our annual financial statements and our internal control over financial reporting. Our audit committee is responsible for independently overseeing the conduct of these activities by our management and our independent registered public accounting firm.

Our audit committee operates under a written charter adopted by our board that reflects standards contained in the NASDAQ Marketplace Rules. Our audit committee reviews its charter annually and, in April 2010, recommended to our Board, and our Board approved, certain amendments thereto. A complete copy of the current audit committee charter, as amended, is posted on the Corporate Governance page of the Investors section of our website, www.alnylam.com and is attached to this proxy statement as Appendix A.

Our audit committee has reviewed our audited financial statements for the fiscal year ended December 31, 2010, and has discussed them with our management and our independent registered public accounting firm, PricewaterhouseCoopers LLP. Our audit committee has also received from, and discussed with, PricewaterhouseCoopers LLP various communications that PricewaterhouseCoopers LLP is required to provide to our audit committee, including the matters required to be discussed by the Public Company Accounting Oversight Board, or PCAOB, AU Section 380, *Communication with Audit Committees*, as amended, which requires the independent registered public accounting firm to provide the audit committee with additional information regarding the scope and results of the audit, including the independent registered public accounting firm's responsibilities under PCAOB standards, significant issues or disagreements concerning our accounting practices or financial statements, significant accounting policies, significant accounting adjustments, alternative accounting treatments, accounting for significant unusual transactions, and estimates, judgments and uncertainties.

In addition, PricewaterhouseCoopers LLP provided our audit committee with the written disclosures and the letter required by PCAOB Rule 3526, *Communication with Audit Committees Concerning Independence*, as amended, and our audit committee and PricewaterhouseCoopers LLP have discussed its independence from us and our management, including the matters in those written disclosures.

In this context, our audit committee meets regularly with PricewaterhouseCoopers LLP and our management (including private sessions with each of PricewaterhouseCoopers LLP and members of management) to discuss any matters that our audit committee or these individuals believe should be discussed. Our audit committee conducts a meeting each quarter to review the financial statements prior to the public release of earnings.

Based on its discussions with management and PricewaterhouseCoopers LLP, and its review of the representations and information provided by management and PricewaterhouseCoopers LLP, our audit committee recommended to our board that the audited financial statements be included in our Annual Report

Table of Contents

on Form 10-K for the year ended December 31, 2010. Our audit committee also recommended to our board, and our board has approved, subject to stockholder ratification, the appointment of PricewaterhouseCoopers LLP as our independent auditors for the fiscal year ending December 31, 2011.

By the audit committee of the board of directors of Alnylam,

Kevin P. Starr, Chair
John K. Clarke
Marsha H. Fanucci

Principal Accountant Fees and Services

The following table summarizes the fees that our independent auditors, PricewaterhouseCoopers LLP, an independent registered public accounting firm, billed to us for each of the last two fiscal years for audit and other services:

Fee Category	2010	2009
Audit Fees(1)	\$ 450,000	\$ 452,700
Audit-Related Fees(2)	77,970	109,200
Tax Fees(3)	217,500	119,250
All Other Fees(4)	1,500	1,500
Total Fees	\$ 746,970	\$ 682,650

- (1) **Audit Fees** consist of fees for the audit of our annual financial statements, the review of the interim financial statements included in our quarterly reports on Form 10-Q and other professional services provided in connection with regulatory filings or engagements.
- (2) **Audit-Related Fees** consist of fees for services related to accounting consultations and advice, including an audit of our government contracts.
- (3) **Tax Fees** consist of fees for tax compliance, tax consultations and tax studies. Tax consultations relate primarily to an audit by the Internal Revenue Service for the 2008 tax year.
- (4) **All Other Fees** represent payment for access to the PricewaterhouseCoopers LLP on-line accounting research database.

All such accountant services and fees were pre-approved by our audit committee in accordance with the Pre-Approval Policies and Procedures described below.

Pre-Approval Policies and Procedures

Our audit committee is required to pre-approve all audit services to be provided to us by our principal independent auditors, as well as all other services to be provided to us by such independent auditors, except that de minimis non-audit services may be approved in accordance with applicable SEC rules.

CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

Policies and Procedures for Related Person Transactions

Our board has adopted written policies and procedures for the review of any transaction, arrangement or relationship in which Alnylam is a participant, the amount involved exceeds \$120,000, and one of our executive officers, directors, director nominees or 5% stockholders (or their immediate family members), each of whom we refer to as a related person, has a direct or indirect material interest.

If a related person proposes to enter into such a transaction, arrangement or relationship, which we refer to as a related person transaction, the related person must report the proposed related person transaction to our general counsel. The policy calls for the proposed related person transaction to be reviewed and, if

Table of Contents

deemed appropriate, approved by our audit committee. Whenever practicable, the reporting, review and approval will occur prior to entry into the transaction. If advance review and approval is not practicable, our audit committee will review, and, in its discretion, may ratify the related person transaction. The policy also permits the chair of our audit committee to review and, if deemed appropriate, approve proposed related person transactions that arise between committee meetings, subject to ratification by our audit committee at its next meeting. Any related person transactions that are ongoing in nature will be reviewed annually.

A related person transaction reviewed under the policy will be considered approved or ratified if it is authorized by our audit committee after full disclosure of the related person's interest in the transaction. As appropriate for the circumstances, our audit committee will review and consider:

the related person's interest in the related person transaction;

the approximate dollar value of the amount involved in the related person transaction;

the approximate dollar value of the amount of the related person's interest in the transaction without regard to the amount of any profit or loss;

whether the transaction was undertaken in the ordinary course of our business;

whether the terms of the transaction are no less favorable to us than terms that could have been reached with an unrelated third party;

the purpose of, and the potential benefits to us of, the transaction; and

any other information regarding the related person transaction or the related person in the context of the proposed transaction that would be material to investors in light of the circumstances of the particular transaction.

Our audit committee may approve or ratify the transaction only if the committee determines that, under all of the circumstances, the transaction is not inconsistent with our best interests. Our audit committee may impose any conditions on the related person transaction that it deems appropriate.

In addition to the transactions that are excluded by the instructions to the SEC's related person transaction disclosure rule, our board has determined that the following transactions do not create a material direct or indirect interest on behalf of related persons and, therefore, are not related person transactions for purposes of this policy:

interests arising solely from the related person's position as an executive officer of another entity (whether or not the person is also a director of such entity), that is a participant in the transaction, where (a) the related person and all other related persons own in the aggregate less than a 10% equity interest in such entity, and (b) the related person and his or her immediate family members are not involved in the negotiation of the terms of the transaction and do not receive any special benefits as a result of the transaction; and

a transaction that is specifically contemplated by provisions of our charter or bylaws.

The policy provides that transactions involving compensation of executive officers shall be reviewed and approved by our compensation committee in the manner specified in its charter.

Related Person Transactions

Agreements with Novartis

Beginning in September 2005, we entered into the first of two strategic alliances with Novartis Pharma AG and its affiliate, Novartis Institutes for Biomedical Research, Inc., whom we refer to together as Novartis. At that time, we and Novartis executed a stock purchase agreement and an investor rights agreement, and ultimately executed a research collaboration and license agreement. The investor rights agreement provides Novartis with the right generally to maintain its ownership percentage in us until the earlier of any sale by Novartis of shares of our common stock and the expiration or termination of the collaboration and license agreement, subject to certain exceptions. Pursuant to the terms of the investor rights agreement, in April

Table of Contents

2010, Novartis purchased an additional 55,223 shares of our common stock at a purchase price of \$17.99 per share. As of March 31, 2011, Novartis owned approximately 13.2% of our common stock.

Severance Arrangement

In February 2011, Ms. Allen resigned as our vice president of finance and treasurer. In connection with her resignation, we and Ms. Allen entered into a separation agreement, under which we have agreed to provide Ms. Allen with the following severance pay and benefits in consideration for her agreement to a general release and certain other standard terms and conditions: (i) severance in the gross amount of \$250,397 (an amount equal to 12 months of Ms. Allen's gross base salary); (ii) the full cost of any COBRA premiums until the earlier of March 21, 2012 and the date Ms. Allen becomes eligible for coverage under the group health plan of another employer; (iii) a consulting agreement for a period of up to 12 months following her separation date under which she will perform certain services at our request, the terms of which are described below; and (iv) continued vesting of any unvested stock options held by Ms. Allen during the term of the consulting agreement. In connection with the execution of the separation agreement, we and Ms. Allen also entered into a consulting agreement. Under the consulting agreement, Ms. Allen will provide consulting services to us with respect to general accounting, operating budget, public company financial reporting and treasury-related activities. The consulting agreement has a term of one year and may be terminated by either party in the event of an uncured material breach of its terms by the other party.

Other than these transactions, we have not been a participant in any transaction, nor is there any currently proposed transaction, that is reportable under Item 404(a) of Regulation S-K.

INFORMATION ABOUT EXECUTIVE OFFICER AND DIRECTOR COMPENSATION

Compensation Discussion and Analysis

Our compensation committee is responsible for overseeing the total compensation of our senior management team, which is comprised of our named executive officers and all of our vice presidents. In this capacity, our compensation committee designs, implements, reviews and approves all compensation for our chief executive officer and our other named executive officers. The goal of our compensation committee is to ensure that our compensation programs are aligned with the interests of our stockholders and our business goals and that the total compensation paid to each of our named executive officers is fair, reasonable and competitive.

Compensation Objectives and Philosophy

Our compensation programs are designed to attract, motivate and retain qualified and talented executives, motivating them to achieve our business goals and rewarding them for superior short- and long-term performance. In particular, our compensation programs are intended to reward the achievement of specified pre-determined quantitative and qualitative individual and corporate performance goals and objectives and to align the interests of our senior management team with those of our stockholders in order to attain our ultimate objective of increasing stockholder value.

Elements of Total Compensation and Relationship to Performance

Key elements of our compensation programs include:

base salary;

an annual cash incentive program; and

equity incentive compensation, which is typically subject to multi-year vesting based on continued service and is primarily in the form of stock options, the value of which depends on the performance of our common stock price.

Table of Contents

We award annual merit-based increases in base salary based upon an assessment of each executive's performance and the scope of his or her responsibilities. Consistent with our compensation philosophy, we target salaries between the 50th and 60th percentile of the range of salaries of a group of similarly sized and positioned national and regional companies in the biopharmaceutical and biotechnology industries, which we refer to as our peer group. Our 2010 annual incentive program was designed to reward annual achievements as measured against pre-determined quantitative and qualitative individual and corporate performance goals and objectives, with no further consideration given to the executive's scope of responsibility, leadership effectiveness, or additional achievements accomplished during the year that were not pre-specified as part of individual or corporate goals. We awarded cash incentive payments to our named executive officers and the other members of our senior management team under our 2010 annual incentive program, which is described in more detail below. In 2011, our named executive officers and the other members of our senior management team will be eligible to receive cash awards under our 2011 annual incentive program. We typically grant stock options to our executive officers upon commencement of their employment, annually following a review of their individual performance and in connection with a promotion. With the exception of our 2010 annual cash incentive program, we do not have any pre-established targets for allocations or apportionment by type of compensation. The mix of compensation components is designed to reward annual results as well as drive long-term company performance and create stockholder value.

Determining and Setting Executive Compensation

We develop our compensation programs after reviewing publicly available compensation data and subscription survey data for our peer group, as described below.

Defining and Comparing Compensation to Market Benchmarks

During 2010, our compensation committee engaged Towers Watson for assistance with its review of the compensation of our senior management team. In evaluating the total compensation of our named executive officers, our compensation committee, with the assistance of Towers Watson, established a peer group of 19 publicly traded, national and regional companies in the biopharmaceutical and biotechnology industries that was selected based on a balance of the following criteria:

companies whose organizational structure, number of employees, stage of development, market capitalization, research and development expenditures and revenues are similar, though not necessarily identical, to ours;

companies with similar executive positions to ours;

companies against which we believe we compete for executive talent; and

public companies based in the United States whose compensation and financial data are available in proxy statements or other public documents.

Based on these criteria, our peer group for 2010, referred to as our 2010 peer group, was comprised of the following:

Acorda Therapeutics, Inc.
 Alexion Pharmaceuticals, Inc.
 Alkermes, Inc.
 Cubist Pharmaceuticals, Inc.
 Exelixis, Inc.

Isis Pharmaceuticals, Inc.
 Lexicon Pharmaceuticals, Inc.
 Momenta Pharmaceuticals, Inc.
 Onyx Pharmaceuticals, Inc.
 PDL BioPharma, Inc.

Seattle Genetics, Inc.
 Theravance, Inc.
 The Medicines Company
 XenoPort, Inc.
 ZymoGenetics, Inc.

Human Genome Sciences, Inc.
Incyte Corporation

Regeneron Pharmaceuticals, Inc.
Rigel Pharmaceuticals, Inc.

The peer group for our named executive officers is approved by our compensation committee annually.

In order to gain a broader perspective on general industry compensation levels, our compensation committee also considered the total compensation of executives in a broader biotechnology industry group,

Table of Contents

which, for 2010, consisted of 54 biotechnology and biopharmaceutical companies listed in the 2010 Radford Global Life Sciences Survey, with a focus on companies with 150 to 499 employees. This larger survey group included 16 of the companies in our 2010 peer group, among other companies. When conducting its review of our executive compensation programs, our compensation committee considered the compensation of our 2010 peer group and the larger survey group described above.

We believe that the compensation practices of our 2010 peer group provide us with appropriate compensation benchmarks for evaluating the compensation of our named executive officers. Notwithstanding the similarities of the 2010 peer group to Alnylam, due to the nature of our business, we compete for executive talent with many companies that are larger and more established than we are or that possess greater resources than we do, as well as with prestigious academic and non-profit institutions. Accordingly, in 2010, our compensation committee generally targeted compensation for our executive officers as follows:

base salaries between the 50th and 60th percentile of the salaries in our 2010 peer group;

annual cash incentive award opportunities at or below the 25th percentile of our 2010 peer group;

total annual equity incentive awards at or above the 75th percentile of our peer 2010 group; and

total compensation for our executives between the 50th and 75th percentile of compensation paid to similarly situated executives of the companies in our 2010 peer group.

Our compensation committee may consider other criteria, including market factors, the experience level of the executive and the executive's performance against established corporate goals and individual objectives, in determining variations to this general target range.

Other Key Factors in Determining Executive Compensation

As the biopharmaceutical industry is characterized by a very long product development cycle, including a lengthy research and development period and a rigorous approval phase involving human testing and governmental regulatory approval, many of the traditional benchmarking metrics, such as product sales, revenues and profits are inappropriate for an early-stage biopharmaceutical company, such as Alnylam. Instead, the specific factors our compensation committee considers when determining the compensation of our named executive officers include:

key research and development achievements, including advances in RNAi delivery and technology;

initiation and progress of clinical trials;

achievement of regulatory milestones;

establishment and maintenance of key strategic relationships and new business initiatives;

filing, prosecution, defense and enforcement of key intellectual property rights;

development of organizational capabilities; and

financial and operating performance.

These factors are considered by our compensation committee in connection with our annual performance reviews described below and are a critical component in the determination of annual cash and equity incentive awards for our executives.

Annual Performance Reviews

Our compensation committee conducts an annual performance review of each member of our senior management team. During the first quarter of each year, annual corporate goals and individual performance objectives are determined and set forth in writing. At the beginning of the second half of each year, senior management formally reviews performance against goals for the first half of the year and re-aligns key goals for the second half of the year. At the end of each year, our compensation committee determines executive compensation levels after carefully reviewing overall corporate performance and performing a detailed

Table of Contents

evaluation of each named executive officer's annual performance against established corporate goals and individual objectives. In addition, our compensation committee applies its discretion, as it deems appropriate, in determining executive compensation.

Annual corporate goals are proposed by our senior management team and approved by our board. Individual objectives for 2010 focused on contributions that are intended to drive achievement of the corporate goals and were proposed by each member of senior management, with review and input from our chief executive officer. Our compensation committee approved the individual objectives for each of our named executive officers and the remaining members of our senior management team. Any increases in base salary, annual stock option awards or cash awards under our annual incentive program were based on the achievement of these corporate and individual performance goals and objectives. In 2010, our compensation committee established the maximum cash bonus opportunity for each member of our senior management team under the 2010 annual incentive program, representing a percentage of each individual's base salary.

During the last quarter of each year, our senior management team evaluates our corporate performance and each officer's individual performance, as compared to the corporate goals and individual objectives for that year. Based on this evaluation, our chief executive officer recommends to our compensation committee any increases in base salary and any annual stock option awards and/or cash awards under our annual incentive program. Our compensation committee, with input from the chairman of our board, evaluates our chief executive officer's individual performance and determines whether to change his base salary, grant him an annual stock option award and/or grant him a cash award under our annual incentive program. Our board typically grants annual stock option awards, and determines changes in base salary and the amount of any cash incentive payments, at its last regularly scheduled meeting of the year. The board may also review our chief executive officer's compensation throughout the course of the year. With respect to year-end reviews, any changes in base salary are effective at the beginning of the following year. The cash incentive payments awarded under our 2010 annual incentive program were paid in January 2011.

Base Salary

We provide base salaries to our named executive officers to compensate them with a fair and competitive base level of compensation for services rendered during the year. Our compensation committee typically determines the base salary for each executive based on the executive's responsibilities, experience and, if applicable, the base salary level of the executive prior to joining Alnylam. In addition, our compensation committee reviews and considers the level of base salary paid by companies in our peer group for similar positions. Generally, our compensation committee believes our executives' base salaries should be targeted between the 50th and 60th percentile of the salaries in our peer group.

Merit-based increases in base salary for all of our executives, other than our chief executive officer, are determined by our compensation committee based upon a written summary of the executive's performance and a recommendation from our chief executive officer. Any merit-based increase in base salary for our chief executive officer is based upon an assessment of his performance by our compensation committee, input from the chairman of our board and a review by our compensation committee of the base salary of chief executive officers in our peer group.

With respect to Dr. Maraganore, our chief executive officer, notwithstanding the company's and Dr. Maraganore's accomplishments in 2010, as described below, our compensation committee decided to accept the request by Dr. Maraganore that his base salary for 2011 remain at the same level as 2010 for the current time. Dr. Maraganore has elected not to take an increase in his base salary since January 2008.

With respect to Mr. Greene, our president and chief operating officer, based on a review of Mr. Greene's base salary relative to similar positions in our peer group, the compensation committee determined that Mr. Greene's cash compensation was generally below the target percentile as compared to our peer group. Based on the desire of our

compensation committee to provide a competitive base salary between the 50th and 60th percentiles of our 2010 peer group with respect to Mr. Greene, and in light of the company's and Mr. Greene's accomplishments in 2010, as described below, our compensation committee approved a base pay market adjustment to better align his annual salary with our compensation philosophy.

Table of Contents

For each of our other named executive officers, our compensation committee approved a merit increase in base salary for 2011 based upon each individual's performance against his or her 2010 objectives.

The table below sets forth the adjustments to base salary, in dollars and as a percentage, for each of our named executive officers:

Name	Base Salary Adjustments		
	2010 Base Salary	2011 Base Salary	Increase (%)
John M. Maraganore, Ph.D.	\$ 525,000	\$ 525,000	
Barry E. Greene	\$ 390,000	\$ 436,800	12%
Laurence E. Reid, Ph.D.*	\$ 325,000	\$ 328,811	1%
Kenneth S. Koblan, Ph.D.**	\$ 345,000	\$ 345,000	
Akshay K. Vaishnav, M.D., Ph.D.	\$ 352,750	\$ 359,805	2%
Patricia L. Allen***	\$ 245,487	\$ 250,397	2%

* Dr. Reid joined us in June 2010 and accordingly, he received a pro-rated salary adjustment.

** In September 2010, Dr. Koblan was promoted from vice president, distinguished Alnylam fellow, to chief scientific officer and his annual base salary was increased from \$325,000 to \$345,000 as a result of that promotion.

*** In February 2011, Ms. Allen resigned from her position as vice president of finance and treasurer.

2010 Annual Incentive Program

Our compensation committee aims to determine an appropriate mix of cash payments and equity incentive awards to meet short- and long-term goals and objectives. Under the 2010 annual incentive program, specified employees, including our named executive officers and the other members of our senior management team, were eligible to receive an annual cash incentive award based upon the achievement of corporate goals and individual objectives for 2010. The corporate goals for 2010 were proposed by our executive officers and modified and approved by our board. Individual objectives for 2010 were focused on contributions that would drive the achievement of our corporate goals and ensure consistent alignment of the interests of our executive officers and the interests of our stockholders. The compensation committee approved the individual objectives for our named executive officers and the other members of our senior management team. The individual objectives for the other eligible participants were approved by our chief executive officer.

Awards under the 2010 annual incentive program were determined by first establishing a participant's individual performance level, which was based upon a strict and rigid assessment of that individual's performance against pre-established individual objectives for 2010. Each participant had an established maximum cash award opportunity under the incentive program representing a percentage of the participant's base salary for 2010. Each participant was eligible to receive an award ranging from 0% to 100% of such participant's maximum cash award opportunity based upon the participant's individual performance against his or her 2010 objectives, as described below.

A corporate performance modifier was then applied to the individual award. The corporate performance modifier could range from 0% to 100% and was based upon our performance against the 2010 corporate goals approved by our board. The 2010 annual cash incentive program provided that, in the event overall corporate performance for 2010 fell

below a threshold of 50%, the corporate performance modifier would be 0% and no awards would be granted under the incentive program.

Table of Contents

The 2010 corporate goals approved by our board, the relative weightings assigned to each goal at the beginning of the year and the performance against these corporate goals for 2010, were as follows:

Corporate Goal	Relative Weighting	Actual 2010 Performance
Advance clinical pipeline with a focus on human proof of concept, including: advancing ALN-RSV01 in a Phase IIb clinical trial for the treatment of RSV infection in adult lung transplant patients; continuing Phase I clinical development of ALN-VSP for the treatment of liver cancers; and advancing the development of ALN-TTR01 through initiation of a Phase I clinical trial in patients with transthyretin-mediated amyloidosis, or ATTR.	20%	18%
Advance internal and partnered programs towards initial drug application, including: advancing ALN-PCS for the treatment of hypercholesterolemia towards clinical development; and advancing additional pre-clinical RNAi and microRNAi-based therapeutic programs. Expand therapeutic delivery platform through the advancement of novel delivery solutions.	25%	20%
Fund business with the formation of additional strategic alliances and new business ventures and maintain solid financial performance, including ending the year with a specified minimum cash balance.	40%	10%
Continue scientific leadership, including through multiple peer reviewed papers and operational efficiency and productivity. Achieve certain organizational goals.	15%	10%
Approved 2010 Corporate Performance Modifier	100%	58%

At the end of 2010, our compensation committee strictly evaluated individual and corporate performance against the established goals and objectives and determined the amount of the annual cash incentive award, if any, to be paid under the program to each of our named executive officers. The table below shows the maximum cash award opportunity under the incentive program, both as a percentage of the participant's annual base salary and in dollars, and the actual cash bonus payments to our named executive officers, which were paid in January 2011. The basis for determining each such award is discussed below.

Name	2010 Annual Incentive Program		
	Maximum Opportunity (% of Base Salary)	Maximum Opportunity (\$)	Actual Bonus Payment (\$)
John M. Maraganore, Ph.D.	50%	\$ 262,500	\$ 60,900
Barry E. Greene	30%	\$ 117,000	\$ 50,895
Laurence E. Reid, Ph.D.	20%	\$ 37,917*	\$ 13,195
Kenneth S. Koblan, Ph.D.	20%	\$ 51,750**	\$ 19,510
Akshay K. Vaishnaw, M.D., Ph.D.	20%	\$ 70,550	\$ 32,735
Patricia L. Allen	20%	\$ 49,097	\$ 21,357

* Dr. Reid's maximum bonus opportunity was pro-rated based on his June 2010 hire date.

** Dr. Koblan's maximum bonus opportunity was pro-rated based on his April 2010 hire date.

In determining the 2010 compensation and annual incentive award for each of our executive officers, our compensation committee strictly compared the performance of our company during 2010 and each individual's performance to his or her individual corporate, financial, strategic and operational objectives for the year.

The individual objectives for our chief executive officer, Dr. Maraganore, were heavily weighted toward achievement of the overall company performance rating and certain new business development objectives (50%). In addition, other specific targets included achieving human proof of concept in our clinical programs (25%) and developing certain organizational capabilities (25%). Our compensation committee determined that Dr. Maraganore achieved 40% of his individual objectives for 2010, including advancing our clinical pipeline and continuing to develop and build the organization. Our compensation committee determined that under the

Table of Contents

2010 annual incentive program, Dr. Maraganore earned a cash incentive award of \$60,900, representing 40% of his target cash award opportunity, reduced by the corporate performance modifier of 58%.

The individual objectives for Mr. Greene included specific targets with respect to advancing our clinical development pipeline and achieving major development program objectives (40%), advancing our delivery platform (30%), aligning our research and development capabilities with alliance management and achieving specific business development goals (20%), and managing and building our research and development organization (10%). Our compensation committee also considered Dr. Maraganore's recommendations with respect to Mr. Greene's performance. Our compensation committee determined that Mr. Greene achieved 75% of his individual objectives for 2010, including advancing our clinical pipeline, advancing our delivery platform, and achieving alliance management and certain related business development goals. Our compensation committee determined that under the 2010 annual incentive program, Mr. Greene earned a cash incentive award of \$50,895, representing 75% of his target cash award opportunity, reduced by the corporate performance modifier of 58%.

Dr. Reid's individual objectives were focused primarily on achieving specific business development goals (50%), as well as advancing our delivery platform (20%), establishing new business ventures and other potential opportunities (20%), and providing leadership in strategic corporate initiatives (10%). Our compensation committee also considered both Dr. Maraganore's and Mr. Greene's recommendations with respect to Dr. Reid's performance. Our compensation committee determined that Dr. Reid achieved 60% of his individual objectives for 2010, including in particular through the advancement of our delivery efforts and new business ventures. Our compensation committee determined that under the 2010 annual incentive program, Dr. Reid earned a cash incentive award of \$13,195, representing 60% of his pro-rated target cash award opportunity, reduced by the corporate performance modifier of 58%.

Dr. Koblan's individual objectives, prior to his promotion to chief scientific officer in September 2010, were focused primarily on maximizing the value of our RNAi platform through the establishment and support of new business ventures and other potential opportunities (75%), providing support to our early discovery and development efforts around programs and delivery efforts (15%), and supporting organizational and career development objectives for our scientists (10%). Following his promotion to chief scientific officer, Dr. Koblan maintained these objectives, but focused primarily on leading our current discovery programs and coordinating with senior leadership for our ongoing clinical programs. Our compensation committee also considered both Dr. Maraganore's and Mr. Greene's recommendations with respect to Dr. Koblan's performance. Our compensation committee determined that Dr. Koblan achieved 65% of his individual objectives for 2010, including progress in our research and technology efforts and advancement of our clinical pipeline. Our compensation committee determined that under the 2010 annual incentive program, Dr. Koblan earned a cash incentive award of \$19,510, representing 65% of his pro-rated target cash award opportunity, reduced by the corporate performance modifier of 58%.

Dr. Vaishnav's individual objectives were focused primarily on continuing to advance our discovery programs and our clinical development programs with a focus on human proof of concept (60%), providing pre-clinical development support for our research efforts (20%), managing and building our clinical and pre-clinical development organization (10%) and providing support for key alliances and external communications with investors and academic and medical thought leaders (10%). Our compensation committee also considered both Dr. Maraganore's and Mr. Greene's recommendations with respect to Dr. Vaishnav's performance. Our compensation committee determined that Dr. Vaishnav achieved 80% of his individual objectives for 2010, including in particular through the advancement of our clinical pipeline. Our compensation committee determined that under the 2010 annual incentive program, Dr. Vaishnav earned a cash incentive award of \$32,735, representing 80% of his target cash award opportunity, reduced by the corporate performance modifier of 58%.

Ms. Allen's individual objectives were focused on meeting specified financial goals, including meeting internal operating expense levels of no more than \$110 million under our annual operating plan, and a year-end minimum cash

balance requirement of greater than \$340 million (excluding a potential one-time license payment from a collaborator) (25%), supporting business development efforts to establish strategic alliances to

Table of Contents

fund our business (20%), managing our investment portfolio (25%), managing the audit of our financial statements, along with various public reporting obligations and tax matters (20%), and achieving specified metrics with respect to the information technology and facilities groups (10%). Ms. Allen's goals relating to internal operating expense levels were based upon our annual operating plan. Multiple factors go into determining our operating plan, which contains financial targets and budgets that we use to guide our operations. Internal operating expenses do not align with reported GAAP operating expenses, as they consist primarily of cash operating expenses and exclude items such as depreciation and stock-based compensation. Our compensation committee also considered both Dr. Maraganore's and Mr. Greene's recommendations with respect to Ms. Allen's performance. Our compensation committee determined that Ms. Allen achieved 75% of her individual objectives for 2010, including meeting year-end internal operating expense levels of no more than \$110 million under our annual operating plan and achievement of an internal year-end cash balance objective of greater than \$340 million, ending 2010 with \$350 million. Our compensation committee determined that under the 2010 annual incentive program, Ms. Allen earned a cash incentive award of \$21,357, representing 75% of her target cash award opportunity, reduced by the corporate performance modifier of 58%.

Equity Awards

Our equity awards program is designed to:

- reward demonstrated leadership and performance;
- align our executive officers' interests with those of our stockholders;
- retain our executive officers through the term of the awards;
- maintain competitive levels of executive compensation; and
- motivate our executive officers for outstanding future performance.

The market for qualified and talented executives in the biopharmaceutical industry is highly competitive and we compete for talent with many companies that have greater resources than we do. Accordingly, we believe equity compensation is a crucial component of any competitive executive compensation package we offer.

Historically, our equity awards have taken the form of stock options. We typically grant stock options to each of our executive officers upon commencement of employment, annually in conjunction with our review of individual performance and in connection with a promotion.

All stock option awards to our executive officers are approved by our compensation committee and, other than stock option awards to new hires, are typically granted at our compensation committee's regularly scheduled meeting at the end of the year. Stock option awards vary among our executive officers based on their positions and annual performance assessments. In addition, our compensation committee reviews all components of the executive's compensation to ensure that his or her total compensation is aligned with our overall philosophy and objectives. All stock options granted to our executives have exercise prices equal to the fair market value of our common stock on the date of grant, so that the recipient will not earn any compensation from his or her options unless our share price increases above the value on the date of grant.

In addition, the stock options granted to our executive officers typically vest over four years, which we believe provides an incentive to our executives to add value to the company over the long-term and to remain with Alnylam. Typically, the stock options we grant to our executives have a ten-year term and vest as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% of the shares at the end of each successive

three-month period following the first anniversary of the grant date until the fourth anniversary of the grant date. Vesting ceases upon termination of employment and exercise rights typically cease three months following termination of employment, except in the case of death or disability. Prior to the exercise of an option, the stock option holder does not have any rights as a stockholder with respect to the shares subject to such option, including voting rights and the right to receive dividends or dividend equivalents.

Table of Contents

The number of stock options granted to our named executive officers during 2010, and the value of those awards determined in accordance with Financial Accounting Standards Board, or FASB, Accounting Standard Codification, or ASC, Topic 718, are shown in the 2010 Grants of Plan-Based Awards table below. We do not have any equity ownership guidelines for our executives.

In connection with the annual review of our executive officer's individual performance and consistent with our compensation philosophy, our compensation committee approved annual equity incentive awards for each of our executive officers. The annual incentive awards granted to each of our named executive officers are set forth in the table below:

2010 Annual Equity Incentive Awards	
Name	Option Award
John M. Maraganore, Ph.D.	150,000
Barry E. Greene	100,000
Laurence E. Reid, Ph.D.	27,589
Kenneth S. Koblan, Ph.D.	10,000
Akshay K. Vaishnav, M.D., Ph.D.	30,000
Patricia L. Allen	25,000

Upon hire, Dr. Reid received a stock option award to purchase 175,000 shares of common stock in June 2010. Dr. Koblan also received a new hire stock option award to purchase 100,000 shares of common stock in April 2010, as well as an additional stock option award to purchase 50,000 shares of common stock in connection with his promotion to chief scientific officer in September 2010.

Benefits and Other Compensation

Other compensation to our executives consists primarily of the broad-based benefits we provide to all employees, including health and dental insurance, life and disability insurance, an employee stock purchase plan and a 401(k) plan, except that executive officers are not eligible to participate in our employee stock purchase plan. Our 401(k) plan is a tax-qualified retirement savings plan pursuant to which all U.S. based employees, including executive officers, are able to contribute the lesser of up to 60% of their annual salary or the limit prescribed by the Internal Revenue Service on a before-tax basis. We match, in the form of shares of our common stock, 50% of the first 6% of a plan participant's pay that is contributed to the plan. Our contribution is made at the end of each quarter up to an annual maximum number of shares with a value of \$5,250 for each participant. Our matching contributions become 50% vested after the employee has been employed by us for one year and fully vested after the employee has been employed by us for two years.

Severance and Other Employment Arrangements

Pursuant to the terms of his letter of employment, Dr. Reid is also entitled to a supplemental signing bonus of \$25,000 on each anniversary of his date of hire beginning in 2011 and ending in 2014, provided he continues to be our employee on each such anniversary date.

In connection with his promotion to chief scientific officer, our compensation committee approved a one-time bonus payment of \$110,000 to Dr. Koblan, which was paid in January 2011. In the event that, prior to October 19, 2012, Dr. Koblan either (i) voluntarily terminates his employment with us, other than for good reason (as defined in the bonus letter), or (ii) is terminated by us for cause (as defined in the bonus letter), he will be required to repay to us

\$100,000 if such termination occurs before October 19, 2011, and \$50,000 if it occurs after October 18, 2011 but before October 19, 2012.

In February 2011, Ms. Allen resigned as our vice president of finance and treasurer. In connection with her resignation, we and Ms. Allen entered into a separation agreement, under which we have agreed to provide Ms. Allen with the following severance pay and benefits in consideration for her agreement to a general release and certain other standard terms and conditions: (i) severance in the gross amount of \$250,397 (an amount equal to 12 months of Ms. Allen's gross base salary); (ii) the full cost of any COBRA premiums until the earlier of March 21, 2012 and the date Ms. Allen becomes eligible for coverage under the group

Table of Contents

health plan of another employer; (iii) a consulting agreement for a period of up to 12 months following her separation date under which she will perform certain services at our request, the terms of which are described below; and (iv) continued vesting of any unvested stock options held by Ms. Allen during the term of the consulting agreement. In connection with the execution of the separation agreement, we and Ms. Allen also entered into a consulting agreement. The consulting agreement has a term of one year and may be terminated by either party in the event of an uncured material breach of its terms by the other party.

In February 2011, we appointed Mr. Michael P. Mason as our vice president of finance and treasurer and as our principal financial and accounting officer.

Cash Incentive Compensation for Our Named Executive Officers in 2011

In February 2011, our compensation committee approved the annual incentive program for 2011. During 2010, our compensation committee reviewed the annual incentive program relative to marketplace norms and practices by comparing current proxy statement data and compensation survey data. This review was intended to evaluate the competitiveness of our executive compensation through comparisons with a peer group and determine whether changes to our compensation programs, in particular our annual incentive program, were needed. Based upon this review, our compensation committee modified the terms of our annual cash incentive program to increase annual cash incentive award opportunities for 2011 from at or below the 25th percentile to the 50th percentile of our peer group. The table below shows the target award under the incentive program as a percentage of each executive officer's annual base salary in each of 2010 and 2011, as well as the maximum cash award opportunity in dollars for 2011.

Name	2011 Annual Incentive Program		2011 Maximum Award Opportunity (\$)
	2010 Maximum Award (% of Base Salary)	2011 Maximum Award (% of Base Salary)	
John M. Maraganore, Ph.D.	50%	60%	\$ 315,000
Barry E. Greene	30%	50%	\$ 218,400
Laurence E. Reid, Ph.D.	20%	35%	\$ 115,084
Kenneth S. Koblan, Ph.D.	20%	35%	\$ 120,750
Akshay K. Vaishnav, M.D., Ph.D.	20%	35%	\$ 125,932
Michael P. Mason*	12%	30%	\$ 72,000

* In February 2011, Ms. Allen resigned and Mr. Mason was appointed as our vice president of finance and treasurer. Mr. Mason previously served as our senior director of finance and controller. Mr. Mason's base salary for 2011 is \$240,000.

Each bonus award for 2011 will range from 0% to 100% of the individual's target award (capped at 100%), thus making each individual's target award the maximum bonus award achievable in 2011. In determining the 2011 cash incentive compensation for our named executive officers under the 2011 annual incentive program, our compensation committee will review the performance of the company during 2011. In particular, in making its determination, our compensation committee will consider our success against the following corporate goals:

Table of Contents

2011 Corporate Goals		Relative Weighting
Achieve	Alnylam 5x15 pipeline goals, including: Complete Phase I clinical study of ALN-TTR01 in patients with ATTR and report data;	15%
	File an IND or comparable foreign regulatory application for ALN-TTR02 for the treatment of ATTR;	15%
	File an IND or comparable foreign regulatory application for ALN-PCS for the treatment of severe hypercholesterolemia;	15%
	Advance ALN-HPN for the treatment of refractory anemia towards the clinic; and	5%
	Identify and advance two additional RNAi therapeutic programs targeting genetically defined diseases.	5%
Achieve	Partner-Based Program pipeline goals, including: Advance ALN-RSV01 in a Phase IIb clinical trial for the treatment of RSV infection in adult lung transplant patients;	5%
	Advance Phase I clinical development of ALN-VSP for the treatment of liver cancers and report additional data; seek partner for Phase II clinical development; and	5%
	Advance ALN-HTT for the treatment of Huntington's disease towards the clinic.	5%
	Form additional strategic alliances and new business ventures.	10%
	Achieve a year-end cash balance of greater than \$275 million.	20%
Total		100%

Under the 2011 annual incentive program, bonus awards, if any, will be determined by first establishing a bonus pool. The bonus pool will be calculated by adding the maximum awards for all eligible plan participants and then multiplying that sum by a modifier established by our compensation committee that is based on our performance as measured against the 2011 corporate goals. This corporate performance level will range from 0% to 100%, provided that if the corporate performance level for 2011 falls below 50%, no bonus awards will be made. The bonus pool will be allocated among all of the plan participants based upon a consideration of each plan participant's level within the organization, base salary and performance against their individual goals. Bonus awards for our executive officers will be based upon achievement of our corporate goals. Our compensation committee may also consider, in its discretion, each individual executive officer's contributions to achievement of the 2011 corporate goals. Our compensation committee retains the discretion under the 2011 annual incentive program to adjust upward or downward any bonus award and/or the bonus pool as it deems appropriate. We expect to pay any cash incentive awards made under our 2011 annual incentive program in January 2012.

Compliance with IRS Code Section 162(m)

Section 162(m) of the Internal Revenue Code of 1986, as amended, generally disallows a tax deduction to public companies for compensation in excess of \$1 million paid to a company's chief executive officer and its three other officers (other than the chief financial officer) whose compensation is required to be disclosed to stockholders pursuant to the Exchange Act by reason of being among the company's most highly compensated officers. Qualified performance-based compensation is not subject to the deduction limitation if specified requirements are met. We periodically review the potential effects of Section 162(m) and we consider whether to structure the performance-based portion of our executive compensation to comply with exemptions in Section 162(m), so that the compensation remains tax deductible to us. However, our compensation committee may, in its judgment, authorize

compensation payments that do not comply with the exemptions in Section 162(m) when it believes that such payments are appropriate to attract, motivate and retain executive talent and are in our best interest and that of our stockholders.

Table of Contents

Stock Option Granting Practices

Delegation to Our Chief Executive Officer

Currently, all of our employees, including our named executive officers, are eligible to participate in our Amended and Restated 2004 Stock Incentive Plan and our 2009 Stock Incentive Plan. All new full-time employees are granted stock options when they start employment and all continuing employees are eligible for stock option awards on an annual basis based on performance and upon promotions to positions of greater responsibility. Our compensation committee has delegated to Dr. Maraganore, our chief executive officer, the authority to make stock option awards under our Amended and Restated 2004 Stock Incentive Plan and our 2009 Stock Incentive Plan to new hires and in connection with promotions, other than grants to vice presidents and executive officers. The number of stock options he may grant to any one individual must be within the range specifically set by our board for these awards. The exercise price of such stock options must be equal to the closing price of our common stock on the NASDAQ Global Market on the date of grant. With respect to stock option awards to new hires other than vice presidents and executive officers, Dr. Maraganore approves the award prior to the employee's first date of employment with such authority and provides that the award is to be granted to the new hire on his or her first date of regular employment. With respect to stock option awards made in connection with promotions other than of vice presidents and executive officers, Dr. Maraganore approves the award in connection with such promotion and provides that the award is to be granted on the first business day of the calendar month following the date of such promotion; provided, however, that if such first business day is within ten calendar days of the date of such promotion, the grant date shall be the close of business on the first business day of the subsequent calendar month. Dr. Maraganore is required to maintain a list of stock options granted pursuant to such delegated authority and report to our compensation committee regarding such awards.

Report of the Compensation Committee on Executive Compensation

Our compensation committee has reviewed and discussed the Compensation Discussion and Analysis required by Item 402(b) of Regulation S-K with management. Based upon such review and discussions, our compensation committee recommended to our board that such section be included in this proxy statement and incorporated by reference in our Annual Report on Form 10-K for the year ended December 31, 2010, which was filed with the SEC on February 18, 2011.

By the compensation committee of the board of directors of Alnylam,

Steven M. Paul, M.D., Chair

Paul R. Schimmel, Ph.D.

Kevin P. Starr

Table of Contents**Executive Compensation**

The following table sets forth the total compensation paid or accrued for the years ended December 31, 2010, 2009 and 2008 to our named executive officers.

Summary Compensation Table

Name	Year	Salary (\$)	Bonus (\$)	Non-Equity Incentive			Total (\$)
				Option Awards(6) (\$)	Plan Compensation(8) (\$)	All Other Compensation(9) (\$)	
John M. Maraganore, Ph.D. <i>Chief Executive Officer</i>	2010	525,000		727,695	60,900	15,084	1,328,679
	2009	525,000		924,483	86,625	11,288	1,547,396
	2008	525,000		2,014,931		8,073	2,548,004
Barry E. Greene <i>President and Chief Operating Officer</i>	2010	390,000		485,130	50,895	13,539	939,564
	2009	390,000		572,299	38,610	5,992	1,006,901
	2008	350,000		1,182,780		30,701	1,563,481
Laurence E. Reid, Ph.D.(1) <i>Senior Vice President and Chief Business Officer</i>	2010	189,583	50,000(5)	1,595,950	13,195	5,850	1,854,578
Kenneth S. Koblan, Ph.D.(2) <i>Chief Scientific Officer</i>	2010	248,049		1,263,453	19,510	212,394	1,743,406
Akshay K. Vaishnav, M.D., Ph.D.(3) <i>Senior Vice President, Clinical Research</i>	2010	352,750		145,539	32,735	6,624	537,648
	2009	340,000		396,207	35,700	6,037	777,944
Patricia L. Allen(4) <i>Vice President of Finance and Treasurer</i>	2010	245,487		121,283	21,357	5,839	393,966
	2009	227,830		220,115	19,138	5,797	472,880
	2008	227,830		416,115		5,797	649,742

(1) Dr. Reid joined Alnylam as our senior vice president and chief business officer in June 2010. The amount reported as salary for 2010 represents the total salary earned by Dr. Reid during 2010 and is based upon an annual base salary of \$325,000. Dr. Reid was eligible to participate in the 2010 annual cash incentive program with a pro-rated maximum target award. In addition, Dr. Reid received an on-hire stock option award and a pro-rated 2010 annual stock option award.

(2) Dr. Koblan joined Alnylam in April 2010 as our vice president, distinguished Alnylam fellow, and was promoted to our chief scientific officer in September 2010. He was designated as an executive officer by our board in November 2010. The amount reported as salary for 2010 represents the total salary earned by Dr. Koblan during

2010 and is based upon an on-hire annual base salary of \$325,000 and an annual base salary of \$345,000 upon his promotion to chief scientific officer. Dr. Koblan was eligible to participate in the 2010 annual cash incentive program with a pro-rated maximum target award. In addition, Dr. Koblan received an on-hire stock option award, a stock option award in connection with his promotion and a pro-rated 2010 annual stock option award.

- (3) Dr. Vaishnaw has served as our senior vice president, clinical research since December 2008, and was designated as an executive officer by our board of directors in March 2009.
- (4) In February 2011, Ms. Allen resigned from her position as vice president of finance and treasurer.
- (5) Pursuant to the terms of his letter of employment, we paid Dr. Reid a signing bonus of \$50,000 in July 2010. In the event that Dr. Reid either voluntarily terminates his employment with us, other than for good reason, or is terminated by us for cause, within the first 24 months of his employment with us, he will be required to repay the full amount of this signing bonus.
- (6) We did not grant any restricted stock awards or stock appreciation rights to our named executive officers in 2010, 2009 or 2008.
- (7) The amounts reported in the Option Awards column represent the aggregate grant date fair value for the fiscal years ended December 31, 2010, 2009 and 2008 of grants of stock options to each of the named executive officers, calculated in accordance with the provisions of FASB ASC Topic 718. The assumptions we used in calculating these amounts are included in Note 9 of our audited consolidated financial statements for the year ended December 31, 2010 included in our Annual Report on Form 10-K, filed with the SEC on February 18, 2011. To see the value actually received by the named executive officer in 2010, see the 2010 Option Exercises and Stock Vested table appearing below.

Table of Contents

Details of each of the stock option awards reflected above can be found in the Outstanding Equity Awards at Fiscal Year-End for 2010 table appearing below.

The amounts reported in the Summary Compensation Table for these stock option awards may not represent the amounts that the named executive officers will actually realize from the awards. Whether, and to what extent, a named executive officer realizes value will depend on our actual operating performance, stock price fluctuations and the named executive officer's continued employment.

- (8) In February 2010, our compensation committee authorized the implementation of the annual cash incentive program for fiscal year 2010. The 2010 annual cash incentive program is described above in the Compensation Discussion and Analysis under the heading 2010 Annual Incentive Program. In February 2009, our compensation committee authorized the implementation of the annual cash incentive program for fiscal year 2009. The 2009 annual cash incentive program was described in the Compensation Discussion and Analysis under the heading 2009 Annual Incentive Program, in our 2010 proxy statement, filed with the SEC on April 20, 2010. We did not award cash bonuses to our named executive officers in 2008. In 2008, our compensation committee authorized the implementation of an executive stock option bonus plan, pursuant to which each of our vice presidents and named executive officers was eligible to receive an annual bonus in the form of an award of stock options based upon the achievement of corporate goals and individual objectives that were approved by our compensation committee for 2008.
- (9) The amounts reported in the All Other Compensation column reflect, for each named executive officer, with the exception of Dr. Koblan, the sum of (i) the dollar value of life insurance premiums we paid; (ii) the amount we contributed to the 401(k) plan in respect of such executive officer; and (iii) the incremental cost to us of all perquisites and other personal benefits. Specifically, the All Other Compensation column above includes:

Name	Year	Term Life	Dollar Value of	Incremental Cost to
		Insurance	Alnylam	Alnylam of All
		Premiums	Common Stock	Perquisites
		Paid	Contributed	and Other Personal
		by Alnylam	by Alnylam to the	Benefits
		(\$)	Executive's	(\$)
			Account Under	
			401(k) Plan	
			(\$)	
John M. Maraganore, Ph.D.	2010	600	5,250	9,234(a)
<i>Chief Executive Officer</i>	2009	600	5,250	5,438(a)
	2008	600	5,250	2,223(a)
Barry E. Greene	2010	742	5,250	7,547(b)
<i>President and Chief Operating Officer</i>	2009	742	5,250	
	2008	742	5,250	24,709(b)
Laurence E. Reid, Ph.D.	2010	600	5,250	
<i>Senior Vice President and Chief Business Officer</i>				
Kenneth S. Koblan, Ph.D.	2010	570	5,250	206,574(c)
<i>Chief Scientific Officer</i>				
Akshay K. Vaishnav, M.D., Ph.D.	2010	847	5,250	527(d)

<i>Senior Vice President, Clinical Research</i>	2009	787	5,250
Patricia L. Allen	2010	589	5,250
<i>Vice President of Finance and Treasurer</i>	2009	547	5,250
	2008	547	5,250

- (a) Represents amounts for travel and related expenses, paid by Alnylam, including \$3,854 in 2010, \$1,727 in 2009 and \$819 in 2008, as gross-ups for the related tax liability, for the executive's spouse to accompany the executive to certain industry events that spouses were expected to attend.
- (b) Represents amounts for travel and related expenses, paid by Alnylam, including \$3,158 in 2010 and \$9,097 in 2008, as gross-ups for the related tax liability, for the executive's spouse to accompany the executive to certain industry events that spouses were expected to attend.
- (c) Includes: (i) \$204,130 for relocation and related expenses, paid by Alnylam, including \$84,263 as a gross-up for the related tax liability, in connection with Dr. Koblan's move to the Cambridge area to join Alnylam; and (ii) amounts for travel and related expenses paid by Alnylam, including \$984 as a gross-up for the related tax liability, for the executive's spouse to accompany the executive to certain industry events that spouses were expected to attend.

Table of Contents

(d) Represents amounts for an employee fitness benefit, paid by Alnylam, including \$167 as a gross-up for the related tax liability, in connection with the Dr. Vaishnaw's subsidized fitness club membership.

The following table sets forth information concerning each grant of an award made to a named executive officer during the fiscal year ended December 31, 2010 under any plan, contract, authorization or arrangement pursuant to which cash, securities, similar instruments or other property may be received:

2010 Grants of Plan-Based Awards

Name	Date of Grant(1)	Estimated Possible Payouts			Option Awards:	Exercise or Base	Grant Date
		Threshold (\$)	Target (\$)	Under Non-Equity Incentive Plan Awards(2) Maximum (\$)	Number of Securities Underlying Options	Price of Option Awards (\$)	Fair Value of Option Awards (\$)(3)
John M. Maraganore, Ph.D. <i>Chief Executive Officer</i>	12/08/10	0	262,500	262,500	150,000	9.14	727,695
Barry E. Greene <i>President and Chief Operating Officer</i>	12/08/10	0	117,000	117,000	100,000	9.14	485,130
Laurence E. Reid, Ph.D. <i>Senior Vice President and Chief Business Officer</i>	12/08/10	0	37,917	37,917	27,589	9.14	133,842
Kenneth S. Koblan, Ph.D. <i>Chief Scientific Officer</i>	06/11/10				175,000	15.99	1,462,108
Akshay K. Vaishnaw, M.D., Ph.D. <i>Senior Vice President, Clinical Research</i>	12/08/10	0	51,750	51,750	10,000	9.14	48,513
Patricia L. Allen <i>Vice President of Finance and Treasurer</i>	11/09/10				50,000	12.29	326,160
	04/02/10				100,000	17.01	888,780
	12/08/10	0	70,550	70,550	30,000	9.14	145,539
	12/08/10	0	49,097	49,097	25,000	9.14	121,282

(1) None of our named executive officers received restricted stock awards or stock appreciation rights in 2010. Dr. Reid joined Alnylam as our senior vice president and chief business officer in June 2010 and received an on-hire stock option award at that time. Dr. Koblan joined Alnylam in April 2010 and was promoted to our chief scientific officer in September 2010, and received on-hire and promotion-related stock option awards, respectively, in connection with these events. The stock option awards reported in the 2010 Grants of Plan-Based Awards table were granted pursuant to our Amended and Restated 2004 Stock Incentive Plan. Our Amended and

Restated 2004 Stock Incentive Plan provides that the option exercise price may not be less than 100% of the fair market value of our common stock on the date of grant. These stock options vest as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% of the shares at the end of each successive three-month period thereafter until the fourth anniversary of the grant date.

- (2) The amounts shown in the threshold, target and maximum columns reflect the minimum, target and maximum amounts payable, respectively, under our 2010 annual cash incentive program, which is described above in the Compensation Discussion and Analysis under the heading 2010 Annual Incentive Program. The actual amounts paid to each named executive officer can be found above in the Summary Compensation Table under the column entitled Non-Equity Incentive Plan Compensation.
- (3) The Grant Date Fair Value, computed in accordance with FASB ASC Topic 718, represents the value of stock options granted during the year.

The amounts reported in the 2010 Grants of Plan-Based Awards table for these stock option awards reflect our accounting expense and may not represent the amounts our named executive officers will actually realize from the awards. Whether, and to what extent, a named executive officer realizes value will depend on our actual operating performance, stock price fluctuations and that named executive officer's continued employment.

Table of Contents**Information Relating to Equity Awards and Holdings**

The following table sets forth information concerning stock options that have not been exercised for each of our named executive officers outstanding at December 31, 2010.

Outstanding Equity Awards at Fiscal Year-End for 2010

Name	Number of Securities Underlying Unexercised Options Exercisable	Option Awards		
		Number of Securities Underlying Unexercised Options Unexercisable	Option Exercise Price (\$)	Option Expiration Date
John M. Maraganore, Ph.D. <i>Chief Executive Officer</i>	14,102(1)		0.475	02/26/2013
	4,515(2)		0.475	02/26/2013
	73,684(3)		0.95	01/06/2014
	105,263(4)		0.95	01/06/2014
	150,000(5)		6.78	12/07/2014
	250,000(6)		7.47	12/21/2014
	125,000(7)		13.12	12/07/2015
	125,000(8)		22.75	12/14/2016
	112,950(9)	37,650(9)	31.39	12/12/2017
	76,660(10)	76,660(10)	21.35	12/09/2018
	26,250(11)	78,750(11)	16.43	12/10/2019
	150,000(16)	9.14	12/08/2020	
Barry E. Greene <i>President and Chief Operating Officer</i>	48,058(12)		0.95	11/06/2013
	7,894(3)		0.95	01/06/2014
	14,928(13)		0.95	04/26/2014
	75,000(5)		6.78	12/07/2014
	75,000(7)		13.12	12/07/2015
	60,000(8)		22.75	12/14/2016
	60,000(9)	20,000(9)	31.39	12/12/2017
	22,500(10)	67,500(10)	21.35	12/09/2018
16,250(11)	48,750(11)	16.43	12/10/2019	
	100,000(16)	9.14	12/08/2020	
Laurence E. Reid, Ph.D. <i>Senior Vice President and Chief Business Officer</i>		175,000(17)	15.99	06/11/2020
		27,589(16)	9.14	12/08/2020
Kenneth S. Koblan, Ph.D. <i>Chief Scientific Officer</i>		100,000(18)	17.01	04/02/2020
		50,000(19)	12.29	11/09/2020
		10,000(16)	9.14	12/08/2020
Akshay K. Vaishnaw, M.D., Ph.D. <i>Senior Vice President, Clinical Research</i>	40,625(14)		12.96	01/03/2016
	30,000(8)		22.75	12/14/2016
	24,562(9)	8,188(9)	31.39	12/12/2017

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	30,175(10)	30,175(10)	21.35	12/09/2018
	11,250(11)	33,750(11)	16.43	12/10/2019
		30,000(16)	9.14	12/08/2020
Patricia L. Allen	33,947(15)		0.95	05/04/2014
<i>Vice President of Finance and Treasurer</i>	16,750(5)		6.78	12/07/2014
	32,000(7)		13.12	12/07/2015
	20,000(8)		22.75	12/14/2016
	24,469(9)	8,156(9)	31.39	12/12/2017
	15,831(10)	15,832(10)	21.35	12/09/2018
	6,250(11)	18,750(11)	16.43	12/10/2019
		25,000(16)	9.14	12/08/2020

Table of Contents

- (1) These options were granted on February 26, 2003. The options vested as to 25% of the shares on December 9, 2003, and as to an additional 6.25% at the end of each successive three-month period thereafter until December 9, 2006.
- (2) These options were granted on February 26, 2003 and vested as to 50% of the shares upon us entering into our first significant strategic alliance, which occurred on September 8, 2003. The remaining 50% of these shares vested in equal installments on the last day of each quarterly period thereafter over four years.
- (3) These options were granted on January 6, 2004. The options vested as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until January 6, 2008.
- (4) These options were granted on January 6, 2004 and vested in full upon our initial public offering in May 2004.
- (5) These options were granted on December 7, 2004. The options vested as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until December 7, 2008.
- (6) These options were granted on December 21, 2004 and, pursuant to the terms of the grant, vested in full upon the effective date of the Novartis research collaboration and license agreement, described above under Related Person Transactions Agreements with Novartis.
- (7) These options were granted on December 7, 2005. The options vested as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until December 7, 2009.
- (8) These options were granted on December 14, 2006. The options vested as to 25% of the shares on the first anniversary of the grant date and vest as to an additional 6.25% at the end of each successive three-month period thereafter until December 14, 2010.
- (9) These options were granted on December 12, 2007. The options vested as to 25% of the shares on the first anniversary of the grant date and vest as to an additional 6.25% at the end of each successive three-month period thereafter until the fourth anniversary.
- (10) These options were granted on December 9, 2008. The options vested as to 25% of the shares on the first anniversary of the grant date and vest as to an additional 6.25% at the end of each successive three-month period thereafter until the fourth anniversary.
- (11) These options were granted on December 10, 2009. The options vest as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until the fourth anniversary.
- (12) These options were granted on November 6, 2003. The options vested as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until November 6, 2007.
- (13) These options were granted on April 26, 2004. The options vested as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period

thereafter until April 26, 2008.

- (14) These options were granted on January 3, 2006. The options vested as to 25% of the shares on the first anniversary of the grant date and vest as to an additional 6.25% at the end of each successive three-month period thereafter until January 3, 2010.
- (15) These options were granted on May 4, 2004. The options vested as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until May 4, 2008.
- (16) These options were granted on December 8, 2010. The options vest as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until the fourth anniversary.

Table of Contents

- (17) These options were granted on June 11, 2010. The options vest as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until the fourth anniversary.
- (18) These options were granted on April 2, 2010. The options vest as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until the fourth anniversary.
- (19) These options were granted on November 9, 2010. The options vest as to 25% of the shares on the first anniversary of the grant date and as to an additional 6.25% at the end of each successive three-month period thereafter until the fourth anniversary.

The following table sets forth information concerning the exercise of stock options during 2010 for each of our named executive officers.

2010 Option Exercises and Stock Vested

Name	Option Awards	
	Number of Shares Acquired on Exercise	Value Realized on Exercise (\$)(1)
John M. Maraganore, Ph.D. <i>Chief Executive Officer</i>	50,000	680,750
Barry E. Greene <i>President and Chief Operating Officer</i>		
Laurence E. Reid, Ph.D. <i>Senior Vice President and Chief Business Officer</i>		
Kenneth S. Koblan, Ph.D. <i>Chief Scientific Officer</i>		
Akshay K. Vaishnav, M.D., Ph.D. <i>Senior Vice President, Clinical Research</i>		
Patricia L. Allen <i>Vice President of Finance and Treasurer</i>		

(1) The value realized on exercise is based on the sales price of the shares less the applicable option exercise price.

Potential Payments Upon Termination or Change-in-Control

We do not have agreements with any of our executive officers pursuant to which they are eligible for potential payments upon termination or change in control of Alnylam.

As described above in Related Person Transactions, in connection with Ms. Allen's resignation, we agreed to provide Ms. Allen with the following severance pay and benefits: (i) severance in the gross amount of \$250,397 (an amount equal to 12 months of Ms. Allen's gross base salary); (ii) the full cost of any COBRA premiums until the earlier of March 21, 2012 and the date Ms. Allen becomes eligible for coverage under the group health plan of another

employer; (iii) a consulting agreement for a period of up to 12 months following her separation date under which she will perform certain services at our request, the terms of which are described below; and (iv) continued vesting of any unvested stock options held by Ms. Allen during the term of the consulting agreement. In connection with the execution of the separation agreement, we and Ms. Allen also entered into a consulting agreement. Under the consulting agreement, Ms. Allen will provide consulting services to us with respect to general accounting, operating budget, public company financial reporting and treasury-related activities. The consulting agreement has a term of one year and may be terminated by either party in the event of an uncured material breach of its terms by the other party.

Table of Contents**Employment Arrangements**

Each executive officer has signed a nondisclosure, invention and non-competition agreement providing for the protection of our confidential information and ownership of intellectual property developed by such executive officer and a covenant not to compete with us for a period of eighteen months after termination of employment.

Pursuant to the terms of his letter of employment, Dr. Reid is also entitled to a supplemental signing bonus of \$25,000 on each anniversary of his date of hire beginning in 2011 and ending in 2014, provided he continues to be our employee on each such anniversary date.

In connection with his promotion to chief scientific officer, our compensation committee approved a one-time bonus payment of \$110,000 to Dr. Koblan, which was paid in January 2011. In the event that, prior to October 19, 2012, Dr. Koblan either (i) voluntarily terminates his employment with us, other than for good reason (as defined in the bonus letter), or (ii) is terminated by us for cause (as defined in the bonus letter), he will be required to repay to us \$100,000 if such termination occurs before October 19, 2011, and \$50,000 if it occurs after October 18, 2011 but before October 19, 2012.

Securities Authorized for Issuance Under Equity Compensation Plans

The following table provides information as of December 31, 2010 about the securities authorized for issuance under our equity compensation plans, consisting of our 2002 Employee, Director and Consultant Stock Option Plan (the 2002 Plan), our 2003 Employee, Director and Consultant Stock Option Plan (the 2003 Plan), our Amended and Restated 2004 Stock Incentive Plan, our 2009 Stock Incentive Plan and our 2004 Employee Stock Purchase Plan, as amended. All of our equity compensation plans were adopted with the approval of our stockholders.

Equity Compensation Plan Information

	Number of Securities to Be Issued Upon Exercise of Outstanding Options, Warrants and Rights	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights (\$)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans(1)
Equity compensation plans approved by stockholders	9,088,674	17.21	2,495,119
Equity compensation plans not approved by stockholders			
Total	9,088,674	17.21	2,495,119

(1) Consists of 298,437 shares of our common stock available for future issuance under our Amended and Restated 2004 Stock Incentive Plan, 1,769,944 shares of our common stock available for future issuance under our 2009 Stock Incentive Plan and 426,738 shares of our common stock available for future issuance under our 2004 Employee Stock Purchase Plan, as amended. No shares of our common stock were available for issuance under our 2002 Plan or our 2003 Plan as of December 31, 2010.

Compensation of Directors

We compensate our non-employee directors for their service as directors. We do not pay directors who are also our employees any additional compensation for their service as a director. Accordingly, Dr. Maraganore does not receive any additional compensation for his service as a director.

Our compensation committee periodically reviews the compensation we pay our non-employee directors. Our compensation committee compares our board compensation to compensation paid to non-employee directors of similarly sized public companies at a similar stage of development in the biotechnology industry. Our compensation committee also considers the responsibilities we ask of our board members along with the amount of time required to perform those responsibilities.

Each non-employee director is entitled to receive a cash fee of \$50,000 per year. The chairs of our board and our nominating and corporate governance committee are each entitled to receive an additional \$5,000 per

Table of Contents

year, the chair of our compensation committee is entitled to receive an additional \$10,000 per year and the chair of our audit committee is entitled to receive an additional \$15,000 per year. Each non-employee director is also entitled to receive upon his or her initial election to our board a stock option award for 30,000 shares of common stock, vesting annually over three years, and an additional stock option award to purchase 15,000 shares of common stock at each year's annual meeting at which he or she served as a director, vesting in full on the first anniversary of the date of grant. In addition, the chair of our audit committee is entitled to an additional stock option award to purchase 10,000 shares of common stock per year. Our board may, in its discretion, increase or decrease the size of the award made to a director upon election or in connection with the annual stock option award or make other option awards to our directors. The exercise price of these stock options is the fair market value of our common stock on the date of grant. We also reimburse our directors for reasonable travel and other related expenses incurred in connection with their service on our board.

The following table sets forth information concerning the compensation of our current and former non-employee directors in 2010.

Director Compensation

Name	Fees Earned or		All Other Compensation (\$)	Total (\$)
	Paid in Cash (\$)	Option Awards \$(6)(7)(8)		
John K. Clarke	60,000	113,661		173,661
Victor J. Dzau, M.D.	50,000	113,661		163,661
Marsha H. Fanucci(1)	3,261	145,539		148,800
Steven M. Paul, M.D.(2)	13,723	209,940		223,663
Vicki L. Sato, Ph.D.(3)	60,000	113,661		173,661
Paul R. Schimmel, Ph.D.	50,000	113,661		163,661
Edward M. Scolnick, M.D.(4)	21,154			21,154
Phillip A. Sharp, Ph.D.	50,000	113,661	137,919(9)	301,580
Kevin P. Starr	65,000	189,435		254,435
James L. Vincent(5)	37,500	113,661		151,161

(1) Ms. Fanucci was elected to our board of directors in December 2010. Ms. Fanucci filled a vacancy created in 2010 upon the retirement of one of our directors.

(2) Dr. Paul was elected to our board of directors in September 2010. Dr. Paul filled a vacancy created in 2010 upon the retirement of one of our directors.

(3) Dr. Sato retired from our board of directors in April 2011.

(4) Dr. Scolnick retired from our board of directors in June 2010.

(5) Mr. Vincent retired from our board of directors in September 2010.

(6)

The amounts in this column reflect the aggregate grant date fair value for the fiscal year ended December 31, 2010, in accordance with FASB ASC Topic 718, of stock options granted under our equity plans for service on our board and treated for accounting purposes as employee awards. There can be no assurance that these amounts will ever be realized. The assumptions we used to calculate these amounts are included in Note 9 to our audited consolidated financial statements for the fiscal year ended December 31, 2010 included in our Annual Report on Form 10-K, filed with the SEC on February 18, 2011. See footnote 8 below for the compensation expense of stock options granted under our equity plans to a director for non-board services and treated for accounting purposes as non-employee awards.

Table of Contents

(7) As of December 31, 2010, our non-employee directors held the following aggregate number of shares under outstanding stock options (representing unexercised option awards both exercisable and unexercisable):

Name	Number of Shares Underlying Outstanding Stock Options for Board Service	Number of Shares Underlying Outstanding Stock Options for Non-Board Service
John K. Clarke	80,000	
Victor J. Dzau, M.D.	75,000	
Marsha H. Fanucci	30,000	
Steven M. Paul, M.D.	30,000	
Vicki L. Sato, Ph.D.	85,000(a)	
Paul R. Schimmel, Ph.D.	60,000	
Edward M. Scolnick, M.D.	(b)	
Phillip A. Sharp, Ph.D.	80,000	205,000(d)
Kevin P. Starr	192,631	
James L. Vincent	(c)	

(a) Upon Dr. Sato's retirement in April 2011, all unvested stock options were cancelled. Dr. Sato has three months following her retirement date to exercise any vested stock options, after which time all such outstanding stock options will be cancelled.

(b) Upon Dr. Scolnick's retirement in June 2010, all unvested stock options were cancelled. Dr. Scolnick had three months following his retirement date to exercise any vested stock options, after which time all such outstanding stock options were cancelled.

(c) Upon Mr. Vincent's retirement in September 2010, all unvested stock options were cancelled. Mr. Vincent had three months following his retirement date to exercise any vested stock options, after which time all such outstanding stock options were cancelled.

(d) Dr. Sharp received these stock options in connection with his service on our scientific advisory board.

(8) The number of shares underlying stock options granted to our non-employee directors for their service on our board during 2010 and the grant date fair value of such stock options are as follows:

Name	Date of Grant	Number of Shares Underlying Stock Option Grants in 2010	Grant Date Fair Value of Stock Option Grants in 2010 \$(c)
John K. Clarke	06/02/2010	15,000	113,661
Victor J. Dzau, M.D.	06/02/2010	15,000	113,661
Marsha H. Fanucci(a)	12/08/2010	30,000	145,539

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Steven M. Paul, M.D.(a)	09/22/2010	30,000	209,940
Vicki L. Sato, Ph.D.	06/02/2010	15,000	113,661
Paul R. Schimmel, Ph.D.	06/02/2010	15,000	113,661
Edward M. Scolnick, M.D.(b)			
Phillip A. Sharp, Ph.D.	06/02/2010	15,000	113,661
Kevin P. Starr	06/02/2010	25,000	189,435
James L. Vincent	06/02/2010	15,000	113,661

(a) Ms. Fanucci and Dr. Paul were granted stock option awards upon their election to our board of directors.

(b) Dr. Scolnick retired from our board of directors in June 2010, and accordingly, he did not receive an option grant in 2010.

Table of Contents

- (c) The Grant Date Fair Value computed in accordance with FASB ASC Topic 718 represents the value of stock options granted during 2010. The weighted-average grant date fair value per option was \$7.01. There can be no assurance that the Grant Date Fair Value computed in accordance with FASB ASC Topic 718 will ever be realized.
- (9) This amount reflects compensation paid to Dr. Sharp for service on our scientific advisory board and includes (A) a cash payment of \$36,000 paid to Dr. Sharp during 2010 and (B) the aggregate fair value, as measured on December 31, 2010, for stock options granted to him in 2010 to purchase 15,000 shares of our common stock. Because these stock options were compensation for service on our scientific advisory board, they are non-employee awards and, therefore, are accounted for using the fair value method in accordance with FASB ASC Topic 718, under which compensation is generally recognized over the vesting period of the award. Under the fair value method, compensation associated with non-employee stock-based awards is determined based on the estimated fair value of the award, measured using an established option-pricing model. At the end of each financial reporting period prior to vesting, the value of these stock options (as calculated using the Black-Scholes option pricing model) is re-measured using the then current fair value of our common stock. The assumptions we used to calculate this amount is included in Note 9 to our audited consolidated financial statements for the fiscal year ended December 31, 2010 included in our Annual Report on Form 10-K, filed with the SEC on February 18, 2011.

Compensation Committee Interlocks and Insider Participation

During 2010, the members of our compensation committee were Dr. Sato and Mr. Starr, and through his retirement in September 2010, Mr. Vincent, none of whom was a current or former officer or employee of Alnylam and none of whom had any related person transaction involving Alnylam.

Table of Contents

PROPOSAL 2 ADVISORY VOTE ON EXECUTIVE COMPENSATION

We are providing our stockholders the opportunity to vote to approve, on an advisory, non-binding basis, the compensation of our named executive officers as disclosed in this proxy statement in accordance with the SEC's rules. This proposal, which is commonly referred to as "say-on-pay," is required by the recently enacted Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, which added Section 14A to the Exchange Act. Section 14A of the Exchange Act also requires that stockholders have the opportunity to cast an advisory vote with respect to whether future executive compensation advisory votes will be held every one, two or three years, which is the subject of Proposal 3.

We encourage stockholders to read closely the "Executive Compensation" section of this proxy statement beginning with the "Compensation Discussion and Analysis" on page 23, which describes in detail our executive compensation programs and the decisions made by our compensation committee and our board with respect to the fiscal year ended December 31, 2010.

As we describe in the "Compensation Discussion and Analysis," we maintain simple executive compensation programs that consist almost entirely of base salary, an annual cash incentive bonus and annual equity awards. These elements of compensation have been selected by our compensation committee because the committee believes that they effectively achieve the fundamental goals of our compensation program, which are to attract, motivate and retain qualified and talented executives, who are critical to our success, motivating them to achieve our business goals and rewarding them for superior short- and long-term performance. The goal of our compensation committee is to ensure that our compensation programs are aligned with the interests of our stockholders and our business goals in order to attain our ultimate objective of increasing stockholder value. We believe that, consistent with these goals, the total compensation paid to each of our named executive officers is fair, reasonable and competitive. Further, we believe our programs do not encourage excessive risk-taking by management.

With very limited exceptions, we do not provide any compensation or benefit plans to executive officers that are not also available to other employees. We differentiate among executive officers primarily based on size of annual cash incentive awards and annual equity awards and, to a lesser extent, base salary. Annual compensation decisions for executive officers are made by our compensation committee based on the achievement of specified performance goals as described under "Compensation Discussion and Analysis."

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

Board Recommendation

Our board of directors recommends that you vote to approve the compensation of our named executive officers by voting FOR Proposal 2.

Table of Contents

**PROPOSAL 3 ADVISORY VOTE ON THE FREQUENCY OF
FUTURE EXECUTIVE COMPENSATION ADVISORY VOTES**

In Proposal 2, we are providing our stockholders the opportunity to vote to approve, on an advisory, non-binding basis, the compensation of our named executive officers. In this Proposal 3, we are asking our stockholders to cast a non-binding advisory vote regarding the frequency of future executive compensation advisory votes. Stockholders may vote for a frequency of every one, two or three years, or may abstain.

After careful consideration, our board believes that an executive compensation advisory vote should be held every year. Our board believes that an annual executive compensation advisory vote will facilitate more direct stockholder input about executive compensation. An annual executive compensation advisory vote is consistent with our policy of reviewing our compensation programs annually, as well as seeking frequent input from our stockholders on corporate governance and executive compensation matters. We believe an annual vote would be the best governance practice for our company at this time.

The frequency choice that receives the highest number of votes cast will be considered to be the preferred frequency of our stockholders with which we are to hold future non-binding stockholder advisory say-on-pay votes on executive compensation.

Our board of directors will take into consideration the outcome of this vote in determining the frequency of future executive compensation advisory votes. However, because this vote is advisory and non-binding, our board of directors may decide that it is in our best interests and those of our stockholders to hold the advisory vote to approve executive compensation more or less frequently.

Board Recommendation

Our board of directors believes that holding the Executive Compensation Advisory Vote every year is in our best interests and those of our stockholders and recommends voting For a frequency of every ONE YEAR.

Stockholders are not voting to approve or disapprove the board of directors recommendation. Stockholders may choose among the four choices available.

PROPOSAL 4 RATIFICATION OF APPOINTMENT OF INDEPENDENT AUDITORS

Our board has appointed the firm of PricewaterhouseCoopers LLP, an independent registered public accounting firm, as independent auditors for the fiscal year ending December 31, 2011. Although stockholder approval of our board's appointment of PricewaterhouseCoopers LLP is not required by law, our board believes that it is advisable to give stockholders an opportunity to ratify this appointment. If this proposal is not approved at the annual meeting, our board will reconsider its appointment of PricewaterhouseCoopers LLP. Representatives of PricewaterhouseCoopers LLP are expected to be present at the annual meeting and will have the opportunity to make a statement, if they desire to do so, and will be available to respond to appropriate questions from our stockholders.

Board Recommendation

Our board of directors recommends a vote FOR the ratification of the appointment of PricewaterhouseCoopers LLP as our independent auditors for the fiscal year ending December 31, 2011.

Table of Contents

OTHER MATTERS

Our board of directors does not know of any other matters which may come before the meeting. However, if any other matters are properly presented to the meeting, it is the intention of the persons named in the accompanying proxy card to vote, or otherwise act, in accordance with their judgment on those matters.

STOCKHOLDER PROPOSALS

In order to be included in proxy material for the 2012 annual meeting of stockholders, stockholders' proposals must be received by us at our principal executive offices, 300 Third Street, Cambridge, Massachusetts 02142 no later than January 3, 2012. We suggest that proponents submit their proposals by certified mail, return receipt requested, addressed to our Corporate Secretary.

In addition, our bylaws require that we be given advance notice of stockholder nominations for election to our board of directors and of other matters which stockholders wish to present for action at an annual meeting of stockholders, other than matters included in our proxy statement. The required notice must be in writing and received by our corporate secretary at our principal offices not later than March 11, 2012 (90 days prior to the first anniversary of our 2011 annual meeting of stockholders) and not before February 10, 2012 (120 days prior to the first anniversary of our 2011 annual meeting of stockholders). However, if the 2012 annual meeting of stockholders is advanced by more than 20 days, or delayed by more than 60 days, from the first anniversary of the 2011 annual meeting of stockholders, notice must be received not earlier than the 120th day prior to such annual meeting and not later than the close of business on the later of (1) the 90th day prior to such annual meeting and (2) the 10th day following the date on which notice of the date of such annual meeting was mailed or public disclosure of the date of such annual meeting was made, whichever occurs first. Our bylaws also specify requirements relating to the content of the notice which stockholders must provide, including a stockholder nomination for election to our board of directors, to be properly presented at the 2012 annual meeting of stockholders.

OUR BOARD OF DIRECTORS ENCOURAGES STOCKHOLDERS TO ATTEND THE ANNUAL MEETING. WHETHER OR NOT YOU PLAN TO ATTEND IN PERSON, YOU ARE URGED TO VOTE BY PROXY OVER THE INTERNET, BY TELEPHONE OR BY MAIL AS DESCRIBED IN THE ENCLOSED PROXY CARD. A PROMPT RESPONSE WILL GREATLY FACILITATE ARRANGEMENTS FOR THE ANNUAL MEETING AND YOUR COOPERATION WILL BE APPRECIATED. STOCKHOLDERS WHO ATTEND THE ANNUAL MEETING MAY VOTE THEIR STOCK PERSONALLY EVEN THOUGH THEY HAVE SUBMITTED A PROXY PREVIOUSLY.

Table of Contents

Appendix A

ALNYLAM PHARMACEUTICALS, INC.

**RESTATED
AUDIT COMMITTEE CHARTER**

A. Purpose

The purpose of the Audit Committee of the Board of Directors (the Board) of Alnylam Pharmaceuticals, Inc. (the Company) is to assist the Board of Director s oversight of the Company s accounting and financial reporting processes and the audits of the Company s financial statements.

B. Structure and Membership

1. **Number**. Except as otherwise permitted by the applicable NASDAQ rules, the Audit Committee shall consist of at least three members of the Board.

2. **Independence**. Except as otherwise permitted by the applicable NASDAQ rules, each member of the Audit Committee shall be an independent director as defined by NASDAQ Rule 5605(a)(2), meet the criteria for independence set forth in Rule 10A-3(b)(1) under the Securities Exchange Act of 1934, as amended (the Exchange Act) (subject to the exemptions provided in Rule 10A-3(c)), and not have participated in the preparation of the financial statements of the Company or any current subsidiary of the Company at any time during the past three years.

3. **Financial Literacy**. Each member of the Audit Committee must be able to read and understand fundamental financial statements, including the Company s balance sheet, income statement, and cash flow statement, at the time of his or her appointment to the Audit Committee. In addition, at least one member must have past employment experience in finance or accounting, requisite professional certification in accounting, or any other comparable experience or background which results in the individual s financial sophistication, including being or having been a chief executive officer, chief financial officer or other senior officer with financial oversight responsibilities. Unless otherwise determined by the Board (in which case disclosure of such determination shall be made in the Company s annual report filed with the SEC), at least one member of the Audit Committee shall be an audit committee financial expert (as defined by applicable SEC rules).

4. **Chair**. Unless the Board elects a Chair of the Audit Committee, the Audit Committee shall elect a Chair by majority vote.

5. **Compensation**. The compensation of Audit Committee members shall be as determined by the Board. No member of the Audit Committee may receive, directly or indirectly, any consulting, advisory or other compensatory fee from the Company or any of its subsidiaries, other than fees paid in his or her capacity as a member of the Board or a committee of the Board.

6. **Selection and Removal**. Members of the Audit Committee shall be appointed by the Board, upon the recommendation of the Nominating and Corporate Governance Committee. The Board may remove members of the Audit Committee from such committee, with or without cause.

C. Authority and Responsibilities

General

The Audit Committee shall discharge its responsibilities, and shall assess the information provided by the Company's management and the Company's registered public accounting firm (the independent auditor), in accordance with its business judgment. Management is responsible for the preparation, presentation, and integrity of the Company's financial statements, for the appropriateness of the accounting principles and reporting policies that are used by the Company and for establishing and maintaining adequate internal control over financial reporting. The independent auditor is responsible for auditing the Company's financial

A-1

Table of Contents

statements and the Company's internal control over financial reporting and for reviewing the Company's unaudited interim financial statements. The authority and responsibilities set forth in this Charter do not reflect or create any duty or obligation of the Audit Committee to plan or conduct any audit, to determine or certify that the Company's financial statements are complete, accurate, fairly presented, or in accordance with generally accepted accounting principles or applicable law, or to guarantee the independent auditor's reports.

Oversight of Independent Auditor

1. **Selection.** The Audit Committee shall be solely and directly responsible for appointing, evaluating, retaining and, when necessary, terminating the engagement of the independent auditor. The Audit Committee may, in its discretion, seek stockholder ratification of the independent auditor it appoints.
2. **Independence.** The Audit Committee shall take, or recommend that the full Board take, appropriate action to oversee the independence of the independent auditor. In connection with this responsibility, the Audit Committee shall obtain and review the written disclosures and the letter from the independent auditor required by applicable requirements of the Public Company Accounting Oversight Board (the PCAOB) regarding the independent auditor's communications with the Audit Committee concerning independence. The Audit Committee shall actively engage in dialogue with the independent auditor concerning any disclosed relationships or services that might impact the objectivity and independence of the auditor.
3. **Compensation.** The Audit Committee shall have sole and direct responsibility for setting the compensation of the independent auditor. The Audit Committee is empowered, without further action by the Board, to cause the Company to pay the compensation of the independent auditor established by the Audit Committee.
4. **Preapproval of Services.** The Audit Committee shall preapprove all audit services to be provided to the Company, whether provided by the principal auditor or other firms, and all other services (review, attest and non-audit) to be provided to the Company by the independent auditor; provided, however, that de minimis non-audit services may instead be approved in accordance with applicable SEC rules.
5. **Oversight.** The independent auditor shall report directly to the Audit Committee, and the Audit Committee shall have sole and direct responsibility for overseeing the work of the independent auditor, including resolution of disagreements between Company management and the independent auditor regarding financial reporting. In connection with its oversight role, the Audit Committee shall, from time to time as appropriate, receive and consider the reports required to be made by the independent auditor regarding:

critical accounting policies and practices;

alternative treatments within generally accepted accounting principles for policies and practices related to material items that have been discussed with Company management, including ramifications of the use of such alternative disclosures and treatments, and the treatment preferred by the independent auditor; and

other material written communications between the independent auditor and Company management.

Audited Financial Statements

6. **Review and Discussion.** The Audit Committee shall review and discuss with the Company's management and independent auditor the Company's audited financial statements, including the matters required to be discussed by the Statement on Auditing Standards No. 61, as amended (AICPA, *Professional Standards*, Vol. 1. AU section 380), as adopted by the PCAOB.

7. Recommendation to Board Regarding Financial Statements. The Audit Committee shall consider whether it will recommend to the Board that the Company's audited financial statements be included in the Company's Annual Report on Form 10-K.

A-2

Table of Contents

8. **Audit Committee Report.** The Audit Committee shall prepare an annual committee report for inclusion where necessary in the proxy statement of the Company relating to its annual meeting of security holders.

Review of Other Financial Disclosures

9. **Independent Auditor Review of Interim Financial Statements.** The Audit Committee shall direct the independent auditor to use its best efforts to perform all reviews of interim financial information prior to disclosure by the Company of such information and to discuss promptly with the Audit Committee and the Chief Financial Officer any matters identified in connection with the auditor's review of interim financial information which are required to be discussed by applicable auditing standards. The Audit Committee shall direct management to advise the Audit Committee in the event that the Company proposes to disclose interim financial information prior to completion of the independent auditor's review of interim financial information.

Controls and Procedures

10. **Oversight.** The Audit Committee shall coordinate the Board's oversight of the Company's internal control over financial reporting, disclosure controls and procedures and code of conduct. The Audit Committee shall receive and review the reports of the chief executive officer and the chief financial officer of the Company required by Rule 13a-14 under the Exchange Act.

11. **Internal Audit Function.** The Audit Committee shall coordinate the Board of Director's oversight of the performance of the Company's internal audit function.

12. **Risk Management.** The Audit Committee shall discuss with management the Company's risk exposures in the areas of financial reporting, internal controls and compliance with legal and financial regulatory requirements, including guidelines and policies to govern the process by which the Company's exposure to such risk is handled.

13. **Procedures for Complaints.** The Audit Committee shall establish procedures for (i) the receipt, retention and treatment of complaints received by the Company regarding accounting, internal accounting controls or auditing matters; and (ii) the confidential, anonymous submission by employees of the Company of concerns regarding questionable accounting or auditing matters.

14. **Oversight of Related-Person Transactions.** The Audit Committee shall review the Company's policies and procedures for reviewing and approving or ratifying related person transactions (defined as transactions required to be disclosed pursuant to Item 404 of Regulation S-K), including the Company's Related Person Transaction Policy attached hereto as Exhibit A, and recommend any changes to the Board. In accordance with the Company's Related Person Transaction Policy and NASDAQ rules, the Audit Committee shall conduct appropriate review and oversight of all related person transactions for potential conflict of interest situations on an ongoing basis.

15. **Additional Duties.** The Audit Committee shall have such other duties as may be delegated from time to time by the Board.

D. Procedures and Administration

1. **Meetings.** The Audit Committee shall meet as often as it deems necessary in order to perform its responsibilities. The Audit Committee may also act by unanimous written consent in lieu of a meeting. The Audit Committee shall periodically meet separately with: (i) the independent auditor; (ii) Company management; and (iii) the Company's internal auditors. The Audit Committee shall keep such records of its meetings as it shall deem appropriate.

2. Subcommittees. The Audit Committee may form and delegate authority to one or more subcommittees, as it deems appropriate from time to time under the circumstances (including a subcommittee consisting of a single member). Any decision of a subcommittee to preapprove audit, review, attest or non-audit services shall be presented to the full Audit Committee at its next scheduled meeting.

A-3

Table of Contents

3. **Reports to Board.** The Audit Committee shall report regularly to the Board.
4. **Charter.** At least annually, the Audit Committee shall review and reassess the adequacy of this Charter and recommend any proposed changes to the Board for approval.
5. **Independent Advisors.** The Audit Committee is authorized, without further action by the Board, to engage such independent legal, accounting and other advisors as it deems necessary or appropriate to carry out its responsibilities. Such independent advisors may be the regular advisors to the Company. The Audit Committee is empowered, without further action by the Board, to cause the Company to pay the compensation of such advisors as established by the Audit Committee.
6. **Investigations.** The Audit Committee shall have the authority to conduct or authorize investigations into any matters within the scope of its responsibilities as it shall deem appropriate, including the authority to request any officer, employee or advisor of the Company to meet with the Audit Committee or any advisors engaged by the Audit Committee.
7. **Funding.** The Audit Committee is empowered, without further action by the Board, to cause the Company to pay the ordinary administrative expenses of the Audit Committee that are necessary or appropriate in carrying out its duties.

Approved by the Board on April 1, 2011

A-4

Table of Contents

EXHIBIT A

ALNYLAM PHARMACEUTICALS, INC.

RELATED PERSON TRANSACTION POLICY

The Code of Business Conduct and Ethics of Alnylam Pharmaceuticals, Inc. (the *Company*) provides that employees, executive officers and directors must act in the best interests of the Company and refrain from engaging in any activity or having a personal interest that presents a conflict of interest. In addition, under applicable SEC rules, the Company is required to disclose related person transactions as defined in the SEC's rules.

The Company's Board of Directors (the *Board*) has adopted this Related Person Transaction Policy (this *Policy*) to set forth the policies and procedures for the review and approval or ratification of Related Person Transactions (as defined below).

1. Definitions

For the purposes of this Policy, a *Related Person* is:

- a) any person who is or was an executive officer, director, or director nominee of the Company at any time since the beginning of the Company's last fiscal year;
- b) a person who is or was an Immediate Family Member of an executive officer, director, director nominee at any time since the beginning of the Company's last fiscal year;
- c) any person who, at the time of the occurrence or existence of the transaction, is the beneficial owner of more than 5% of any class of the Company's voting securities (a *Significant Shareholder*); or
- d) any person who, at the time of the occurrence or existence of the transaction, is an Immediate Family Member of a Significant Shareholder of the Company.

An *Immediate Family Member* of a person is any child, stepchild, parent, stepparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law or sister-in-law of such person, or any other person sharing the household of such person, other than a tenant or employee.

A *Related Person Transaction* is any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships in which the Company was or is to be a participant, the amount involved exceeds \$120,000, and a Related Person had or will have a direct or indirect material interest. Except as otherwise set forth in this Policy, *Related Person Transaction* specifically includes, 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 the Company of a Related Person. The Board has determined that the following do not create a material direct or indirect interest on behalf of the Related Person, and are, therefore, not *Related Person Transactions* for purposes of this Policy:

- 1. Interests arising only from the Related Person's position as a director of another corporation or organization that is a party to the transaction; or
- 2. Interests arising only from the direct or indirect ownership by the Related Person and all other Related Persons in the aggregate of less than a 10% equity interest (other than a general partnership interest) in another entity which is a

party to the transaction; or

3. Interests arising from both the position and ownership level described in (1) and (2) above; or

4. Interests arising solely from the Related Person's position as an executive officer of another entity (whether or not the person is also a director of such entity) that is a participant in the transaction, where (a) the Related Person and all other Related Persons own in the aggregate less than a 10% equity interest in such entity, (b) the Related Person and his or her Immediate Family Members are not involved in the negotiation of the terms of the transaction with the Company and do not receive any special benefits as a

A-5

Table of Contents

result of the transaction, and (c) the amount involved in the transaction equals less than the greater of \$200,000 or 5% of the annual gross revenues of the company receiving payment under the transaction; or

5. Interests arising solely from the ownership of a class of the Company's equity securities if all holders of that class of equity securities receive the same benefit on a pro rata basis; or

6. A transaction that involves compensation to an executive officer if the compensation has been approved, or recommended to the Board for approval, by the Compensation Committee of the Board or a group of independent directors of the Company performing a similar function; or

7. A transaction that involves compensation to a director for services as a director of the Company if such compensation will be reported pursuant to Item 402(k) of Regulation S-K; or

8. A transaction that is specifically contemplated by provisions of the Certificate of Incorporation or Bylaws of the Company; or

9. Interests arising solely from indebtedness of a Significant Shareholder or an Immediate Family Member of a Significant Shareholder to the Company; or

10. A transaction where the rates or charges involved in the transaction are determined by competitive bids; or

11. A transaction that involves the rendering of services as a common or contract carrier or public utility at rates or charges fixed in conformity with law or governmental authority; or

12. A transaction that involves services as a bank depository of funds, transfer agent, registrar, trustee under a trust indenture, or similar services.

2. Policies and Procedures for Review, Approval or Ratification of Related Person Transactions

Any Related Person Transaction proposed to be entered into by the Company must be reported to the General Counsel of the Company and shall be reviewed and approved by the Audit Committee of the Board (the Committee) in accordance with the terms of this Policy, prior to effectiveness or consummation of the transaction, whenever practicable. If the General Counsel determines that advance approval of a Related Person Transaction is not practicable under the circumstances, the Committee shall review and, in its discretion, may ratify the Related Person Transaction at the next meeting of the Committee, or at the next meeting following the date that the Related Person Transaction comes to the attention of the General Counsel; *provided, however*, that the General Counsel may present a Related Person Transaction arising in the time period between meetings of the Committee to the Chair of the Committee, who shall review and may approve the Related Person Transaction, subject to ratification by the Committee at the next meeting of the Committee.

In addition, any Related Person Transaction previously approved by the Committee or otherwise already existing that is ongoing in nature shall be reviewed by the Committee annually to ensure that such Related Person Transaction has been conducted in accordance with the previous approval granted by the Committee, if any, and that all required disclosures regarding the Related Person Transaction are made.

Transactions involving compensation of executive officers shall be reviewed and approved by the Compensation Committee in the manner specified in the charter of the Compensation Committee.

3. Standards for Review, Approval or Ratification of Related Person Transactions

A Related Person Transaction reviewed under this Policy will be considered approved or ratified if it is authorized by the Committee in accordance with the standards set forth in this Policy after full disclosure of the Related Person's interests in the transaction. As appropriate for the circumstances, the Committee shall review and consider:

the Related Person's interest in the Related Person Transaction;

the approximate dollar value of the amount involved in the Related Person Transaction;

A-6

Table of Contents

the approximate dollar value of the amount of the Related Person's interest in the transaction without regard to the amount of any profit or loss;

whether the transaction was undertaken in the ordinary course of business of the Company;

whether the transaction with the Related Person is proposed to be, or was, entered into on terms no less favorable to the Company than terms that could have been reached with an unrelated third party;

the purpose of, and the potential benefits to the Company of, the transaction; and

any other information regarding the Related Person Transaction or the Related Person in the context of the proposed transaction that would be material to investors in light of the circumstances of the particular transaction.

The Committee will review all relevant information available to it about the Related Person Transaction. The Committee may approve or ratify the Related Person Transaction only if the Committee determines that, under all of the circumstances, the transaction is in, or is not inconsistent with, the best interests of the Company. The Committee may, in its sole discretion, impose such conditions as it deems appropriate on the Company or the Related Person in connection with approval of the Related Person Transaction.

The review, approval or ratification of a transaction, arrangement or relationship pursuant to this Policy does not necessarily imply that such transaction, arrangement or relationship is required to be disclosed under Item 404(a) of Regulation S-K.

Table of Contents

alnylam PHARMACEUTICALS IMPORTANT ANNUAL MEETING INFORMATION Electronic Voting Instructions You can vote by Internet or telephone! Available 24 hours a day, 7 days a week! Instead of mailing your proxy, you may choose one of the two voting methods outlined below to vote your proxy. VALIDATION DETAILS ARE LOCATED BELOW IN THE TITLE BAR. Proxies submitted by the Internet or telephone must be received by 11:59 p.m., Eastern Time, on June 8, 2011. Vote by Internet Log on to the Internet and go to www.investorvote.com/ALNY Follow the steps outlined on the secured website. Vote by telephone Call toll free 1-800-652-VOTE (8683) within the USA, US territories & Canada any time on a touch tone telephone. There is NO CHARGE to you for the call. Using a black ink pen, mark your votes with an X as shown in this example. Please do not write outside the designated areas. Follow the instructions provided by the recorded message. Annual Meeting Proxy Card IF YOU HAVE NOT VOTED VIA THE INTERNET OR TELEPHONE, FOLD ALONG THE PERFORATION, DETACH AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE. A Proposals The Board of Directors recommends you vote FOR the listed nominees to serve for a term ending in 2014, FOR Proposals 2 and 4, and 1 YEAR on the advisory vote for the frequency of advisory stockholder votes on executive compensation. 1. To elect the following nominees as Class I directors of Alnylam: For Withhold 01 John M. Maraganore, Ph.D. 02 Paul R. Schimmel, Ph.D. For Against Abstain 2. Approve a non-binding advisory vote on the compensation of the Company's named executive officers. 1 Yr 2 Yrs 3 Yrs Abstain + For Withhold For Withhold 03 Phillip A. Sharp, Ph.D. For Against Abstain 4. To ratify the appointment of PricewaterhouseCoopers LLP, an independent registered public accounting firm, as Alnylam's independent auditors for the fiscal year ending December 31, 2011. 3. Recommend, in a non-binding advisory vote, the frequency of advisory stockholder votes on executive compensation. In their discretion, the Proxies are authorized to vote upon any other business that may properly come before the annual meeting or at any adjournment(s) thereof. B Non-Voting Items Change of Address Please print new address below. Comments Please print your comments below. C Authorized Signatures This section must be completed for your vote to be counted. Date and Sign Below

Please sign exactly as your name(s) appear(s) hereon. All holders must sign. When signing as attorney, executor, administrator or other fiduciary, please give your full title as such. Joint owners should each sign personally. If a corporation, please sign in full corporate name, by authorized officer. If a partnership, please sign in partnership name by authorized person.

Date (mm/dd/yyyy) Please print date below. Signature 1 Please keep signature within the box. Signature 2 Please keep signature within the box. +

Table of Contents

IF YOU HAVE NOT VOTED VIA THE INTERNET OR TELEPHONE, FOLD ALONG THE PERFORATION, DETACH AND RETURN THE BOTTOM PORTION IN THE ENCLOSED ENVELOPE. Proxy ALNYLAM PHARMACEUTICALS, INC. ANNUAL MEETING OF STOCKHOLDERS To be held on June 9, 2011 at 9:00 a.m., Eastern Time This Proxy is solicited on behalf of the Board of Directors of Alnylam Pharmaceuticals, Inc. (Alnylam). The undersigned, having received notice of the annual meeting of stockholders and the proxy statement therefor and revoking all prior proxies, hereby appoints each of John M. Maraganore, Ph.D., Barry E. Greene and Michael P. Mason (each with full power of substitution), as Proxies of the undersigned, to attend the annual meeting of stockholders of Alnylam to be held at 9:00 a.m., Eastern Time, on Thursday, June 9, 2011, at the offices of Alnylam, 300 Third Street, Cambridge, Massachusetts 02142, and any adjourned or postponed session thereof, and there to vote and act as indicated upon the matters on the reverse side in respect of all shares of common stock which the undersigned would be entitled to vote or act upon, with all powers the undersigned would possess if personally present. You can revoke your proxy at any time before it is voted at the annual meeting by (i) submitting another properly completed proxy bearing a later date; (ii) giving written notice of revocation to the Secretary of Alnylam; (iii) if you submitted a proxy through the Internet or by telephone, by submitting a proxy again through the Internet or by telephone prior to the close of the Internet voting facility or the telephone voting facility; or (iv) voting in person at the annual meeting. If you hold any of the shares of common stock in a fiduciary, custodial or joint capacity or capacities, this proxy is signed by you in every such capacity as well as individually. The shares of common stock of Alnylam represented by this proxy will be voted as directed by you for the proposals herein proposed by Alnylam. If no direction is given with respect to any proposal specified herein, this proxy will be voted FOR the proposal. In their discretion, the Proxies are authorized to vote upon any other business that may properly come before the annual meeting or any adjournment(s) thereof. Please vote, date and sign on reverse side and return promptly in the enclosed pre-paid envelope. Your vote is important. Please vote immediately. CONTINUED AND TO BE SIGNED ON REVERSE SIDE
SEE REVERSE SIDE