

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

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of the
Securities Exchange Act of 1934
(Amendment No.)

Filed by the Registrant ☒

Filed by a Party other than the Registrant ☐

Check the appropriate box:

- ☐ Preliminary Proxy Statement
- ☐ Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))
- ☒ Definitive Proxy Statement
- ☐ Definitive Additional Materials
- ☐ Soliciting Material 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 all boxes that apply):

- ☒ No fee required.
- ☐ Fee paid previously with preliminary materials.
- ☐ Fee computed on table in exhibit required by Item 25(b) per Exchange Act Rules 14a-6(i)(1) and 0-11.



LETTER FROM OUR CEO

April 3, 2023

To our Stockholders:

We invite you to attend the 2023 Annual Meeting of Stockholders of Alnylam Pharmaceuticals, Inc., which will be held online on Thursday, May 18, 2023, beginning at 8:30 a.m., Eastern Time. You may attend the meeting virtually via the Internet at www.virtualshareholdermeeting.com/ALNY2023, where you will be able to vote electronically and submit questions. You will need the 16-digit control number included with these proxy materials to attend the annual meeting.

The following notice of our annual meeting of stockholders contains details of the business to be conducted at the meeting. Only stockholders of record at the close of business on March 24, 2023 will be entitled to notice of, and to vote at, the annual meeting.

On behalf of our Board of Directors, thank you for your continued support and investment in Alnylam.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Yvonne L. Greenstreet'.

Yvonne L. Greenstreet, MBChB, MBA
Chief Executive Officer and Director
On behalf of the Board of Directors of
Alnylam Pharmaceuticals, Inc.



NOTICE OF 2023 ANNUAL MEETING OF STOCKHOLDERS

Date:	Thursday, May 18, 2023
Time:	8:30 a.m., Eastern Time
Place:	Online at www.virtualshareholdermeeting.com/ALNY2023
Record Date:	March 24, 2023. Only Alnylam stockholders of record at the close of business on the record date for the annual meeting are entitled to notice of, and to vote at, the annual meeting or any adjournment or postponement thereof.
Items of Business:	1. To elect four (4) members to our board of directors, as nominated by our board of directors, each to serve as a Class I director for a term ending in 2026, or until a successor has been duly elected and qualified; 2. To approve, on a non-binding advisory basis, 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 “say-on-frequency” vote, the frequency of future advisory “say-on-pay” votes; 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, 2023; and 5. To transact any other business that may properly come before the annual meeting or any adjournment or postponement thereof.
Virtual Meeting:	To participate in the annual meeting virtually via the Internet, please visit www.virtualshareholdermeeting.com/ALNY2023 . You will need the 16-digit control number included on your proxy card or the instructions that accompanied your proxy materials. Stockholders will be able to vote and submit questions during the annual meeting. You will not be able to attend the annual meeting in person.
Voting:	Proposal 1 relates solely to the election of four (4) Class I directors nominated by our board of directors and does not include any other matters relating to the election of directors, including without limitation, the election of directors nominated by any stockholder of the company.

Your vote is important regardless of the number of shares you own. Whether or not you plan to participate in the annual meeting online, we hope you will take the time to vote your shares. To assure your representation at the annual meeting, if you are a stockholder of record, please vote in one of these three ways:

Vote Over the Internet, by going to www.proxyvote.com and entering the 16-digit control number provided on your proxy card or voting instruction form;

Vote by Telephone, by calling 1-800-690-6903 or the number on your proxy card or voting instruction form. You will need the 16-digit control number provided on your proxy card or voting instruction form; or

Vote by Mail, if you received printed proxy materials, by completing, signing and dating the proxy card or voting instruction form and mailing it in the accompanying pre-addressed envelope. If you vote over the Internet or by telephone, please do not mail your proxy.

If you vote via the Internet or by telephone or mail your proxy in, you will not limit your right to vote online at the annual meeting.

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.

**Important Notice Regarding the Internet Availability of Proxy Materials
for the Stockholder Meeting to Be Held on May 18, 2023**

This Notice of 2023 Annual Meeting, Proxy Statement, 2022 Annual Report on Form 10-K and Annual Report to Stockholders are available for viewing, printing and downloading at www.proxyvote.com.

By Order of the Board of Directors,



Indrani L. Franchini
Executive Vice President, Chief Legal Officer and Secretary

Cambridge, Massachusetts
April 3, 2023



PROXY STATEMENT

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PROXY STATEMENT SUMMARY

This summary highlights important information you will find in this Proxy Statement. As it is only a summary, please review the complete Proxy Statement before you vote.

Virtual Annual Meeting Information

Date: Thursday, May 18, 2023
Time: 8:30 a.m., Eastern Time
Location: Online at www.virtualshareholdermeeting.com/ALNY2023
Record Date: March 24, 2023
You will not be able to attend the annual meeting in person.

Voting Items and Board Recommendations

		Board Recommendation
Proposal 1	Election of Four (4) Class I Directors	FOR All Nominees
Proposal 2	Say-on-Pay—Advisory Vote on Approval of Executive Compensation	FOR
Proposal 3	Say-on-Frequency—Advisory Vote on Frequency of Future Executive Compensation Advisory Votes	“CHOICE 1” (EVERY YEAR)
Proposal 4	Ratification of Independent Auditors	FOR

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 the matters set forth in the accompanying Notice of Meeting. On any other matters properly brought before the annual meeting, the named proxies may vote in accordance with their best judgment.

How to Vote

Vote Right Away Through Advance Voting Methods			Vote During Meeting
Vote by Internet Using Your Computer  Go to www.proxyvote.com and enter the 16-digit control number provided on your proxy card or voting instruction form.	Vote by Telephone  Call 1-800-690-6903 or the number on your proxy card or voting instruction form. You will need the 16-digit control number provided on your proxy card or voting instruction form.	Vote by Mail  If you received printed proxy materials, complete, sign and date the proxy card or voting instruction form and mail it in the accompanying pre-addressed envelope.	Vote During the Meeting  See “Important Information About the Annual Meeting and Voting – Voting” for details on how to vote during the Annual Meeting.

Important Notice Regarding the Internet Availability of Proxy Materials for the Annual Meeting of Stockholders to be Held on May 18, 2023

We are furnishing proxy materials to our stockholders primarily via the Internet. On or about April 5, 2023, we will mail to our stockholders a Notice of Internet Availability containing instructions on how to access our proxy materials, including our proxy statement and our 2022 Annual Report. The Notice of Internet Availability also instructs you on how to submit your proxy or voting instructions through the Internet or to request a paper copy of our proxy materials, including a proxy card or voting instruction form that includes instructions on how to submit your proxy or voting instructions by mail or telephone. Other stockholders, in accordance with their prior requests, have received e-mail access to our proxy materials and instructions to submit their vote via the Internet, or have been mailed paper copies of our proxy materials and a proxy card or voting instruction form.

This Proxy Statement, our Annual Report on Form 10-K and our Annual Report to Stockholders are available for viewing, printing and downloading at www.proxyvote.com.

A copy of our Annual Report on Form 10-K for the fiscal year ended December 31, 2022, as filed with the Securities and Exchange Commission, or SEC, on February 23, 2023, will be furnished without charge to any stockholder upon written request to Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Termeer Square, 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, 2022 are also available on the SEC’s website at www.sec.gov.

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.

Corporate Governance Strengths

We are committed to exercising good corporate governance practices. We believe that good governance promotes the long-term interests of our stockholders and strengthens the accountability of our board of directors and management. Our corporate governance practices are primarily designed to:

Enhance Independent Oversight	Increase Accountability to Stockholders	Ensure a Fit-for-Purpose Board	Align Interests with Long-Term Stockholders
11 of 13 directors (85%) are independent	Majority vote standard for uncontested director elections, with a director resignation policy	Commitment to ensuring the board represents diversity of tenure, gender, race/ethnicity, experience and skills	One vote per share Strong stock ownership guidelines for directors and executives
All board committees are 100% independent	Regular board and committee self-evaluations	Regular evaluation of board and committee composition and organization	Robust clawback policy applies to both cash and equity incentives
Independent board chair transition completed January 2023 Independent directors hold regular executive sessions	Annual advisory approval of executive compensation	Regular assessment of external commitments, potential conflicts of interest and time commitments of directors	No margin accounts, pledging or hedging of company shares

Corporate Governance Materials

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 provide a framework for the conduct of our board of directors' business.

The board has also adopted a code of business conduct and ethics, which applies to all of our officers, directors and employees, and has adopted charters for our audit committee, our people, culture and compensation committee (sometimes referred to in this proxy statement as our PC&C committee), our nominating and corporate governance committee, and our science and technology committee.

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 Select Market listing standards.

Transition of Executive Chair Role

In early January 2023, Michael W. Bonney transitioned from the role of executive chair of our board, where he was focused on integrating the ethics and compliance function at the company, a role he assumed for just over a year during which the company appointed a new chief ethics and compliance officer, to serve as a non-independent director on the board, and Amy W. Schulman, our former lead independent director, was appointed by the board to serve as chair of the board.

ESG

Corporate Responsibility

Every day we focus on transforming the lives of patients with devastating rare or common diseases. With their needs at the forefront, we strive to give patients the opportunity to live healthier lives. Guided by our core values, our commitment to advancing breakthrough science and to making our medicines available to patients in an equitable way are central to how we operate and are foundational to our approach to Corporate Responsibility, or CR.

Beyond our commitment to patients, we recognize and embrace a range of other responsibilities, including advancing science; hiring, supporting, and developing a diverse group of employees; serving our local communities; protecting our planet; and operating our business in an ethical, compliant and accountable manner.

Governance

Our board sets the tone for governance across our company. Our nominating and corporate governance committee provides direct oversight of and engagement with our CR and ESG-related matters. Our executive leadership team is also directly involved in CR through focus-area-specific teams that advance our work on a regular basis.

We have a CR Steering Committee structure that aligns key working groups for each of our CR pillars. Each pillar's working group is led by a Chair or Chairs who are also members of the CR Steering Committee and key leaders from various areas of the company whose responsibilities align with each pillar. These dedicated professionals oversee, develop strategy for, and review reporting and key performance indicators surrounding their individual pillars. By utilizing a cross-functional, team-based approach to CR, we continuously seek to integrate these strategies into our existing business initiatives.

In 2022, our CR Steering Committee built on the learnings from a 2021 materiality study and worked to further align our CR structure with our *P5x25* corporate strategy. As the company considers its role in becoming a top-tier biotech by 2025, our CR Steering Committee analyzed the expectations of an industry leader in CR as well. We continued to invest in and formalize our CR program, identified the issues material to stakeholders and developed action plans accordingly.

Corporate Responsibility Pillars



Patients: We strive to improve patients' lives and enable access to potentially life-changing treatments

Science: We advocate for science and innovation to address critical health and social issues

Employees: We foster an open, diverse culture where employees feel included, supported, and heard

Communities: We actively engage people in tackling the world's most pressing community and health equity challenges

Planet: We seek to improve the health and sustainability of our planet

Continued Investment in ESG and Corporate Responsibility

- Continue to publish annually our **CR report aligned with SASB Biotechnology & Pharmaceuticals Standard and GRI Standard**: Core Option framework
- **Calculated our Scope 1 and Scope 2 GHG emissions** and selected three Scope 3 emissions categories to **begin our Scope 3 process**
- **Quantified our global water and waste footprint**
- **Expanded our Alnylam Challengers Signature Social Impact Program** to Europe

Patient Access

Patient Access has been a core tenet of our company's mission since before our first medicine was even available to patients. In a year with so many challenges for patients, we have acted with urgency to ensure patients have access to our therapies and we are proud to have secured innovative reimbursement contracts, developed new negotiation frameworks, and stayed in close contact with our patients throughout this year.

Through various patient access programs, we aim to ensure patients gain access to our commercially available therapeutics and investigational drugs for treatment outside clinical trials when no comparable or satisfactory alternative therapy options are available. In addition, we work to ensure patients can access diagnostic resources and genetic testing that might open doors to treatment. Our key programs include:

- **Alnylam Assist®** offers personalized services helping patients understand insurance coverage for therapy, informing them of options and eligibility for financial support, providing materials to start conversations with physicians and family members, and sharing information on patient advocacy organizations and other resources.
- **Alnylam's Compassionate Use Policy** outlines when we will consider providing treatment for an individual patient outside a clinical trial. We evaluate all requests in a fair and equitable manner. We are privileged to collaborate with providers and clinical investigators, and we understand there are at times seriously ill patients who are not eligible for clinical trials but may not have options for alternative therapies.
- **Alnylam Act®** provides an option for no-charge, third-party genetic testing and counseling for people with a family history or suspected diagnosis of certain genetic diseases.
- **Alnylam works with key genetic testing partners** around the world to provide patient and physician education and spread knowledge about the resources available for patients to help those at risk, or drive earlier, more accurate diagnosis.

2022 Patient Access Highlights

3,775+

patients receiving our RNAi therapeutics globally

~700

patients worldwide receiving our therapeutics under Compassionate Use and early access

\$0 Out-of-Pocket

costs for a majority of patients

350+

U.S. patients enrolled in commercial copay programs

60+

Value-Based Agreements with U.S. payers

1,000+

U.S. patients enrolled in Alnylam Assist®

4.8

on a 5.0 scale in overall patient satisfaction surveys

Diversity, Equity and Inclusion

Our business is powered by our employees. They are passionate drivers of innovation and progress, patient-focused, results driven, and recognized by tenacity, collaboration and openness.

Our culture is a key differentiator in the success of our business. We cultivate a diverse, equitable and inclusive environment where employees feel that they belong and can bring their authentic selves to work.

In 2022, our cross-functional Diversity, Equity and Inclusion, or DEI, teams continued work aligned with our Action Plan for Diversity, Equity and Inclusion. This plan is centered on five key areas of focus, four internal and one external: employee education and development, talent acquisition and management, workplace policies, employee engagement, and patient and community engagement. Our Chief DEI Officer and her team lead this work, with the collaboration of every department across the company.

As a result of our efforts in 2022, we:

- Exceeded our goal of increasing the number of Black or African American and Hispanic or Latino individuals in our U.S. employee base by 20% YOY
- Set a 2023 goal to increase our employee base of Black or African American and Hispanic or Latino individuals by an additional 20% YOY
- Added a housing stipend to our internship offerings to remove cost barriers of gaining experiential learning opportunities at the company, and set a goal to bring at least 50% of our intern community from partners that work with under-represented students including Thrive Scholars, Life Science Cares, and Historically Black Colleges and Universities
- With the launch of our supplier diversity program, we completed all of the goals of the MassBio CEO Pledge that we joined in 2020 focused on six areas of DEI focus – leaders and executive culture, inclusive company culture, recruitment, retention and development, accountability and sustainability, and supplier diversity
- Awarded #1 on Boston Globe's "Top Places to Work" in 2022; included for the eighth consecutive year on this list

Global Employee Snapshot 2022*

Alnylam Employees

Total employees	2,011
Total U.S. employees	1,573

Global Gender Diversity

Female	53%
Male	47%

Racial Diversity of U.S. Workforce**

American Indian or Alaska Native or Pacific Islander	0%
Asian	22%
Black or African American	6%
Hispanic or Latino	6%
Two or more races	3%
White	63%

Alnylam's Management

Executives	10
Female executives	3
Executives from underrepresented populations***	5

* All diversity statistics based on totals collected in December 2022.

** 15% of the U.S. employee population did not disclose their race and ethnicity information

*** Defined as those who self-reported as Black or African American, Hispanic or Latino, American Indian, Alaska Native or Pacific Islander, or who identified as two or more races

Environmental Sustainability

As a biopharmaceutical company focused on improving the health of humanity, we have an important role to play in creating a more sustainable planet. We know that public health is inextricably linked to our planet's health. In 2021, we shared publicly for the first time our Scope 1 and Scope 2 greenhouse gas emissions, our total energy consumption, and information regarding our waste streams across offices, labs, and manufacturing facilities.

In 2022, we continued to refine these processes and decrease our environmental impact by:

- Collecting baseline water usage data across our footprint;
- Continuing to calculate our Scope 1 and Scope 2 GHG emissions and selecting three Scope 3 emissions categories;
- Utilizing the WRI GHG Protocol and ISO 14064-1 standards to quantify GHG emissions from all our facilities and vehicles as well as purchasing electricity, steam, and water;
- Completing the process of independent third-party verification of baseline data and in process of verification of 2022 GHG emissions and waste management data;
- Realizing carbon-neutrality for the 228 vehicles in our U.S. fleet, through the EMKAY goGREEN Program, where we purchased carbon offset options equivalent to vehicle carbon emissions; and
- Partnering with Food for Free and Furniture Trust to divert unused office equipment to non-profits in need of supplies.

Cybersecurity and Data Privacy

Our nominating and corporate governance committee assists our board in fulfilling its oversight responsibilities with respect to the management of risks associated cybersecurity and data privacy. We engage a third party to conduct a periodic independent cybersecurity program assessment to enhance our information security in alignment with leading practices, the constantly evolving cyber-risk landscape and applicable business considerations. We apply a global approach to meeting the highest and strictest data privacy standards in every country we operate to ensure we handle our patients' private data with integrity.

Guided by our nominating and corporate governance committee, we continue to invest in cybersecurity and data privacy resources. In 2022, we:

- Formed a dedicated data governance committee comprised of leaders from information security, technology and intellectual property. This committee has created policies and procedures regarding data collection, retention, storage, and destruction that will execute across all business units in 2023;
- Continued activities during Data Privacy Week in January and Security Awareness Month in October with dedicated privacy training and expanded regular privacy-related communications for employees; and
- Continued to grow our Privacy Champions Network, a cross-functional group of employees responsible for taking appropriate steps to ensure data privacy guidelines are met in each of their respective departments.

For additional information please view our [2022 Corporate Responsibility Report](#).

INFORMATION CONCERNING DIRECTOR NOMINEES – ELECTION OF CLASS I DIRECTORS (PROPOSAL 1)

Alnylam has led the translation of RNAi (RNA interference) from Nobel Prize-winning discovery into an innovative, entirely new class of medicines. Founded in 2002 by a team of distinguished life sciences leaders, Alnylam's vision is to harness the potential of RNAi therapeutics to transform the lives of people living with diseases for which there are limited or inadequate treatment options. Our pioneering work has delivered the world's first and only approved RNAi therapeutics — ONPATTRO® (patisiran) in 2018, GIVLAARI® (givosiran) in 2019, OXLUMO® (lumasiran) in 2020, and AMVUTTRA® (vutrisiran) in 2022. We are advancing a deep pipeline of innovative RNAi-based medicines. We believe that our classified board structure aligns with this long-term orientation and has enabled the board which includes Nobel prize winners and members of the National Academy of Sciences to provide educated and sophisticated oversight of management enabling a track record of setting and exceeding 5-year goals, driving the creation of long-term stockholder value.

We have three classes of directors, Class I, Class II and Class III. 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.

In April 2022, Dr. Steven M. Paul resigned from our board of directors. Dr. Paul was elected to our board of directors in September 2010 and served as a Class III director. In connection with Dr. Paul's resignation, our board of directors reduced its size from eleven members to ten members, effective as of April 16, 2022. In August 2022, our board of directors expanded its size from ten to eleven directors and elected Dr. Elliott Sigal as a Class I director to fill the vacancy. Dr. Sigal's term expires at the 2023 annual meeting. In January 2023, our board of directors expanded the size of our board from eleven to twelve directors and elected Dr. Carolyn R. Bertozzi as a Class III director to fill the vacancy. Dr. Bertozzi's term expires at the 2025 annual meeting. In March 2023, our board of directors again expanded the size of our board from twelve to thirteen directors and elected Peter N. Kellogg as a Class II director to fill the vacancy, effective March 7, 2023. Mr. Kellogg's term expires at the 2024 annual meeting.

At the annual meeting, we are proposing the election of four (4) Class I directors to hold office until the annual meeting of stockholders to be held in 2026, or until their respective successors have been duly elected and qualified. Upon the recommendation of the nominating and corporate governance committee of our board, our board has nominated Michael W. Bonney, Yvonne Greenstreet, MBChB, MBA, Phillip A. Sharp, Ph.D. and Elliott Sigal, M.D., Ph.D. for election to the board of directors as Class I directors. Mr. Bonney and Drs. Greenstreet, Sharp and Sigal are currently serving as Class I directors. Mr. Bonney has served as a director since 2014, Dr. Greenstreet has served as a director since 2021, Dr. Sharp has served as a director since 2002, and Dr. Sigal has served as a director since 2022. The persons named in the enclosed proxy will vote to elect each nominee for Class I director unless the proxy is marked otherwise. Mr. Bonney and Drs. Greenstreet, Sharp and Sigal have indicated their willingness to serve on our board, but if any nominee should be unwilling or unable to serve, the person acting under the proxy may vote the proxy for a substitute nominee designated by our board, unless the board reduces the number of directors accordingly.

Each nominee for Class I director receiving a majority of the votes cast by stockholders entitled to vote thereon will be elected to serve on our board. As described more fully below under the heading “Majority Voting Policy,” we have adopted a resignation policy in the event a director nominee does not receive a majority of such votes. Abstentions and broker non-votes, if any, are not counted for purposes of this proposal. The Class I directors elected at this year’s annual meeting will serve as members of our board until the 2026 annual meeting of stockholders, or until their respective successors are duly elected and qualified.

BOARD RECOMMENDATION

Our board of directors unanimously recommends a vote “FOR” the election of each of Mr. Bonney and Drs. Greenstreet, Sharp and Sigal as a Class I director.

Set forth below for each continuing director, including the Class I director nominees, is information as of March 15, 2023 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.

We have also included information below regarding each continuing director’s specific experience, qualifications, attributes and skills that led the nominating and corporate governance committee and our board of directors to the conclusion that he or she should serve as a director in light of our business and structure. Our board has determined that each director serving on our board of directors, with the exception of our CEO, Dr. Greenstreet, and our former executive chair, Mr. Bonney, are independent within the meaning of the director independence standards of the Nasdaq Global Select Market and the Securities Exchange Act of 1934, as amended, or the Exchange Act. There are no family relationships among any of our directors or executive officers.

Class I—Directors/Nominees to be elected at the 2023 annual meeting (terms expiring in 2026)**Michael W. Bonney**

Non-Independent Director

Director since: 2014**Age: 64**

Mr. Bonney has served as a member of our board of directors since December 2014 and previously served as chair of our board from December 2015 to August 2021 and as executive chair of our board from August 2021 to January 2023.

Experience, Expertise and Qualifications

Mr. Bonney previously served as the Chair of the board of directors of Kaleido Biosciences, Inc., a biotechnology company, from June 2017 until August 2021. Between August 2018 and October 2020, he served as Kaleido's Executive Chair, and served as Kaleido's Chief Executive Officer from June 2017 until August 2018. Mr. Bonney was a Partner at Third Rock Ventures, a healthcare venture firm, from January to July 2016. Mr. Bonney previously served as the Chief Executive Officer and a member of the board of directors of Cubist Pharmaceuticals, Inc., a biopharmaceutical company (now a wholly-owned subsidiary of Merck & Co., Inc.), from June 2003 until his retirement in December 2014. From January 2002 to June 2003, he served as Cubist's President and Chief Operating Officer.

Mr. Bonney previously served as the Chair of the board of directors of Magenta Therapeutics, Inc. and as a director of Bristol-Myers Squibb Company, Celgene Corporation (which was acquired by Bristol-Myers Squibb), Syros Pharmaceuticals, Inc. and Sarepta Therapeutics, Inc.

Key Contributions to the Board

Mr. Bonney possesses over 30 years of operational, commercial and senior management experience in the biopharmaceutical industry, including his long tenure as the Chief Executive Officer and a director of Cubist. Mr. Bonney also has a keen understanding of the interplay between management and the board and is well-versed in the current best practices in corporate governance and ethics and compliance matters. His breadth of experience and deep commercial background enable him to make significant contributions to our board as we continue to enhance our ethics and compliance function throughout the organization, advance our late stage clinical development pipeline and further develop and scale our global commercial operations.

Yvonne L. Greenstreet
MBChB, MBA

Chief Executive Officer

Director since: 2021**Age: 60****Experience, Expertise and Qualifications**

Dr. Greenstreet has served as our Chief Executive Officer since January 2022 and as a member of our board of directors since October 2021. Dr. Greenstreet previously served as President and Chief Operating Officer since October 2020 and was our Chief Operating Officer from September 2016 to October 2020. Prior to joining Alnylam, Dr. Greenstreet served as the founder and Managing Director of Highgate LLC, from January 2014 to August 2016. Prior to that time, Dr. Greenstreet served as the Senior Vice President and Head of Medicines Development at Pfizer Inc., or Pfizer, a multinational pharmaceutical company, from December 2010 to November 2013. Prior to joining Pfizer, Dr. Greenstreet worked for 18 years at GlaxoSmithKline plc, or GSK, a multinational pharmaceutical, biologics, vaccines and consumer healthcare company, where she served in various positions, most recently as Senior Vice President and Chief of Strategy for Research and Development and as a member of GSK's Product Management Board.

Dr. Greenstreet currently serves on the Scientific Advisory Committee of the Bill and Melinda Gates Foundation and serves as a director of The American Funds. Dr. Greenstreet previously served on the board of directors of argenx SE, Indivior PLC, Pacira BioSciences, Inc. and Moelis & Company.

Key Contributions to the Board

Dr. Greenstreet has over 25 years of experience in the biopharmaceutical industry, driving strategy and innovation, bringing transformative medicines to patients, and building successful businesses in the U.S., Europe and globally. Dr. Greenstreet's significant experience in senior management roles at large pharmaceutical companies and her extensive expertise in drug development and commercialization bring an invaluable perspective to our board. In addition, Dr. Greenstreet's in-depth knowledge of our company, gained during her various senior management roles within the Company, uniquely enable her to lead our *Alnylam P⁵x25* strategy, which focuses on our planned transition to a top-tier biotech company by the end of 2025.

Phillip A. Sharp, Ph.D. Independent Director Committees: • Science and Technology Committee (Chair) Director since: 2002 Age: 78	Dr. Sharp is a scientific founder of Alnylam and Nobel Prize recipient, and has served as a member of our board of directors since June 2002. As required by our corporate governance guidelines, Dr. Sharp offered his resignation to the board of directors upon reaching the age of 75. After considering Dr. Sharp's many contributions to the board of directors and his specialized experience in areas critical to our company, our board of directors determined not to accept Dr. Sharp's resignation and is recommending Dr. Sharp for re-election as a director. Experience, Expertise and Qualifications Dr. Sharp is an Institute Professor Emeritus at the David H. Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology (MIT), and was the Founding Director of the McGovern Institute for Brain Research at MIT. Dr. Sharp has been a professor at MIT since 1974. He is a member of the National Academy of Sciences, the National Academy of Medicine and the American Academy of Arts and Sciences. Dr. Sharp also serves as a director of Vir Biotechnology, Inc. and formerly served as a director of Syros Pharmaceuticals, Inc. and Biogen Inc., which he co-founded in 1978. Key Contributions to the Board 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. Dr. Sharp received the Nobel Prize for Physiology or Medicine in 1993, 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 also has strategic expertise based upon his role as a co-founder and former director of Biogen. 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, and he is uniquely qualified to serve as the chair of our science and technology committee.
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Elliott Sigal, M.D., Ph.D. Independent Director Director since: 2022 Age: 71	Experience, Expertise and Qualifications Dr. Sigal served as Chief Scientific Officer of Bristol-Myers Squibb, or BMS, from October 2004 to June 2013 and as a member of the board of directors from March 2011 to June 2013. Dr. Sigal joined BMS in 1997 and held positions of increasing responsibility in drug discovery and development and was a member of the executive committee from September 2001 through June 2013. Prior to BMS, he was Vice President of R&D and Chief Executive Officer for the genomics firm Mercator Genetics Inc. He served as a senior advisor to the healthcare team of New Enterprise Associates from 2014 to 2023. Dr. Sigal currently serves as co-chair of the Scientific Advisory Board for Amgen, Inc. Dr. Sigal also serves as director of Adaptimmune Therapeutics plc, Surface Oncology Inc. and Vir Biotechnology, Inc. Key Contributions to the Board Dr. Sigal possesses extensive experience in the biopharmaceutical industry, including decades of senior leadership and board experience at biopharmaceutical companies. Dr. Sigal's experience bringing numerous medicines to market in multiple therapeutic areas including cardiometabolic disease, infectious disease, inflammatory disease, neuroscience and oncology brings valuable experience to our board as we continue to advance our RNAi therapeutics to transform the lives of patients afflicted with rare and prevalent diseases with unmet need.
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Class II—Directors Whose Terms Expire in 2024

Dennis A. Ausiello, M.D. Independent Director Committees: • Nominating and Corporate Governance Committee • Science and Technology Committee Director since: 2012 Age: 77	Experience, Expertise and Qualifications Dr. Ausiello serves as the Director of the Center for Assessment Technology and Continuous Health (CATCH), Jackson Distinguished Professor of Clinical Medicine at Harvard Medical School and Physician-in-Chief Emeritus at Massachusetts General Hospital, and served as the Chief of Medicine at Massachusetts General Hospital from 1996 to April 2013. Dr. Ausiello was the President of the Association of American Physicians in 2006. He is a member of the National Academy of Medicine and the American Academy of Arts and Sciences. He also serves as a director of Seres Therapeutics, Inc., Rani Therapeutics Holdings, Inc. and Spexis AG and formerly served as a director of Pfizer Inc. Key Contributions to the Board Dr. Ausiello's experience as a practicing physician, a scientist and a nationally recognized leader in academic medicine enables him to bring valuable insights to our board, particularly as we advance our late stage clinical development pipeline, initiate additional clinical trials and continue to further develop and scale our global commercial operations. In addition, Dr. Ausiello oversaw a large research portfolio and an extensive research and education budget at Massachusetts General Hospital for nearly 20 years, giving him a valuable perspective on drug discovery and development. Through his previous work as the Chief of Medicine at Massachusetts General Hospital, Dr. Ausiello also brings leadership, oversight and finance experience to our board.
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Olivier Brandicourt, M.D.

Independent Director

Committees:

- People, Culture and Compensation Committee
- Audit Committee

Director since: 2020**Age: 67****Experience, Expertise and Qualifications**

Dr. Brandicourt has served as a Senior Advisor at Blackstone, a leading global investment firm, since December 2019. From April 2015 to August 2019, Dr. Brandicourt served as Chief Executive Officer and a member of the board of directors of Sanofi, a global biopharmaceutical company. Prior to Sanofi, he was Chief Executive Officer and Chair of Bayer HealthCare AG from November 2013 to March 2015. Between 2000 and 2013, Dr. Brandicourt served in various operational and managerial positions at Pfizer Inc., a global pharmaceutical company, including as a member of the Executive Leadership Team and President and General Manager of the Emerging Markets and Established Products business units, amongst other roles. Dr. Brandicourt also serves as a director of BenevolentAI.

Key Contributions to the Board

Dr. Brandicourt has over 30 years of global commercial experience in the biopharmaceutical industry, including as a senior leader of three pharmaceutical companies. Dr. Brandicourt's operational, global commercial and senior management experience provides an invaluable perspective to our board as we further develop and scale our global commercial operations, as well as advance additional late-stage development programs and partner additional programs and technologies. Dr. Brandicourt's extensive background in business management and global commercial operations also makes him an asset to our audit and people, culture and compensation committees, on which he serves.

Marsha H. Fanucci

Independent Director

Committees:

- Audit Committee (Chair)
- Nominating and Corporate Governance Committee

Director since: 2010**Age: 69****Experience, Expertise and Qualifications**

Ms. Fanucci served as Senior Vice President and Chief Financial Officer of Millennium Pharmaceuticals, Inc., a biopharmaceutical company (now a wholly-owned subsidiary of Takeda Pharmaceutical Company Limited), 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 to 2003. Prior to joining Millennium, Ms. Fanucci served as Vice President of Corporate Development and Strategy at Genzyme Corporation, a biotechnology company (now Sanofi Genzyme, the specialty care global business unit of Sanofi), from 1998 to 2000. Ms. Fanucci is Chair of the board of directors of Cyclarion Therapeutics, Inc. and serves as a director of Syros Pharmaceuticals, Inc. and formerly served as a director of Forma Therapeutics Holdings, Inc., and Ironwood Pharmaceuticals, Inc.

Key Contributions to the Board

Ms. Fanucci has substantial expertise with respect to public company and financial accounting matters, including over 25 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, are an asset to our board, and in particular to our audit committee, which she chairs, as we continue to grow our company, advance our late stage clinical development pipeline, further develop and scale our global commercial operations, and partner additional programs and technologies.

David E.I. Pyott

Independent Director

Committees:

- Nominating and Corporate Governance Committee (Chair)

Director since: 2015**Age: 69****Experience, Expertise and Qualifications**

Mr. Pyott served as the Chief Executive Officer of Allergan, Inc., a global specialty pharmaceutical and medical device company, from January 1998 to March 2015 and as the Chair of Allergan's board of directors from March 2001 until March 2015. Prior to Allergan, Mr. Pyott served as the Head of the Novartis Nutrition Division and as a member of the Executive Committee of Switzerland-based Novartis AG. Mr. Pyott also serves as a director of BioMarin Pharmaceutical Inc., Pliant Therapeutics, Inc. and as a member of the Supervisory Board of Royal Philips in the Netherlands. Mr. Pyott formerly served as a director of Avery Dennison Corporation.

Key Contributions to the Board

Mr. Pyott possesses over 30 years of operational, commercial and senior management experience, including his successful tenure as the Chief Executive Officer and Chair of Allergan's board of directors, where he transformed the company from a small eye care business to a global specialty pharmaceutical and medical device company. His in-depth knowledge of pharmaceutical growth and commercial expansion, combined with his entrepreneurial leadership experience in the healthcare industry, position him well to serve as a member of our board and make significant contributions as we further develop and scale our global commercial operations, and advance our late stage clinical development pipeline. Mr. Pyott's substantial public company governance experience from serving on the boards of several large public companies also makes him an asset to our board and to our nominating and corporate governance committee, which he chairs.

Peter N. Kellogg Independent Director Director since: 2023 Age: 66	Experience, Expertise and Qualifications Mr. Kellogg served as Executive Vice President and Chief Corporate Strategy Officer of Celgene Corporation from 2018 to 2019, and had previously served as Executive Vice President and Chief Financial Officer of Celgene since August 2014. Prior to that, Mr. Kellogg was Chief Financial Officer and Executive Vice President of Merck & Co. Inc. from 2007 to 2014. From 2000 to 2007, Mr. Kellogg served as Chief Financial Officer and Executive Vice President of Finance at Biogen, Inc. Before that, he served as Senior Vice President, PepsiCo E-Commerce at PepsiCo Inc. from March to July 2000 and as Senior Vice President and Chief Financial Officer, Frito-Lay International, from 1998 to 2000. Mr. Kellogg also serves as a director of Idorsia Ltd. and previously served as a director on the board of Yield10 Bioscience. Key Contributions to the Board Mr. Kellogg is a proven business, strategic and financial leader who brings to our board over 20 years of experience scaling, strategic transactions, and leading biotechnology companies. Mr. Kellogg's background includes executive management roles with responsibility for core financial functions, including investor relations, corporate strategy, business development and alliance management. Mr. Kellogg oversaw Biogen's merger with IDEC (Rituxan share), Fumapharm (Tecfidera), Merck's acquisition of Schering-Plough (Keytruda), and Celgene's sale to BMS. Mr. Kellogg's financial expertise and experience in strategic transactions and organizational scaling will help advance our leading scientific capabilities and commercial performance as we continue on the path to achieving our <i>Alnylam P⁵x25</i> strategy, and position him well to serve as a member of our board.
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Class III—Directors Whose Terms Expire in 2025**Carolyn R. Bertozzi, M.D.**

Independent Director

Director since: 2023**Age: 56****Experience, Expertise and Qualifications**

Dr. Bertozzi has served as the Anne T. and Robert M. Bass Professor of Chemistry at Stanford University since 2015 and as the Baker Family Director of Stanford's Sarafan ChEM-H Institute since 2021. Since 2000, Dr. Bertozzi has also served as an Investigator at the Howard Hughes Medical Institute. From 1996 to 2015, she was a professor of Chemistry and Molecular and Cell Biology at the University of California, Berkeley. Dr. Bertozzi was jointly awarded the 2022 Nobel Prize in Chemistry and the 2022 Wolf Prize in Chemistry. She is a member of the National Academy of Sciences, the National Academy of Medicine and National Academy of Inventors, as well as the Royal Society (UK), Accademia Nazionale dei Lincei and the German Academy of Sciences Leopoldina. Dr. Bertozzi also serves as a director of OmniAb Inc. and previously served as a director of Eli Lilly and Company.

Key Contributions to the Board

Dr. Bertozzi is a pioneer for emerging technology and has founded several biopharmaceutical companies and guided more than a dozen academic and professional organizations and life sciences companies in leadership and board positions. Her deep technical and leadership expertise, as well as her corporate governance experience in the biopharmaceutical industry enables her to make significant contributions to our board as we continue to advance our early research, and late stage clinical development pipeline, initiate additional clinical programs and further develop our global commercial operations following the approval and launch of five commercial products in less than four years.

Margaret A. Hamburg, M.D.

Independent Director

Committees:

- Science and Technology Committee
- Nominating and Corporate Governance Committee

Director since: 2019**Age: 67****Experience, Expertise and Qualifications**

Dr. Hamburg currently serves as Co-President (volunteer) of the InterAcademy Partnership, an international consortium of academies of science and medicine. From May 2009 to April 2015, Dr. Hamburg served as the Commissioner of the U.S. Food and Drug Administration (FDA). Most recently, Dr. Hamburg was Interim Vice President, Global Biological Policy and Programs at the Nuclear Threat Initiative and Chair of the Commonwealth Fund Commission on a National Public Health System. Dr. Hamburg completed a five-year term as Foreign Secretary of the National Academy of Medicine, serving from April 2015 to July 2020 and completed her service as Chair of the Board of the American Association for the Advancement of Science (AAAS) in February 2020. From January 2001 to May 2009, Dr. Hamburg worked for the Nuclear Threat Initiative, first as Vice President for biological programs, then as Senior Scientist. From November 1997 to January 2001, Dr. Hamburg served as the Assistant Secretary for Planning and Evaluation in the Department of Health and Human Services. Prior to that, she was New York City's health commissioner.

Dr. Hamburg currently serves on a number of non-profit boards. She is also a Commissioner on the Bipartisan Commission on Biodefense, and a member of Harvard University Global Advisory Council, the World Dementia Council, the Global Health Scientific Advisory Committee for the Bill and Melinda Gates Foundation, the Harvard Medical School Board Fellows and the Global Commission for Post-Pandemic Planning. She also chairs the Advisory Board for the Center on Regulatory Excellence, Duke-NUS School of Medicine, Singapore and serves on the International Advisory Council, Health and Biomedical Sciences, National Research Foundation, Singapore.

Key Contributions to the Board

Dr. Hamburg has an extensive background in matters of science, medicine, public health and regulatory issues, having held policy positions in the Obama, Clinton and Reagan administrations, including serving as the Commissioner of the FDA from May 2009 to April 2015. She has done basic and clinical research at the National Institutes of Health and Rockefeller University. Dr. Hamburg's distinguished career and expertise in the field brings a unique regulatory and policy perspective, as well as valuable scientific and operational expertise, to our board and our science and technology committee as we continue to advance our late stage clinical development pipeline, initiate additional clinical programs, and further develop and scale our global commercial operations.

Colleen F. Reitan Independent Director Committees: • Audit Committee • People, Culture and Compensation Committee (Chair) Director since: 2018 Age: 63	Experience, Expertise and Qualifications Ms. Reitan served as President of Plan Operations of Health Care Service Corporation, or HCSC, the largest customer-owned health insurer in the United States and an independent licensee of Blue Cross and Blue Shield Association from October 2015 to April 2018. While at HCSC, she also served as the company's Chief Operating Officer from January 2009 to January 2015. Previously, Ms. Reitan served as President and Chief Operating Officer of Blue Cross Blue Shield of Minnesota from 2006 to 2008. Ms. Reitan also serves as a director of Myriad Genetics, Inc. Key Contributions to the Board Ms. Reitan brings to our board over 30 years of experience in the healthcare payer and reimbursement market, including most recently as President of Plan Operations of HCSC. As we continue to advance our late stage clinical development pipeline and further develop and scale our global commercial operations, Ms. Reitan's experience with provider network management, strategic planning and business development provide valuable insight to our board and management as we continue to advance our ongoing commitment to provide innovative value based agreements and deliver fair value to payers and providers. Ms. Reitan's extensive background in business management also makes her an asset to our audit committee and our PC&C committee, which she chairs.
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Amy W. Schulman

Chair of the Board

Committees:

- People, Culture and Compensation Committee
- Nominating and Corporate Governance Committee

Director since: 2014

Age: 62

Experience, Expertise and Qualifications

Ms. Schulman has served as a member of our board of directors since July 2014 and has served as chair of our board since January 2023. Prior to that, she served as our lead independent director from August 2021 to January 2023.

Ms. Schulman joined Polaris Partners, a venture capital firm, in August 2014 where she is currently a managing partner. Ms. Schulman also serves as Executive Chair of Lyndra Therapeutics, Inc., where she was co-founder and the company's initial Chief Executive Officer from 2015 to 2019. She also manages the LS Polaris Innovation Fund, which was formed in 2017. From July 2014 to July 2021, Ms. Schulman was a senior lecturer at Harvard Business School. Ms. Schulman served as Chief Executive Officer of Arsia Therapeutics, Inc. from August 2014 to November 2016, when Arsia was acquired by Eagle Pharmaceuticals, Inc. Ms. Schulman was previously the Executive Vice President and General Counsel of Pfizer Inc., a global pharmaceutical company, from May 2008 to July 2014, where she also served as the Business Unit Lead for Pfizer's Consumer Healthcare business from 2012 to 2013. Before joining Pfizer, she was a partner at DLA Piper.

Ms. Schulman also serves as a director of SQZ Biotech and previously served as a director of Cyclorion Therapeutics, Inc., Ironwood Pharmaceuticals, Inc., Arsanis, Inc., Blue Buffalo Pet Products, Inc., Hudson Executive Investment Corp. and Hudson Executive Investment Corp. II.

Key Contributions to the Board

Ms. Schulman's extensive industry and leadership experience enable her to make significant contributions as chair of our board. Her unique qualifications in a number of critical areas, including commercial strategy and capability building, as well as legal, regulatory and transactional considerations brings to our board a diverse background that includes legal, operational and commercial expertise. In addition, her experience at Pfizer as Executive Sponsor of Pfizer's Global Women's Council, where she helped shape efforts to increase diversity and expand opportunities for both women and men across the company, has been an important resource as we continue to grow our workforce and enhance our diversity, equity and inclusion initiatives to support the advancement of our late stage clinical development pipeline and further develop and scale our global commercial operations. This experience also provides a unique and critical perspective for Ms. Schulman in her role as a member of our PC&C committee.

THE BOARD OF DIRECTORS AND ITS COMMITTEES

Board of Directors Meetings and Attendance

Our board met six times during 2022 either in person or by teleconference. During 2022, 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 participate in the virtual annual meeting of stockholders, unless they have a conflict that cannot be resolved. All of our then-current directors attended the 2022 annual meeting of stockholders.

Board Determination of Independence

Under the Nasdaq listing standards, a director 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. Fanucci, Reitan and Schulman, Drs. Ausiello, Bertozzi, Brandicourt, Hamburg, Sharp and Sigal, and Messrs. Pyott and Kellogg 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). Mr. Bonney, who served as executive chair of our board from August 2021 to January 2023, and Dr. Greenstreet, our chief executive officer, are not considered “independent” directors. Our board of directors has determined that each member of our audit committee, PC&C committee and nominating and corporate governance committee is independent within the meaning of the applicable Nasdaq and SEC rules and regulations regarding “independence”. In making such determination, our board considered relationships, if any, that each non-employee director or family member of such director has with Alnylam, their beneficial ownership of our outstanding common stock and other facts and circumstances our board deemed relevant in determining their independence.

Role of the Board

Our business is managed under the direction of the board of directors. Management has primary responsibility for the day-to-day operations and affairs of our company and the role of our board is to provide independent oversight of management. In its oversight role, our board, as a whole and through its committees, is responsible for establishing broad corporate policies and reviewing our overall performance. Our board selects and provides for the succession of executive officers and, subject to stockholder election, directors. Our board also evaluates the performance of our chief executive officer, and, approves the compensation of our chief executive officer after considering the recommendations of our PC&C committee. Our board reviews and approves corporate objectives, strategies and annual investment plans, 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, as well as through regular informal updates between meetings with all or a subset of board members.

Board Leadership Structure

Our board has determined that the roles of chief executive officer and chair of our board of directors should be separated at the current time. Ms. Schulman, an independent director, has served as our chair since January 2023. Prior to that time, Mr. Bonney, who had served as our chair since December 2015, served as executive chair of our board from August 2021 to January 2023 to further enhance our ethics and compliance function and its integration with the business. Dr. Greenstreet has served as our chief executive officer and a director since January 2022 and October 2021, respectively. Separating these positions allows our chief executive officer to focus on our day-to-day business operations, while allowing the chair 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 is required of the chief executive officer to operate and manage the company, as well as the commitment required to serve as our chair, particularly as the board's oversight responsibilities continue to grow. While our bylaws and corporate governance guidelines do not require that our chair and chief executive officer positions be separate, our board believes that our current leadership structure is appropriate 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: launching, marketing and selling our approved products globally; pre-clinical and clinical research and development; manufacturing and clinical and commercial drug supply; regulatory reviews, our ability to obtain approval for new commercial products or additional indications for our existing products, policies and oversight; global growth and capability expansion; preparations for and execution of commercial operations; our ability to obtain reimbursement for approved drugs and the drugs we are developing if, and when, they gain regulatory approval; intellectual property filings, prosecution, maintenance and challenges; the establishment and maintenance of strategic alliances; competition; cybersecurity; litigation and government investigations; and the ability to manage our expenses, access additional funding for our business and advance towards self-sustainability; 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 four committees.

Our chair meets regularly with our chief executive officer and other executive officers and members of senior management to discuss strategy and risks facing the company. Our chair and the chair of our nominating and corporate governance committee also meet with our global head of ethics and compliance individually and with our chief legal officer to discuss the risks facing our business and our global compliance initiatives. Members of senior management attend the quarterly board meetings and are available to address any questions or concerns raised by our board on risk management-related and any other matters. Each quarter, our board of directors receives presentations from members of senior management, and may also receive reports from the committee chairs and outside consultants, among others. These presentations often include identification and assessment of risks our company currently faces or may face in the future. Annually, our board reviews and discusses with management an enterprise risk assessment focused on the key risks facing 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 regulatory requirements with potential impact on our financial statements, and the steps we take to manage them. Our audit committee also oversees our internal audit function. The primary purpose of the internal audit function is to provide independent, objective assurance to senior management and the audit committee regarding the adequacy, efficiency and effectiveness of internal controls, which are designed to add value and strengthen our business operations.

The PC&C committee assists our board in fulfilling its oversight responsibilities with respect to the management of risks arising from our compensation policies and programs and succession planning for our executive officers, and evaluates potential risks associated with director compensation for consideration by the full board.

The nominating and corporate governance committee assists our 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, corporate governance, cybersecurity, technical operations and non-financial compliance programs, including with respect to commercial activities and quality assurance.

Our chair, individually and with our chief legal officer, our chief information officer, and chief technical operations and quality officer each provide the committee with regular updates.

The science and technology committee reviews and advises our board regarding risks arising from our discovery and development strategy and programs.

Board Committees

Our board of directors has established four standing committees — audit, PC&C, nominating and corporate governance, and science and technology — 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 the recommendation of our nominating and corporate governance committee.

Our board has determined that all of the members of each of the audit, PC&C, and nominating and corporate governance 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(b)(1) under the Exchange Act. Committee memberships as of March 31, 2023 are shown in the table below:

	Audit Committee	People, Culture and Compensation Committee	Nominating and Corporate Governance Committee	Science and Technology Committee
Dennis A. Ausiello, M.D.			Member	Member
Carolyn R. Bertozzi, Ph.D.				
Michael W. Bonney				
Olivier Brandicourt, M.D.	Member	Member		
Marsha H. Fanucci	Committee Chair		Member	
Yvonne L. Greenstreet, MBChB				
Margaret A. Hamburg, M.D.			Member	Member
Peter N. Kellogg				
David E.I. Pyott			Committee Chair	
Colleen F. Reitan	Member	Committee Chair		
Amy W. Schulman *		Member	Member	
Phillip A. Sharp, Ph.D.				Committee Chair
Elliott Sigal, M.D., Ph.D.				

* Chair of Board  Committee Chair  Member

Audit Committee

As described more fully in its charter, the audit committee oversees our accounting and financial reporting processes, internal controls and audit functions. In fulfilling its role, our audit committee is responsible for, among other things:

- 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;
- reviewing and discussing with management and the independent auditors our annual and quarterly financial statements and related disclosures, including earnings releases, financial guidance and disclosure of non-GAAP financial measures;
- monitoring our internal control over financial reporting, disclosure controls and procedures, and compliance with financial corporate securities, tax and similar regulatory or legal requirements relating to financial matters;

- overseeing the performance of internal audit activities carried out by our internal audit function;
- reviewing and discussing our financial risk management policies, including but not limited to our investment policy;
- reviewing and approving matters related to tax planning;
- 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 annual 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 person transaction as defined in our related person transaction policy. 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 current members of our audit committee are Mses. Fanucci (Chair) and Reitan and Dr. Brandicourt. We believe that each member of our audit committee satisfies the requirements for membership, including independence, under the Nasdaq Marketplace Rules and Rule 10A-3(b)(1) under the Exchange Act. Our board has determined that each of Ms. Fanucci and Ms. Reitan 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 six times during 2022, either in person or by teleconference.

People, Culture and Compensation Committee

Our PC&C committee’s (formerly the compensation committee) responsibilities include, among other things:

- annually reviewing and making recommendations to our board with respect to corporate goals and objectives relevant to the 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;
- reviewing and making recommendations to our board with respect to management succession planning;
- overseeing the development, implementation and effectiveness of our policies and strategies regarding recruiting, retention, career development and progression, leadership development, diversity, inclusion and employment practices;

- overseeing and administering our stock-based compensation plans and 401(k) plan, and performing the duties imposed on the PC&C committee by the terms of those plans;
- reviewing and making recommendations to our board with respect to director compensation, including compensation under any equity-based plans;
- reviewing, and amending as necessary, our compensation philosophy and objectives, and reviewing annually and updating our peer group for compensation purposes;
- reviewing and discussing any potential risks that could arise from our compensation policies and programs;
- reviewing and discussing annually with management our “Compensation Discussion and Analysis,” which is included beginning on page 47 of this proxy statement;
- preparing the annual PC&C committee report required by SEC rules, which is included immediately following the “Compensation Discussion and Analysis” section appearing below;
- reviewing the results of any say-on-pay votes and considering whether to make or recommend adjustments to the executive compensation policies as a result of such votes;
- overseeing engagement with stockholders and proxy advisory firms on executive compensation matters; and
- performing an annual evaluation of the committee’s performance.

The processes and procedures followed by our PC&C committee in considering and determining executive compensation are described below under the heading “Compensation Discussion and Analysis.”

The current members of our PC&C committee are Ms. Reitan (Chair) and Schulman and Dr. Brandicourt. In April 2022, Dr. Paul resigned from our board and as a member of our PC&C committee, at which time Ms. Reitan was appointed as a member of the committee. In March 2023, Ms. Schulman resigned as chair of the committee, at which time Ms. Reitan was appointed chair. We believe that each member of our PC&C committee is an independent director within the meaning of the director independence standards of the Nasdaq Marketplace Rules, a non-employee director as defined in Rule 16b-3 of the Exchange Act, and an outside director pursuant to Section 162(m) of the Internal Revenue Code of 1986, as amended, also referred to as the Code.

Our PC&C committee met four times during 2022, either in person or by teleconference.

PC&C Committee Interlocks and Insider Participation

During fiscal year 2022, none of the members of our PC&C committee was a current or former officer or employee of Alnylam and none had any related person transaction involving Alnylam.

During fiscal year 2022, no executive officer of our company served as: (i) a member of the PC&C committee (or other committee of the board of directors performing equivalent functions or, in the absence of any such committee, the entire board of directors) of another entity, one of whose executive officers served on our PC&C committee; (ii) a director of another entity, one of whose executive officers served on our PC&C committee; or (iii) a member of the PC&C committee (or other committee of the board of directors performing equivalent functions or, in the absence of any such committee, the entire board of directors) of another entity, one of whose executive officers served as a director of our company.

Risk Considerations in Executive Compensation

Our PC&C committee has discussed the concept of risk as it relates to our executive compensation program and PC&C 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 have established, and our PC&C committee endorses, several controls to address and mitigate compensation-related risk.

We engaged our outside consultant, Pay Governance, to assist the PC&C committee in its evaluation of our policies and practices to determine if they create excessive risk in our compensation programs. In conducting its independent assessment, Pay Governance reviewed all of our incentive compensation and other programs and determined there were no compensation policies or practices that encourage excessive or inappropriate risk-taking. Pay Governance discussed the detailed findings of this review with management in February 2023, and management provided the results of the review to the PC&C committee.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee is responsible for, among other things:

- advising our board on board organization, structure and appropriate size;
- identifying individuals qualified to become members of our board and evaluating candidates recommended by stockholders for election to our board and stockholder proposals submitted for inclusion in our proxy materials;
- 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 the external commitments of our directors and executive officers to evaluate potential conflicts of interest or time commitment concerns;
- developing and recommending to our board a set of corporate governance principles and making recommendations to our board regarding corporate governance matters;
- developing and recommending to our board, as appropriate, policies and programs with respect to environmental, health, safety, social responsibility and governance matters;

- overseeing the regular evaluation of our board and its committees;
- overseeing management's implementation of information technology policies;
- reviewing our significant corporate governance and board succession risks and steps taken to monitor and mitigate such risks, including succession planning for the board and key leadership roles on the board and its committees;
- overseeing the management of operational risk and contingency planning for business continuity;
- monitoring the risks associated with information systems, including reviewing and discussing with management the programs used to identify, assess, manage and monitor cybersecurity risks; and
- overseeing management's implementation of compliance programs with respect to non-financial matters and our quality programs.

In connection with its oversight of management's non-financial compliance programs, our nominating and corporate governance committee is directing our review of and response to the ongoing investigation by the U.S. Department of Justice, U.S. Attorney's Office for the District of Massachusetts into our marketing and promotion of ONPATTRO® (patisiran) in the U.S. Throughout the course of 2022, our nominating and corporate governance committee held several regular and special meetings with independent outside counsel regarding the ongoing investigation.

As noted above, the nominating and corporate governance committee facilitates a regular board self-evaluation to determine whether our board of directors and its committees are functioning effectively. The nominating and corporate governance committee determines the nature of the evaluation, supervises the conduct of the evaluation, and prepares an assessment of our board performance, to be discussed with the full board of directors. The evaluation is aligned to board best practices and focuses on four key areas: board structure and composition; board process and focus; committee structure and performance; and culture and overall health.

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 current members of our nominating and corporate governance committee are Mr. Pyott (Chair), Drs. Ausiello and Hamburg and Mses. Fanucci and Schulman. We believe that each member of our nominating and corporate governance committee satisfies the requirements for membership, including independence, as established under the Nasdaq Marketplace Rules.

Our nominating and corporate governance committee met eight times during 2022, either in person or by teleconference.

Science and Technology Committee

Our science and technology committee is responsible for, among other things:

- overseeing our scientific advisory board;
- reviewing our overall scientific and research and development strategy;
- reviewing our research and development strategy and programs; and
- reviewing our regulatory and quality programs.

The current members of our science and technology committee are Drs. Sharp (Chair), Ausiello and Hamburg.

Our science and technology committee met three times during 2022, 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.

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, engagement of third-party recruiting companies focused on identifying top-tier director candidates, 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 include a commitment to diversity, and specify that diversity on our board of directors 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 the following criteria that it believes must be met by all directors:

- a reputation for integrity, honesty and adherence to high ethical standards;
- a demonstration of business acumen, experience and the ability to appreciate the operational challenges and complexities faced by public biopharmaceutical companies of a size and operational scope similar to our company and to exercise sound judgment in matters that relate to the current and long-term objectives of our company and a willingness and ability to contribute positively to the decision-making process of our company;

- a commitment to understand our company and the industry and to regularly attend and participate in meetings of our board of directors and its committees;
- an interest in and ability to understand the sometimes conflicting interests of the various constituencies of our company, which include stockholders, employees, customers, governmental bodies and the general public, and to act in the interests of all stockholders;
- no actual or apparent conflict of interest (as determined by the nominating and corporate governance committee or the board) that would impair the director's ability to represent the interests of all of our company's stockholders and to fulfill the responsibilities of a director; and
- the ability to serve for at least five years before reaching the age of 75.

While our nominating and corporate governance committee does not have a formal policy with respect to diversity, the nominating and corporate governance committee is committed to recruitment protocols to actively seek out highly qualified diverse candidates (including women and minority candidates) to include in the pool from which board nominees are chosen, and any search firm will affirmatively be instructed to seek to include diverse candidates. Our board and nominating and corporate governance committee believe that it is essential that our board members represent diverse viewpoints with broad experience in areas important to the operation of our company such as business, science, medicine, and finance and accounting. 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. In this context, the nominating and corporate governance committee, in addition to the qualifications set forth above, also considers a variety of attributes in selecting nominees to our board, such as:

- an understanding of, and experience in, the biotechnology and pharmaceutical industries, and the regulatory landscape in which such companies operate;
- an understanding of, and experience in, accounting oversight and governance, finance, sales and marketing, and complex business transactions;
- leadership experience with public companies or other significant organizations;
- international experience; and
- diversity of age, gender, race and national origin, education, professional experience and differences in viewpoints and skills.

These factors and others are considered useful by our board of directors and are reviewed in the context of an assessment of the perceived needs of our board at a particular point in time.

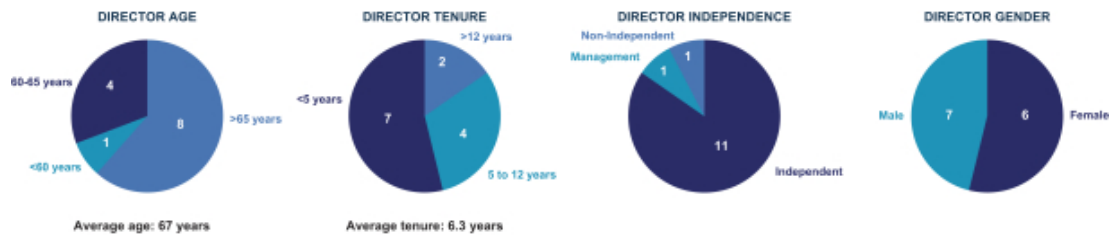
The director nominee biographies appearing above under the heading "Information Concerning Director Nominees – Election of Class I Directors (Proposal 1)" indicate each nominee's experience, qualifications, attributes and skills that led our nominating and corporate governance

committee and board to conclude that they should continue to serve as a member of our board. Our nominating and corporate governance committee and board believe that each of the nominees has had substantial achievement in his or her 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.

The table below provides information regarding the members of our board, including certain types of knowledge, skills, experiences and attributes possessed by one or more of our directors which our board believes are relevant to our business or industry. The table does not encompass all of the knowledge, skills, experiences or attributes of our directors, and the fact that a particular knowledge, skill, experience or attribute is not listed does not mean that a director does not possess it. In addition, the absence of a particular knowledge, skill, experience or attribute with respect to any of our directors does not mean the director in question is unable to contribute to the decision-making process in that area. The type and degree of knowledge, skill and experience listed below may vary among the members of the board.

	Avallone	Bonney	Bertozzi	Brandt	Favuzzi	Grossman	Hamburg	Kelllogg	Pyott	Rellan	Schulman	Sharp	Sigal
Knowledge, Skills, Experience and Independence													
Biopharma Industry Experience	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Executive/Leadership Experience	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Financial Expertise	✓	✓		✓	✓	✓		✓	✓	✓	✓		
Academic Experience or Technological Background	✓		✓	✓		✓	✓					✓	✓
Business Strategy/Operations Experience	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Public Company CEO Experience		✓		✓		✓			✓				
International Business Experience				✓		✓		✓	✓		✓		
Independence	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y

The tables below highlight the composition of our continuing directors and our director nominees:



Board Diversity Matrix as of March 31, 2023

Board Size:				
Total Number of Directors	13			
Gender:	Male	Female	Non-Binary	Gender Undisclosed
Number of directors based on gender identity	7	6	0	0
Number of directors who identify in any of the categories below:				
African American or Black	0	1	0	0
Alaskan Native or American Indian	0	0	0	0
Asian	0	0	0	0
Hispanic or Latinx	0	0	0	0
Native Hawaiian or Pacific Islander	0	0	0	0
White	7	4	0	0
Two or More Races or Ethnicities	0	1	0	0
LGBTQ+	1			
Undisclosed	0			

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., 675 West Kendall Street, Henri A. Termeer Square, 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 our board of directors, 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 Mr. Bonney and Drs. Greenstreet, Sharp and Sigal, each of whom currently serves on our board of directors. Mr. Bonney and Drs. Greenstreet, Sharp and Sigal were proposed to our board by our nominating and corporate governance committee and our board determined to include them as its nominees.

Majority Voting Policy

Our bylaws provide that the vote required for the election of a director by the stockholders shall, except in a contested election, be the affirmative vote of a majority of the votes cast with respect to the election of such director nominee at a meeting of stockholders. In order to receive a majority of the votes cast, the number of shares voted “FOR” must exceed the number of votes “AGAINST.” In any non-contested election of directors, any incumbent director nominee who receives

a greater number of votes cast against his or her election than in favor of his or her election shall, promptly following the certification of the stockholder vote, tender his or her resignation to the board. The board shall then decide, through a process managed by our nominating and corporate governance committee, whether to accept the resignation, or take other action. The board expects that a director whose resignation is under consideration shall abstain from participating in any decision regarding his or her resignation. In reaching its decision, the board may consider any factors deemed relevant, including the incumbent director nominee's qualifications, the incumbent director nominee's past and expected future contributions to the company, the overall composition of the board, and whether accepting the tendered resignation would cause us to fail to meet any applicable rule or regulation (including Nasdaq Global Select Market listing standards and federal securities laws). The board will publicly disclose its decision and rationale, within 90 days following certification of the stockholder vote. If an incumbent director nominee's resignation is not accepted, he or she will continue to hold office until the next annual meeting and until his or her successor shall be duly elected and qualified. In such circumstances, the director will remain in his or her existing class and the election held at the next such annual meeting shall be whether to elect him or her to serve the remainder of his or her three-year term.

Stockholder Engagement and Communications with the Independent Directors

We regularly engage with our stockholders through open dialogue and direct individual communication to solicit their feedback on our executive compensation, corporate governance and disclosure practices in order to gain a better understanding of the practices they most value. Stockholder feedback is important, and the information we glean from these engagements is highly valued. Our stockholder engagement team has consisted of certain independent directors and members of our legal, investor relations and human resources expertise areas. Stockholders also regularly meet with members of our senior management team to discuss our strategy and review our business, goals and performance. In 2022, we engaged with several shareholders who owned, in aggregate, a meaningful percentage of outstanding shares. The feedback we received from those conversations were conveyed to the rest of the board and relevant board committees and served as valuable input to board and committee discussions and considerations.

In addition, 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., 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142.

DIRECTOR COMPENSATION

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. Greenstreet and Mr. Bonney did not receive any additional compensation for their service as directors during 2022.

Our PC&C committee periodically reviews the compensation we pay our non-employee directors, with input from its independent compensation consultants. Our PC&C committee compares our board compensation to compensation paid to non-employee directors of our peer group companies. Our PC&C committee also considers the responsibilities we ask of our board members along with the amount of time required to perform those responsibilities. In February 2023, our PC&C committee, with the assistance of Pay Governance, performed a comprehensive review of director compensation. Following this review, the PC&C committee and our board of directors determined to adjust certain elements of the cash compensation paid to our non-employee directors, to be more competitive with our peer group.

The table below reflects the non-employee director compensation in effect for 2022 as well as the changes (in italics) to non-employee director compensation that were approved in February 2023, and were effective as of April 1, 2023. Increases in fees will be pro-rated for 2023 based upon the date of approval and each non-employee director's committee appointments, if applicable.

Compensation Type	Compensation Amount Before April 1, 2023	Compensation Amount as of April 1, 2023
Annual Retainer	\$55,000	<i>\$60,000</i>
Independent Board Chair Fee	\$35,000	<i>\$65,000</i>
Lead Independent Director	\$40,000	<i>\$40,000</i>
Committee Chair Fees:		
Audit	\$25,000	<i>\$25,000</i>
People, Culture and Compensation	\$20,000	<i>\$20,000</i>
Nominating and Corporate Governance	\$15,000	<i>\$20,000</i>
Science and Technology	\$15,000	<i>\$20,000</i>
Committee Member Fees:		
Audit	\$12,500	<i>\$12,500</i>
People, Culture and Compensation	\$10,000	<i>\$10,000</i>
Nominating and Corporate Governance	\$7,500	<i>\$10,000</i>
Science and Technology	\$7,500	<i>\$10,000</i>
Initial Stock Option Award (vests ratably in three annual installments)	\$600,000 grant-date fair value**	<i>\$600,000 grant-date fair value**</i>
Annual Stock Option Award (vests on one-year anniversary)*	<i>\$400,000 grant-date fair value**</i>	<i>\$400,000 grant-date fair value**</i>

* Each non-employee director is generally eligible for an annual stock option award beginning in the sixth month following his or her election to our board.

** Actual number of non-qualified stock options awarded will be determined on date of grant by taking value divided by closing price of common stock on Nasdaq Global Select Market on such date, further divided by Black Scholes factor in use at such time. The exercise price of such stock option awards is the fair market value of our common stock on the date of grant.

Our board may, in its discretion, increase or decrease the size of the stock option award made to a non-employee director upon election or in connection with the annual stock option award or make other equity awards to our non-employee directors, subject to the limitations contained in our Amended and Restated 2018 Stock Incentive Plan, or the 2018 Plan. For example, in February 2022, our PC&C committee approved a one-time award to directors then serving on our nominating and corporate governance committee in connection with the additional time commitment and responsibilities assumed by such directors as a result of the pending investigation by the U.S. Department of Justice. The award was valued at \$20,000 and was issued in the form of restricted stock units which vested in full on the one-year anniversary of the grant date.

Pursuant to the 2018 Plan, the maximum aggregate value for initial and annual non-employee director compensation, including the value of the shares of common stock that may be subject to initial or annual equity awards to non-employee directors, equal to \$1.5 million and \$1.0 million, respectively. As indicated in the table above, our current practice is to deliver aggregate compensation to our non-employee directors in amounts well under these aggregate limits, and we do not expect to change our current practice.

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 non-employee directors in 2022:

Director Compensation

Name	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)(3)(5)	Option Awards (\$)(4)(5)	All Other Compensation (\$)	Total (\$)
Dennis A. Ausiello, M.D.	70,000	20,060	399,380	—	489,440
Olivier Brandicourt, M.D.	77,500	—	399,380	—	476,880
Marsha H. Fanucci	87,500	20,060	399,380	—	506,940
Margaret A. Hamburg, M.D.	70,000	20,060	399,380	—	489,440
Steven M. Paul, M.D.(1)	24,170	—	—	—	24,170
David E.I. Pyott	70,000	20,060	399,380	—	489,440
Colleen F. Reitan	75,000	—	399,380	—	474,380
Amy W. Schulman	122,500	20,060	399,380	—	541,940
Phillip A. Sharp, Ph.D.	80,000	—	399,380	15,000(6)	494,380
Elliott Sigal, M.D., Ph.D.(2)	19,730	—	599,880	—	619,610

(1) Dr. Paul resigned from our board of directors effective April 16, 2022.

(2) Dr. Sigal was elected to our board of directors effective August 22, 2022.

(3) The amounts reported in this column reflect the aggregate grant date fair value of RSUs granted for the fiscal year ended December 31, 2022, in accordance with Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 718, calculated based on the number of shares of RSUs granted multiplied by the quoted closing market price of the Company's common stock on the date of grant.

(4) The amounts in this column reflect the aggregate grant date fair value of stock options granted for the fiscal year ended December 31, 2022, in accordance with FASB ASC, Topic 718. There can be no assurance that these amounts will ever be realized. Whether, and to what extent, a non-employee director realizes value will depend on our actual operating performance, stock price fluctuations and the non-employee director's continued service on our board. The assumptions we used to calculate these amounts are included in Note 12 to our audited consolidated financial statements for the fiscal year ended December 31, 2022 included in our Annual Report on Form 10-K, filed with the SEC on February 23, 2023.

- (5) The following table summarizes the equity awards granted to our non-employee directors for their service on our board during 2022 and the grant date fair value of such equity awards:

Director Grants

Name	Date of Grant	Number of Shares Underlying Option Award Grants (#)	Number of Stock Award Grants (#)	Grant Date Fair Value of Option Award Grants \$(c)	Grant Date Fair Value of Stock Award Grants \$(d)
Dennis A. Ausiello, M.D.	5/18/2022	5,153	—	399,380	—
	2/23/2022	—	136	—	20,060
Olivier Brandicourt, M.D.	5/18/2022	5,153	—	399,380	—
Marsha H. Fanucci	5/18/2022	5,153	—	399,380	—
	2/23/2022	—	136	—	20,060
Margaret A. Hamburg, M.D.	5/18/2022	5,153	—	399,380	—
	2/23/2022	—	136	—	20,060
David E.I. Pyott	5/18/2022	5,153	—	399,380	—
	2/23/2022	—	136	—	20,060
Colleen F. Reitan	5/18/2022	5,153	—	399,380	—
Amy W. Schulman	5/18/2022	5,153	—	399,380	—
	2/23/2022	—	136	—	20,060
Phillip A. Sharp, Ph.D.	5/18/2022	5,153	—	399,380	—
Elliott Sigal, M.D., Ph.D.(a)	8/22/2022	4,456	—	599,880	—
Steven M. Paul, M.D.(b)	—	—	—	—	—

- (a) Dr. Sigal was granted a stock option award upon the effective date of his election to our board.
- (b) Dr. Paul resigned from our board in April 2022, and accordingly, he did not receive a stock option award in 2022.
- (c) The grant date fair value computed in accordance with FASB ASC Topic 718 represents the value of stock options granted during 2022. The grant date fair value per option was \$77.51 on May 18, 2022, with the exception of the grant to Dr. Sigal on August 22, 2022, for which the grant date fair value per option was \$134.62. There can be no assurance that the grant date fair value will ever be realized. Whether, and to what extent, a non-employee director realizes value will depend on our actual operating performance, stock price fluctuations and the non-employee director's continued service on our board. The exercise price for the May 18, 2022 and August 22, 2022 grants is \$128.31 and \$217.91, respectively.
- (d) The grant date fair value computed in accordance with FASB ASC Topic 718 represents the value of a stock award granted during 2022. The grant date fair value per RSU was \$147.47 based on the quoted closing market price of our common stock on the date of grant.
- (6) This amount reflects compensation paid to Dr. Sharp for service as the chair of our scientific advisory board during 2022.

The following table summarizes the equity awards that were outstanding as of December 31, 2022 for each of our non-employee directors serving during 2022:

Director Outstanding Equity Awards at Fiscal Year-End for 2022

Name	Option Awards(a)		Stock Awards
	Number of Shares Underlying Unexercised Options for Board Service (#)	Number of Shares Underlying Unexercised Options for Non-Board Service (#)	Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)
Dennis A. Ausiello, M.D.	43,016	—	136
Olivier Brandicourt, M.D.	17,797	—	—
Marsha H. Fanucci	80,516	—	136
Margaret A Hamburg, M.D.	40,766	—	136
David E.I. Pyott	79,266	—	136
Colleen F. Reitan	40,766	—	—
Amy W. Schulman	97,330	—	136
Phillip A. Sharp, Ph.D.	95,516	—	—
Elliott Sigal, M.D., Ph.D.(b)	4,456	—	—
Steven M. Paul, M.D.(c)	28,863	—	—

- (a) Unexercised option awards represent both exercisable and unexercisable awards.
- (b) Dr. Sigal was elected to our board effective August 22, 2022, and was granted a stock option award upon his election.
- (c) Upon Dr. Paul's resignation from our board in April 2022, all unvested stock options were cancelled. Dr. Paul has the lesser of five years and the remainder of the stock option term following the effective date of his resignation to exercise any vested stock options, after which time all such outstanding stock options will be cancelled.

SECURITIES OWNERSHIP

OWNERSHIP OF OUR COMMON STOCK

The following table sets forth information regarding beneficial ownership of our common stock as of January 31, 2023, except as otherwise set forth in the footnotes below, by:

- each person, or group of affiliated persons, known to us to be the beneficial owner of more than 5% of the outstanding shares of our common stock;
- each of our directors and director nominees;
- our principal executive officer as of December 31, 2022, our principal financial officer, our three other most highly compensated executive officers who were serving as executive officers on December 31, 2022 whom, collectively, we refer to as our named executive officers, or NEOs; and
- all of our current directors and current 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 of those shares by the person listed in the table.

Name and Address of Beneficial Owner(1)	Number of Shares Owned (#)	+	Number of Shares Acquirable Within 60 Days (#)(2)	=	Total Beneficial Ownership(#)	Percentage of Common Stock Beneficially Owned(%) (3)
Holders of more than 5% of our common stock						
Capital World Investors(4)	16,593,958		—		16,593,958	13.4
FMR LLC(5)	13,542,825		—		13,542,825	10.9
The Vanguard Group(6)	11,507,116		—		11,507,116	9.3
Baillie Gifford & Co.(7)	9,407,871		—		9,407,871	7.6
BlackRock, Inc.(8)	8,665,702		—		8,665,702	7.0
Wellington Management Group LLP(9)	6,261,642		—		6,261,642	5.1
Directors and Named Executive Officers						
Dennis A. Ausiello, M.D.	3,500(10)		37,863		41,363	*
Carolyn R. Bertozzi, Ph.D.**	—		—		—	*
Michael W. Bonney	4,000(11)		90,363		94,363	*
Olivier Brandicourt, M.D.	—		12,644		12,644	*
Marsha H. Fanucci	—		75,363		75,363	*
Margaret A. Hamburg, M.D.	—		35,613		35,613	*
David E.I. Pyott	27,900(12)		74,113		102,013	*
Colleen F. Reitan	—		35,613		35,613	*

Name and Address of Beneficial Owner(1)	Number of Shares Owned (#)	+	Number of Shares Acquirable Within 60 Days (#)(2)	=	Total Beneficial Ownership(#)	Percentage of Common Stock Beneficially Owned(%) (3)
Amy W. Schulman	—		92,177		92,177	*
Phillip A. Sharp, Ph.D.	266,899(13)		90,363		357,262	*
Elliott Sigal, M.D., Ph.D.***	2,000		—		2,000	*
Yvonne L. Greenstreet, MBChB, MBA	21,402(15)		143,688		165,090	*
Akshay K. Vaishnav, M.D., Ph.D.	22,616(15)		312,942		335,558	*
Jeffrey V. Poulton	9,463(15)		143,994		153,457	*
Pushkal P. Garg, M.D.	18,098(14)(15)		153,215		171,313	*
Indrani L. Franchini, J.D.****	—		7,296		7,296	*
All current directors and current executive officers as a group (17 persons)	376,878		1,366,945		1,743,823	1.4

* Less than 1% of our outstanding common stock.

** Joined as a director in January 2023.

*** Joined as a director in August 2022.

**** Joined as an executive officer in January 2022.

(1) Unless otherwise indicated, the address of each stockholder is c/o Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Termeer Square, Cambridge, MA 02142.

(2) Reflects shares issuable upon the exercise of stock options that are exercisable or will become exercisable within 60 days after January 31, 2023.

(3) Percentage of beneficial ownership is based on 123,924,913 shares of our common stock outstanding as of January 31, 2023. Shares of common stock subject to options currently exercisable, or exercisable within 60 days of January 31, 2023, 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. 1 to a Schedule 13G filed by Capital World Investors with the SEC on February 13, 2023, as of December 31, 2022, Capital World Investors has the sole power to vote 16,542,870 of the shares owned, and sole dispositive power for 16,593,958 of the shares owned. The address of Capital World Investors is 333 South Hope Street, 55th Floor, Los Angeles, California 90071.

(5) According to Amendment No. 18 to a Schedule 13G filed by FMR LLC (previously known as FMR Corp.) with the SEC on February 9, 2023, as of December 31, 2022, 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 13,542,825 shares of our common stock, as a result of acting as an investment adviser to various investment companies registered under Section 8 of the Investment Company Act of 1940. Abigail P. Johnson, Director, Chairman and Chief Executive Officer 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 13,542,825 shares of our common stock owned by such funds. 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 245 Summer Street, Boston, MA 02210.

(6) According to Amendment No. 7 to a Schedule 13G filed by The Vanguard Group with the SEC on February 9, 2023, as of December 31, 2022, The Vanguard Group has shared power to vote 98,925 of the shares owned, sole dispositive power for 11,235,200 of the shares owned and shared dispositive power for 271,916 of the shares owned. The address of The Vanguard Group is 100 Vanguard Blvd., Malvern, PA 19355.

- (7) According to Amendment No. 3 to a Schedule 13G filed by Baillie Gifford & Co. with the SEC on January 19, 2023, as of December 31, 2022, Baillie Gifford & Co. and/or one or more of its investment adviser subsidiaries, which may include Baillie Gifford Overseas Limited, on behalf of investment advisory clients, which may include investment companies registered under the Investment Company Act, employee benefit plans, pension funds or other institutional clients has the sole power to vote 7,868,633 of the shares owned, and sole dispositive power for 9,407,871 of the shares owned. The address of Baillie Gifford & Co. is Calton Square, 1 Greenside Row, Edinburgh EH1 3AN, Scotland, UK.
- (8) According to Amendment No. 6 to a Schedule 13G filed by BlackRock, Inc. with the SEC on January 31, 2023, as of December 31, 2022, BlackRock, Inc. has the sole power to vote or direct the voting of 7,984,443 of the shares owned and sole power to dispose or to direct the disposition of 8,665,702 shares of our common stock. 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. The address of BlackRock, Inc. is 55 East 52nd Street, New York, NY 10055.
- (9) According to Amendment No. 11 to a Schedule 13G filed by Wellington Management Group LLP (formerly Wellington Management Company, LLP), or Wellington Management, with the SEC on February 6, 2023, as of December 31, 2022, Wellington Management, in its capacity as an investment adviser, may be deemed to beneficially own 6,261,642 shares of our common stock which are held of record by clients of Wellington Management. Those clients have the right to receive, or the power to direct the receipt of, dividends from, or the proceeds from the sale of, such securities. Wellington Management has shared power to vote or to direct the vote with respect to 6,101,947 shares of our common stock and shared power to dispose or to direct the disposition of 6,261,642 shares of our common stock. The address of Wellington Management is 280 Congress Street, Boston, MA 02210.
- (10) Represents shares of our common stock held in a trust, of which Dr. Ausiello's spouse is the trustee.
- (11) Represents shares of our common stock held in a trust, of which Mr. Bonney is the trustee and over which he has sole voting and investment power.
- (12) Represents shares of our common stock held in a trust, of which Mr. Pyott is the trustee and over which he has sole voting and investment power.
- (13) Includes shares of our common stock held by the Phillip A. Sharp Revocable Trust, of which Dr. Sharp and his spouse are co-trustees. Also includes shares held in trusts for the benefit of Dr. Sharp's children, of which Dr. Sharp's spouse and children are the trustees.
- (14) Includes shares of our common stock held in a trust, of which Dr. Garg and his spouse are co-trustees.
- (15) Includes shares of our common stock contributed by Alnylam to our 401(k) plan for the benefit of our NEOs through January 31, 2023: Dr. Greenstreet, 407 shares; Dr. Vaishnav, 515 shares; Mr. Poulton, 57 shares; and Dr. Garg, 431 shares.

Delinquent Section 16(a) Reports

Section 16(a) of 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 such persons complied on a timely basis with the filing requirements of Section 16(a) during the fiscal year ended December 31, 2022, other than in the case of Ms. Franchini, the late filing of a single Form 4 to report the grant of new-hire restricted stock units and stock options due to an administrative error by the company.

EXECUTIVE OFFICERS

All executive officers of the company are appointed annually and serve at the pleasure of our board of directors. Set forth below with respect to each executive officer is information as of March 1, 2023 with respect to his or her (a) name and age, (b) positions and offices at Alnylam, (c) principal occupation and business experience during at least the past five years, and (d) directorships, if any, of other publicly-held companies, held currently or during the past five years. There are no family relationships between any of our directors and executive officers. None of the corporations or other organizations referred to below with which an executive officer has previously been employed or otherwise associated is a parent, subsidiary or affiliate of Alnylam.

Yvonne L. Greenstreet, MBChB, MBA, 60, has served as our Chief Executive Officer since January 2022 and as a member of our board of directors since October 2021. Dr. Greenstreet previously served as President and Chief Operating Officer since October 2020 and was our Chief Operating Officer from September 2016 to October 2020. Prior to joining Alnylam, Dr. Greenstreet served as the founder and Managing Director of Highgate LLC, from January 2014 to August 2016. Prior to that time, Dr. Greenstreet served as the Senior Vice President and Head of Medicines Development at Pfizer Inc., or Pfizer, a multinational pharmaceutical company, from December 2010 to November 2013. Prior to joining Pfizer, Dr. Greenstreet worked for 18 years at GlaxoSmithKline plc, or GSK, a multinational pharmaceutical, biologics, vaccines and consumer healthcare company, where she served in various positions, most recently as Senior Vice President and Chief of Strategy for Research and Development and as a member of GSK's Product Management Board. Dr. Greenstreet currently serves on the Scientific Advisory Committee of the Bill and Melinda Gates Foundation and serves as a director of The American Funds. Dr. Greenstreet previously served on the board of directors of argenx SE, Indivior PLC, Pacira BioSciences, Inc. and Moelis & Company.

Akshay K. Vaishnav, M.D., Ph.D., 60, has served as our President since January 2022. Dr. Vaishnav previously served as President, Research and Development since March 2018 and was our Executive Vice President of Research and Development from December 2014 to March 2018 and our Chief Medical Officer from June 2011 to December 2016. He served as our Executive Vice President from June 2012 to December 2014 and prior to that as our Senior Vice President from June 2011 to June 2012. From December 2008 to June 2011, Dr. Vaishnav served as our Senior Vice President, Clinical Research, and prior to that served as our Vice President, Clinical Research from the time he joined us in January 2006. From December 1998 through December 2005, Dr. Vaishnav held various positions at Biogen Inc., a biopharmaceutical company, including Senior Director, Translational Medicine. Dr. Vaishnav serves as a director of Editas Medicine, Inc. and Scholar Rock Holding Corporation.

Jeffrey V. Poulton, 55, has served as our Executive Vice President and Chief Financial Officer since August 2019. Prior to joining Alnylam, Mr. Poulton served as Chief Financial Officer of Indigo Agriculture, a plant microbiome company, from January 2018 to April 2019, where he supported the initial commercial scale-up of the business, including expansion outside the U.S. Between 2003 and December 2017, Mr. Poulton held various roles of increasing responsibility at Shire Plc, most recently as Chief Financial Officer and a member of Shire's Executive Committee and Board of Directors from January 2015 to December 2017. During his tenure at Shire, Mr. Poulton also led Shire's rare disease

U.S., LATAM, and Asia Pacific commercial operations, as well as Shire's global rare disease business unit. Prior to Shire, Mr. Poulton led corporate finance and business development initiatives in both the gas and electric utilities industry and the materials manufacturing sector, serving in financial leadership positions at Cinergy Corp and PPG Industries. Mr. Poulton also serves as a member of the board of directors of Homology Medicines, Inc., and served in the United States Navy as a Commissioned Officer.

Tolga Tanguler, 50, has served as our Chief Commercial Officer since January 2021. Prior to joining Alnylam, Mr. Tanguler served as Senior Vice President and Head of Alexion U.S. from November 2018 to December 2020, where he led an organization of 700 colleagues accountable for over \$3 billion in revenues. Before Alexion, Mr. Tanguler spent the majority of his career at Pfizer serving in roles of increasing responsibility, most recently as President, North America for Rare Diseases and prior to that as Global Vice President and Alliance Co-Head, Eliquis.

Pushkal P. Garg, M.D., 55, has served as our Chief Medical Officer, Executive Vice President, Development and Medical Affairs since January 2022. Dr. Garg joined Alnylam in 2014 as Senior Vice President, Clinical Development, was appointed Chief Medical Officer in January 2017, and named Executive Vice President in March 2019. Prior to joining Alnylam in 2014, Dr. Garg served as Vice President, Global Clinical Research, Immunoscience at Bristol-Myers Squibb where he was the strategic leader of the Immunoscience franchise, and oversaw the development of multiple clinical assets across the areas of rheumatology, gastroenterology, nephrology, and transplantation. Preceding this, Dr. Garg held various roles at Millennium Pharmaceuticals, overseeing the clinical development of multiple small molecule and biologic therapeutics for the treatment of inflammatory disorders. Before joining the biopharmaceutical industry, he was on the faculty at Harvard Medical School and the Brigham and Women's Hospital in Boston. Dr. Garg also serves as a director of SQZ Biotechnologies.

Indrani L. Franchini, J.D., 51, has served as our Executive Vice President, Chief Legal Officer and Secretary since January 2022. Prior to joining Alnylam, Ms. Franchini served as Executive Vice President, Chief Compliance Officer at Alexion from June 2017 to July 2021. Between July 2012 to June 2017, Ms. Franchini held various roles in legal and compliance at Hess Corporation, a Fortune Global 500 leader in oil and gas exploration and production, most recently as Chief Compliance Officer and Assistant Corporate Secretary. Before Hess, Ms. Franchini spent almost ten years at Pfizer in various positions, including supporting the Global Pharmaceutical business. Upon graduating from law school, Ms. Franchini practiced law at Milbank LLP, where she spent six years working in their New York and Tokyo offices.

EXECUTIVE COMPENSATION

COMPENSATION DISCUSSION AND ANALYSIS

Our People, Culture and Compensation, or PC&C, committee is responsible for overseeing the total compensation of our executive leadership team, which includes our named executive officers, or NEOs, and certain other senior leaders. The PC&C committee reviews the compensation of our CEO and recommends any changes to our board for approval. The PC&C committee directly approves compensation for the rest of the NEOs, members of the executive leadership team and executive vice presidents. This Compensation Discussion and Analysis, or CD&A, describes our executive compensation philosophy, the design of our compensation programs, the process used to examine performance in the context of executive pay decisions, and the results for each NEO. Our NEOs for 2022 are named below.

Name	Title
Yvonne L. Greenstreet, MBChB, MBA	Chief Executive Officer
Akshay K. Vaishnaw, M.D., Ph.D.	President
Jeffrey V. Poulton	Executive Vice President, Chief Financial Officer
Pushkal P. Garg, M.D.	Chief Medical Officer and Executive Vice President, Development & Medical Affairs
Indrani L. Franchini, J.D.(1)	Executive Vice President, Chief Legal Officer and Secretary

(1) Ms. Franchini was appointed as our Executive Vice President, Chief Legal Officer and Secretary effective January 31, 2022.

Executive Summary – Why You Should Vote FOR The 2023 Say On Pay Proposal

Our Executive Compensation Philosophy Drives Compensation Structure Design

The key principles of our Executive Compensation Philosophy are:

- Align executive interests with the drivers of growth and stockholder returns
- Incentivize the execution of company strategy and primary business goals
- Attract and retain talented executives with diverse expertise, skills, and background with market competitive pay
- Drive growth of sustainable long-term stockholder value

Consequently, our program is designed to ensure that the *substantial majority of NEO compensation is performance-based and at-risk*.

Our CEO Compensation Structure Reflects Our Pay-for-Performance Culture

At the end of 2021, we implemented our executive succession plan and Dr. Greenstreet successfully transitioned into the CEO role, effective January 1, 2022. Dr. Greenstreet's compensation structure was designed to align with stockholder feedback and reinforces our commitment to performance-based incentives, as follows:

- 93% of Total Direct Compensation was variable and at-risk
- 75% of annual equity awards were performance-based and tied to the achievement of specific long-term goals and the creation of stockholder value
- 100% of annual incentives were performance-based and contingent on corporate performance against preset goals

Our Compensation Structure Continues to Evolve In Line with Stockholder Feedback

Our PC&C committee values input from stockholders, and feedback received is an integral part of Committee and Board discussions and decisions.

- In 2022, we engaged with stockholders who collectively own a meaningful percentage of outstanding shares
- Stockholders we spoke with affirmed strong support for our executive compensation philosophy and structure and appreciated the strong emphasis on performance-based equity

For actions taken in response to stockholder feedback, please see “Board Response to Stockholder Feedback” section.

Our Compensation Aligns With Long-Term Stockholder Interests

Our PC&C committee has adopted incentive structures and governance policies that align the interests of NEOs with those of long-term stockholders. These include:

- Strong emphasis on performance-based equity awards
- Annual incentive bonus payout of 100% based on company performance against preset goals, with an average of 78% of our NEO's total direct compensation delivered in equity awards that vest over at least 3 years
- No guaranteed annual bonuses or salary increases for NEOs
- Robust compensation risk-mitigation policies including clawback, prohibition on pledging and hedging of company stock and stock ownership guidelines

Board Response to Stockholder Feedback

We value stockholder feedback concerning our executive compensation program, and have routinely enjoyed strong stockholder support for our say-on-pay proposals. At our 2022 annual meeting, our say-on-pay proposal received support from 90% of the votes cast by our stockholders on the matter. Annually, we reach out to stockholders collectively owning a meaningful percentage of outstanding common stock. Based on the feedback received, our PC&C committee believes that the stockholders generally endorsed our compensation philosophy and principles, thus, our PC&C committee maintained the basic structure and design of our executive compensation program for fiscal year 2023, except as described below.

The following table outlines the feedback themes received during our 2022 outreach and the actions taken:

Board Response to Stockholder Feedback

What We Heard

- Stockholders expressed concern regarding potentially overlapping performance stock unit, or PSU, performance event triggers which could result in the vesting of more than one year's annual grant, and requested clarity on certain performance triggering events to avoid ambiguity
- Stockholders questioned whether CEO stock ownership guidelines should include unvested and unearned options/performance shares for purposes of fulfilling ownership limits
- Strong Support for Overall Compensation Practices: stockholders, even those who voted against the 2022 Say-on-Pay proposal, reiterated their support for key elements of our program including the emphasis on performance-based equity

What We Did

- The PC&C committee addressed this concern by designing 2023 PSUs to incorporate performance event triggers that are not duplicative of prior year performance awards; the PC&C committee is committed to ensuring that multiple performance awards do not reward identical event triggers
- The PC&C committee continues to actively discuss the design of our stock ownership guidelines and intends to update guidelines during fiscal 2023
- The PC&C committee designed Dr. Greenstreet's employment agreement ensuring a strong emphasis on incentives that align with the creation of sustainable stockholder value and continued the compensation practices valued by our stockholders

The Board and PC&C committee remain committed to stockholder engagement. Feedback received during the engagement serves as a key input to Board and PC&C Committee discussions and decisions.

Executive Compensation Governance Practices

In addition to our pay-for-performance compensation structure, Alnylam has strong compensation governance practices. Our compensation governance practices are rooted in our Executive Compensation Philosophy, which is described below.

Compensation Governance

Alnylam's Policies and Practices

• Pay Outcomes Contingent on Performance

Alnylam's executive compensation program reinforces our performance driven culture. A significant percentage of NEO compensation is at-risk and may be realized only if performance goals are met.

• No Single-Trigger Equity Acceleration

All of our change-in-control, or CIC, agreements, provisions and equity plans require both a CIC event and termination of employment (i.e., "double-trigger").

Alnylam's Policies and Practices

- **Long-Term Alignment with Stockholders**

Half of equity awards issued to NEOs are performance-based and vest contingent upon the achievement of pre-specified clinical development, regulatory and/or commercial events.

- **Cash and Equity Incentive Clawback**

Our clawback policy applies to both cash and equity incentives and covers all executive officers.

- **No Guaranteed Annual Bonus or Salary Increases**

As a matter of principle, no executive officers are provided with guaranteed annual salary increases or annual or multi-year bonuses.

- **No Hedging and Pledging Permitted**

Alnylam's Insider Trading Policy expressly prohibits hedging transactions and margin accounts, short sales, and the pledge of company securities.

- **Good Standing Requirement**

We require our executive officers to be in good standing in order to receive awards under our annual incentive program.

- **Stock Ownership Guidelines Enhance Alignment of Interests**

Our executive officer and director stock ownership guidelines strengthen the alignment of their interests with those of our long-term stockholders.

- **Limited Perquisites Align with Pay-for-Performance Focus**

Consistent with our pay-for-performance philosophy, we provide limited perquisites. We do not provide perquisites such as automobile leases, driver services or personal use of aircraft.

- **No excise tax and generally no other tax gross-ups**

We do not provide our executive officers with excise tax gross-ups and we generally do not provide other tax gross-ups.

Select Business Highlights For 2022

We are a global commercial-stage biopharmaceutical company developing novel therapeutics based on RNAi. RNAi is a naturally occurring biological pathway within cells for sequence-specific silencing and regulation of gene expression. By harnessing the RNAi pathway, we have developed a new class of innovative medicines, known as RNAi therapeutics. RNAi therapeutics are comprised of small interfering RNA and function upstream of most other classes of medicines by silencing messenger RNA that encode for proteins implicated in causing disease, thus preventing them from being made. We believe this is a revolutionary approach with the potential to transform the care of patients with rare and prevalent diseases.

We believe 2022 was a year of strong performance for Alnylam, as we continued to make significant progress on our commercial, clinical development and other corporate goals. Based on our track record of setting and exceeding five-year goals, in 2021, we launched our *Alnylam P⁵x25* strategy which focuses on our planned transition to a top-tier biotech company by the end of 2025. With *Alnylam P⁵x25*, we aim to deliver transformative rare and prevalent disease medicines for patients around the world through sustainable innovation, while delivering exceptional financial

performance and driving profitability. We ended 2022 making meaningful progress towards these goals, with five marketed products and more than ten clinical programs, including several in late-stage development, and we continued to advance earlier stage candidates and optimize our product platform. Based on our performance in 2022, our board determined that we achieved 115% of our corporate goals for fiscal year 2022, including a majority of our commercial execution and late-stage pipeline goals, all of our growth and growth management goals, and all of our research platform goals, and the majority of our early- and mid-stage pipeline and strategic infrastructure goals, as well as certain of our “stretch” goals.

SELECT BUSINESS HIGHLIGHTS FOR 2022

COMMERCIAL ACHIEVEMENTS

- Achieved global net product revenues for ONPATTRO (patisiran) and AMVUTTRA (vutrisiran) for the full year 2022 of \$557.6 million and \$93.8 million, respectively
- Attained over 2,975 hATTR amyloidosis patients with polyneuropathy worldwide on commercial treatment with ONPATTRO or AMVUTTRA as of December 31, 2022
- Recognized global net revenue of \$173.1 million for the year ended December 31, 2022 for GIVLAARI (givosiran)
- Attained approximately 520 patients worldwide on commercial GIVLAARI treatment as of December 31, 2022
- Recognized global net revenue of \$69.8 million for the year ended December 31, 2022 for OXLUMO (lumasiran)
- Attained approximately 280 patients worldwide on commercial OXLUMO treatment as of December 31, 2022

CLINICAL & REGULATORY ACHIEVEMENTS

- Advanced robust pipeline ending 2022 with more than ten active clinical-stage programs
- Reported positive results from the APOLLO-B Phase 3 study in patients with ATTR amyloidosis with cardiomyopathy, and submitted an sNDA for review by the United States Food and Drug Administration
- Received regulatory approvals for AMVUTTRA in the U.S., Europe, United Kingdom, Japan and Brazil
- Based on the successful outcome of the ILLUMINATE-C study in children and adults with advanced PH1, received approval from the FDA of an sNDA for OXLUMO, expanding the indication for the treatment of PH1 to lower urinary oxalate and plasma oxalate levels in pediatric and adult patients, and received approval from the European Medicines Agency of a Type II variation to include the ILLUMINATE-C data in the label
- Advanced early-stage pipeline, including zilebesiran for the treatment of hypertension

BUSINESS AND STRATEGIC INITIATIVES

- Issued \$1.05 billion convertible senior notes with proceeds primarily used to pay down Blackstone \$700 million credit facility and approximately \$200 million in prepayment premiums under the credit facility, and for the purchase of capped call transactions, and underwriter fees
- Completed successful transition of founding CEO John Maraganore, Ph.D., to Yvonne Greenstreet, MBChB, MBA
- Ranked #1 in Boston Globe's 2022 Top Places to Work in the "Largest Employer" category
- Ranked #2 in Science Magazine's 2022 Top Employer survey, marking the fourth year Alnylam was featured as one of the top three companies

FINANCIAL RESULTS

- Ended 2022 with \$2.19 billion in cash, cash equivalents and marketable securities
- Grew global net product revenues by over 35%

DISAPPOINTMENTS

- Did not meet all commercial objectives for GIVLAARI and OXLUMO commercialization activities
- Did not meet all early and mid-stage clinical pipeline objectives

STOCKHOLDER RETURN

- Our three-year total stockholder return (TSR) for fiscal years 2020-2022 was 106.35% and our five-year TSR for fiscal years 2018-2022 was 87.05%. Our one-year TSR for 2022 was 40.14%

Significant Compensation Decisions in 2022

Review of Total Rewards Practices: As we evolve throughout our life-cycle as a fully-integrated commercial stage biopharmaceutical company, our PC&C committee is committed to reviewing and similarly evolving our total rewards practices to ensure that our plans and programs continue to support our pay-for-performance philosophy, align with market best practices for the respective stage that the company is transitioning to and through, and attract and retain key talent necessary to execute against our strategic business initiatives. Accordingly, during 2022, our PC&C committee, with the assistance of its compensation consultant, Pay Governance, conducted a review of our total rewards practices, with a focus on our annual and long-term incentive plan design. Based on this review, our PC&C committee determined that it would be appropriate to adjust our annual incentive plan by eliminating the separation of core and stretch goals, adding more defined language to assess performance at threshold, target, and overachievement (stretch) of corporate goals, and incorporating a heavier weighting on our financial goals. The PC&C committee also determined that it would be appropriate to enhance our long-term incentive plan by introducing restricted stock units into the annual program and adjusting the mix of equity awards issued to executive officers to reflect this type of award vehicle. For additional information about these changes to our long-term incentive plan, please see the paragraph of this CD&A entitled "Looking Forward" under the "Long-Term Incentives – 2022 Equity Awards" section.

No Covid-19 Changes to Executive Compensation: Following a review by the independent compensation consultant to the PC&C committee for the first half of fiscal 2022, Aon's Human Capital Solutions practice (formerly Radford), a division of Aon plc, or Aon, of Covid-19-related compensation adjustments implemented by companies in our peer group and the broader industry, it was determined that no adjustments to executive compensation were warranted in 2020, 2021 or 2022.

Continuation of Enhanced Workplace Benefits for All Employees: We understand that our >2,000 employees are our greatest asset and believe we have provided a comprehensive employee assistance program that is designed to support our employees' health and well-being during this time. In 2020, our PC&C committee endorsed the following changes to our broad employee benefit offerings, as well as certain additional benefit offerings, proposed and implemented by our management to support the health and well-being of our people, which were continued in 2021 and 2022:

- certain workplace safety and benefits for our non-work-from-home staff, including temperature screening, a voluntary testing program, personal protective equipment and free parking;
- various work/life flexibility initiatives, including flexible working arrangements, paid time off for Covid-19-related health and child/family care needs;
- additional paid time off, including increased vacation carry over into 2022, and paid caregiver leave; and
- various additional benefit offerings, including a technology stipend for work-from-home staff, enhanced child and elderly back-up care, enhanced health and wellness offerings, including a \$1,000 lifestyle benefit, virtual programming, reimbursement for the cost of Covid-19 testing for employees and their family members, and enhanced offerings for mental health support.

Change of Independent Compensation Consultant: The PC&C committee regularly reviews and assesses the services provided by its outside compensation consultant. During 2022, the PC&C committee conducted such a review and determined that it would be appropriate to change consultants. Accordingly, the PC&C committee retained the services of Pay Governance, effective July 2022. For additional information about Pay Governance, please see the section of this CD&A entitled "Role of the Compensation Consultant."

Peer Group Evaluation and Updates: Our PC&C committee evaluated our peer group, with assistance from Pay Governance, and determined that certain changes were appropriate given transactional activity and our current positioning as a fully-integrated commercial stage biopharmaceutical company. For additional information about these changes to our peer group, please see the section of this CD&A entitled "2022 Peer Group."

Components of our Compensation Program

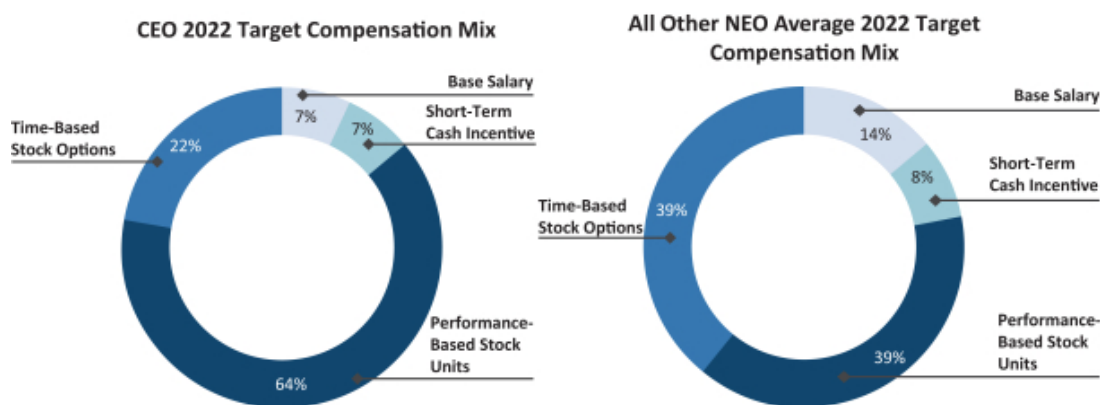
As discussed above, the guiding principle of our compensation program is to provide a compensation structure that allows Alnylam to attract and retain highly qualified executives and to motivate such executives to achieve clinical, business and financial goals that create long-term value

for stockholders in a manner consistent with our core business and leadership values. Three primary components make up Alnylam’s executive pay program: base salary, short-term cash incentives and long-term equity incentives. We do not provide our executives with supplemental retirement benefits or personal perquisites.

Each Compensation Element Serves a Unique Purpose

Pay Element	At-Risk?	Description	Rationale
Base Salary		Fixed cash compensation targeted within range of the market median, reflective of individual performance, skills, experience and internal equity	Attracts and rewards high performing executives via market competitive pay and industry norms and reflects individual performance
Short-Term Cash Incentives	✓	- Annual performance against preset goals - Payouts earned only if corporate performance exceeds 50% of preset targets - Awards capped at 150% of target	- Drives company-wide performance - Rewards achievement against preset goals - Motivates executives to achieve performance objectives that are key to our annual operating and strategic plans - Aligns executive and stockholder interests
Long-Term Equity Incentives	✓	- Value split 50% PSUs and 50% stock options (see “Looking Forward” section for fiscal 2023 awards) - PSUs only vest upon previously established milestones - Stock options directly aligned with our stockholders in that they only have value to the extent our stock price appreciates following grant	- Motivates executives to achieve multi-year strategic objectives and clinical development, regulatory and commercial milestones, and deliver sustained long-term growth - Focused on significant use of performance-based vesting for equity awards to align executive and stockholder interests through long-term value creation - Enhances retention of key talent

The PC&C committee is committed to ensuring that a substantial portion of executive compensation is “at-risk” and variable. For 2022, 93% of our CEO’s total direct compensation and, on average, 86% of our other NEOs’ total direct compensation, is variable and directly affected by both the company’s and each NEO’s performance. In addition, for both our CEO and our other NEOs, 50% of their annual long-term incentive compensation consists of performance-based equity awards.



Note: The figures above include the annual equity awards granted to the CEO and other NEOs in February 2022, as reflected in the Summary Compensation Table, except that it excludes the promotional equity award issued to Dr. Greenstreet in connection with her appointment as CEO. With respect to the PSUs reflected above, we assumed that as of the grant date it was probable that 100% of the performance conditions would be achieved. See Note 8 of the Summary Compensation Table below for additional information regarding the treatment of PSUs.

Base Salary

Our PC&C committee typically determines the base salary for each new executive based on the executive's responsibilities and experience within range of market median. In addition, our PC&C committee reviews and considers the level of base salary paid by companies in our peer group for similar positions.

Our PC&C committee reviews and approves merit based base salary increases for all executive officers, other than our CEO, after consideration of benchmarking conducted by its compensation consultant, individual performance and the recommendation of our CEO. Our PC&C committee reviews and recommends to board for approval merit based base salary increases for our CEO, after consideration of benchmarking conducted by its compensation consultant and an individual performance assessment.

During the first quarter of 2023, our PC&C committee approved increases for 2023 base salary for each of our NEOs. These increases, reflected below, were effective as of March 1, 2023 and were based upon each NEO's individual performance in 2022, and a review by our PC&C committee of the base salaries of comparable NEOs in our 2022 peer group.

The table below sets forth the 2023 and 2022 base salaries, in dollars, and the adjustment to base salaries, as a percentage, for each of our NEOs:

Base Salary Adjustments

Name	2023 Base Salary(\$)	2022 Base Salary(\$)	Increase(%)
Yvonne L. Greenstreet, MBChB, MBA	1,000,000	850,000	17.6*
Akshay K. Vaishnaw, M.D., Ph.D.	754,000	725,000	4.0
Jeffrey V. Poulton	660,000	610,000	8.2**
Pushkal P. Garg, M.D.	663,000	625,000	6.1
Indrani L. Franchini, J.D.	597,000	580,000	2.9

* Includes a market adjustment of 12% to address a gap in Dr. Greenstreet's base salary relative to the market median.

** Includes a market adjustment of 2% to address a gap in Mr. Poulton's base salary relative to the market median.

Short-Term Incentives—2022 Annual Incentive Program

Annual cash incentives are paid to our NEOs through our Annual Incentive Program, or AIP. Our AIP design is intended to align NEOs' interests directly with our corporate goals. In making its determination regarding awards for 2022 under the AIP for our NEOs, our PC&C committee and board considered our achievements against goals that were established in the first quarter of fiscal 2022. Based on an assessment of our performance after the close of fiscal 2022, our board determined that we achieved 115% of our corporate goals, including substantially all of our commercial execution and late-stage pipeline goals, all of our growth and growth management goals, substantially all of our research platform goals, and the majority of our early- and mid-stage pipeline and strategic infrastructure goals, as well as certain of our "stretch" goals.

Annual Metrics and Goal Assessment

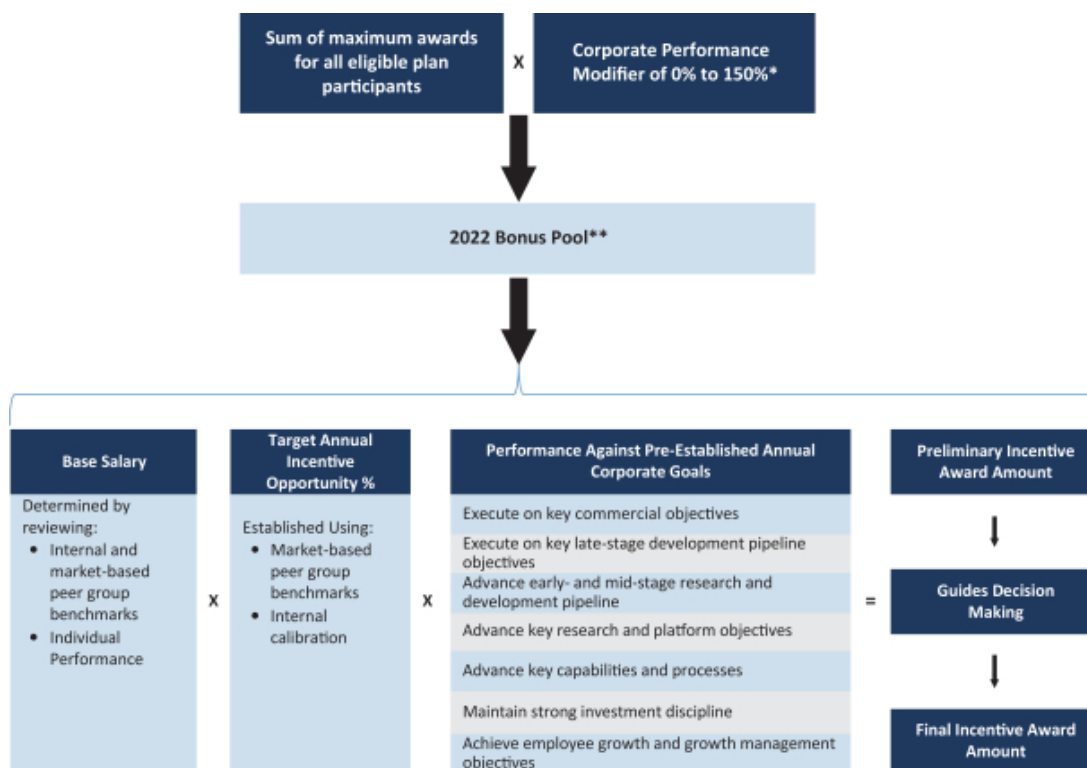
The 2022 corporate goals approved by our board, the relative weightings assigned to each goal, our actual achievement during the performance period as a percentage of target and the weighted performance against these corporate goals for 2022, as approved by our PC&C committee and full board in determining our NEOs' compensation, were as follows:

Annual Incentive Payout Matrix

2022 Corporate Goals	Relative Weighting(%)	Actual Achievement For 2022 (As % of Target)	Weighted Performance(%)
- Execute on key commercial objectives, including: - Achieve ONPATTRO, GIVLAARI, OXLUMO and vutrisiran commercial success; focusing on patient impact; - Stretch Goals—Exceed more aggressive commercial sales metrics; and - Stretch Goals—Exceed certain specified vutrisiran commercial metrics.	30	83	25
- Stretch Goals—Exceed more aggressive commercial sales metrics; and - Stretch Goals—Exceed certain specified vutrisiran commercial metrics.	10	0	0
Stretch Goals—Exceed certain specified vutrisiran commercial metrics.	10	100	10
- Execute on key late-stage development pipeline objectives, including: - Execute on five late-stage clinical programs, including positive Phase 3 studies and regulatory submissions, toward our <i>Alnylam</i> P⁵x25 profile; and - Stretch Goals – Achieve positive results in APOLLO-B Phase 3 study with differentiated results.	20	90	18
Stretch Goals – Achieve positive results in APOLLO-B Phase 3 study with differentiated results.	20	100	20
- Advance early- and mid-stage research and Next Wave pre-clinical programs to achieve <i>Alnylam</i> P⁵x25 profile, while maintaining an acceptable level of investment for transition toward profitability. - Stretch Goal – Exceed certain specified early-stage pipeline advancement metrics.	15	47	7
Stretch Goal – Exceed certain specified early-stage pipeline advancement metrics.	10	0	0
Ensure that our strong and durable patient focus is reflected by a state of the art Ethics and Compliance Program that is fully integrated into organizational, cultural and business operations.	10	100	10
Grow, develop & scale organization to execute on <i>Alnylam</i> P⁵ x 25 strategy with excellence, patient focus, safety, quality, ethics & compliance and build capabilities and processes to support Alnylam as a fully global operating business.	10	100	10
Continue to define leading edge of RNAi technology with ESC+ and extra-hepatic platforms.	5	100	5
Maintain strong investment discipline by prioritizing our pipeline and commercial investment opportunities and execute on plans to achieve self-sustainable financial profile consistent with <i>Alnylam</i> P⁵x25 strategy.	10	100	10
Approved 2022 Corporate Performance Level for NEOs	150		115

Calculation of Annual Cash Incentives

Annual cash incentives were calculated as shown below.



* If the 2022 corporate performance level was determined to be below 50%, then the corporate performance modifier would be 0% and no awards would be granted under the AIP.

** The board and/or PC&C committee has the discretion to make adjustments in connection with the AIP as it deems appropriate. Our board did not exercise such discretion with respect to the determination of awards under the AIP for 2022.

Our PC&C committee considers an appropriate mix of cash incentive opportunities and equity incentive grants to meet short- and long-term goals and objectives. In February 2022, our PC&C committee approved target awards for our NEOs under the 2022 AIP, including the opportunity for our NEOs to achieve incentive awards above established bonus targets based on the company's performance against 2022 corporate goals. No changes were made to target award levels for our NEOs for 2022. Each potential bonus award for 2022 ranged from 0% to 150% of the individual's target award, thus making 150% of each individual's target award the maximum bonus award achievable in the event the company met all of its corporate goals (100%) plus its stretch goals (50%).

The table below shows the target award under the 2022 AIP as a percentage of each NEO's annual base salary, assuming (1) all of the corporate goals were met but not providing additional credit for the achievement of any stretch goals, (2) the maximum cash award opportunity that would be paid if all of the corporate goals were met and certain goals were exceeded (stretch goals), (3) the

actual cash bonus payments to our NEOs under the 2022 AIP, which were paid in March 2023, and (4) the actual bonus payment as a percentage of the NEO's target award opportunity.

2022 Annual Incentive Program Awards

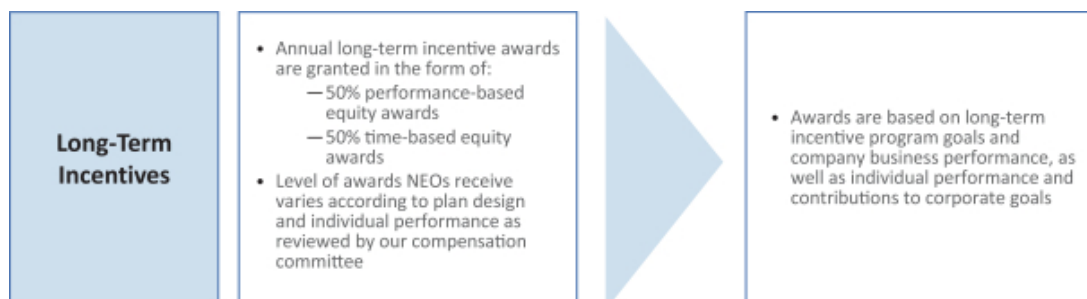
Name	2022 Target Award (% of Base Salary)	2022 Target Award Opportunity(\$)	2022 Maximum Award Opportunity(\$)*	2022 Actual AIP Payout(\$)	2022 Actual AIP Payout (% of Target Award Opportunity)
Yvonne L. Greenstreet, MBChB, MBA	100	850,000	1,275,000	977,500	115
Akshay K. Vaishnav, M.D., Ph.D.	60	435,000	652,500	500,250	115
Jeffrey V. Poulton	50	305,000	457,500	350,750	115
Pushkal P. Garg, M.D.	50	312,500	468,750	359,380	115
Indrani L. Franchini, J.D.	50	290,000	435,000	333,500	115

* Assuming 150% corporate performance modifier to account for stretch goals.

Long-Term Incentives – 2022 Equity Awards

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.

To ensure that executive officers are focused on the creation of stockholder value, the equity compensation structure has been designed to include annual stock option awards, which only provide value if our share price appreciates, and performance-based equity awards that vest upon achievement of long-term performance goals.



Our equity awards program is designed to:

- reward demonstrated leadership and performance;
- align our executive officers' interests with those of our stockholders through long-term value creation;

- affect pay-for-performance achievement;
- retain our executive officers through the vesting period of the awards;
- maintain competitive levels of executive compensation; and
- motivate our executive officers for outstanding future performance.

Historically, our equity awards were issued as stock options, which we believe further strengthens the long-term alignment between our executives and stockholders as such awards only have value if our share price appreciates after the grant date. We typically grant stock options to each of our executive officers upon commencement of employment and annually in conjunction with our review of individual performance. Beginning in February 2019, our PC&C committee determined that a 50/50 split between stock options and performance-based awards was more closely aligned with the achievement of our long-term equity strategy and growth objectives, our desire to maintain competitive levels of executive compensation and our desire to emphasize the strong performance orientation of both our long-term incentive equity awards and our overall executive compensation program.

Looking Forward. During 2022, our PC&C committee, with the assistance of our compensation consultant, Pay Governance, conducted a review of our total rewards practices. The PC&C committee conducted this review as part of its commitment to reviewing and evolving our total rewards practices to ensure that our plans and programs continue to support our pay-for-performance philosophy, align with market best practices and attract and retain key talent. Based on this review, the PC&C committee determined that it would be appropriate to further evolve our long-term incentive plan by introducing time-based vesting restricted stock units, or RSUs, into the annual program and adjusting the mix of awards issued to executive officers. When making this determination, the PC&C committee considered, among other items, market practice amongst similarly-situated companies, particularly companies in our executive compensation peer group, and the retentive value of RSUs when included as a component of a long-term incentive program. Accordingly, for the annual long-term incentive award granted in February 2023, our PC&C committee approved the following equity award mix: performance-based awards (50%), stock options (25%) and restricted stock units (25%).

The value of equity awards typically vary among our executive officers based on their role and annual performance assessments. Our PC&C committee also reviews all components of each executive officer's compensation, including base salary, target bonus opportunity, total cash compensation and total direct compensation, to ensure that such officer's compensation is aligned with our overall pay-for-performance philosophy and objectives. Stock options vest over four years and have exercise prices equal to the fair market value of our common stock on the grant date, so that our executive officers will not earn any compensation from such stock options unless our stock price increases above the grant date value. Performance stock unit awards, or PSUs, will only vest in the event that specified performance criteria are met and will vest no earlier than one year after the grant date. RSU awards vest over three years, provided the executive officer remains employed with the company through the applicable vesting date. Due to this plan design, a majority of our executive officers' annual equity compensation is "at risk" and all of such equity compensation is directly aligned with stockholder value creation.

Annual Equity Awards

Our annual equity awards for 2022 performance, which were granted in February 2023, were in the form of PSUs, stock option awards and RSUs. The 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. The RSUs vest in substantially equal installments on the first, second and third anniversaries of the grant date. With respect to the performance-based portion of the annual equity awards, a portion of the shares subject to the PSUs vest upon the later of the one-year anniversary of the grant date and the achievement of specific clinical development, regulatory and/or commercial events, as approved by our PC&C committee. Set forth below is a summary of the performance-based vesting events for the performance-based portion of the annual equity awards granted over the last four years, together with the status of the achievement of such events:

Year for Award	Performance Milestone (% of Award)	Date Achieved	Status of Potential Achievement*
2019	Filing of Fifth NDA or MAA for Regulatory Approval with the FDA or EMA (33%)	✓ April 2021	
	Positive Data from Phase 3 Clinical Study in ATTR Amyloidosis Patients with Cardiomyopathy (33%)	✓ August 2022	
	Achievement, on or before December 31, 2024, of First \$2.5 Billion in Cumulative Net Product Revenues (33%)		Timing of achievement depends on progress of commercial efforts, success of regulatory filing(s) and potential additional product approvals
2020	Positive Data from Phase 3 Clinical Study in ATTR Amyloidosis Patients with Cardiomyopathy (25%)	✓ August 2022	
	Achievement, on or before December 31, 2024, of First \$2.5 Billion in Cumulative Net Product Revenues (25%)		Timing of achievement depends on progress of commercial efforts, success of regulatory filing(s) and potential additional product approvals
	Achievement, on or before December 31, 2025, of Non-GAAP Operating Income Profitability for a 12-month Calendar Year (25%)		Timing of achievement depends on progress of commercial efforts, success of regulatory filing(s) and potential additional product approvals and level of operating expenses
	Initiation of first Phase 3 Clinical Study for an Alnylam Proprietary RNAi Therapeutic in Development to Treat a Prevalent Disease (25%)		Timing of achievement depends on success of early stage research and development efforts in Prevalent Disease programs

Year for Award	Performance Milestone (% of Award)	Date Achieved	Status of Potential Achievement*
2021	Positive, Statistically Significant Result on Clinical Outcomes Endpoint from a Phase 3 Clinical Study in ATTR Amyloidosis Patients with Cardiomyopathy (33%)		Timing of achievement depends on progress and success of Phase 3 programs in indication
	Achievement of First \$1.5 billion in Annual Total Revenues (33%)		Timing of achievement depends on the progress of commercial efforts, the success of regulatory filing(s) and potential additional product approvals, the success of Leqvio and potential other revenue under collaborations
	Achievement of Human Proof of Concept for Investigational RNAi Therapeutic Directed to an Extrahepatic Target (33%)		Timing of achievement depends on progress and success of Phase 1 program(s) for extra-hepatic targets
2022	FDA Acceptance of an NDA for a Therapeutic to Treat ATTR Amyloidosis with Cardiomyopathy, After Receipt of Positive Result on Clinical Outcomes Endpoint from Phase 3 Clinical Study (30%)		Timing of achievement depends on progress and success of Phase 3 program in indication
	Achievement of Human Proof of Concept for Investigational RNAi Therapeutic Directed to an Extrahepatic, non-CNS Target (30%)		Timing of achievement depends on progress and success of Phase 1 program(s) for extra-hepatic, non-CNS targets
	Achievement of Non-GAAP Operating Income in Fiscal 2025 (40%)		Timing of achievement depends on progress of commercial efforts, success of regulatory filing(s) and potential additional product approvals and level of operating expenses

* Timing of actual achievement, if at all, will depend on the progress of our clinical trials, the timing and success of regulatory filing(s) and potential additional product launch(es), the success of our commercial efforts for our marketed product(s), revenues generated by our collaborations, and our ability to manage our operating expenses. Actual achievement may be based upon events not listed above.

Any determination as to whether or not a vesting event has been met must be approved by our PC&C committee and the date of vesting shall be the later of the date of such determination by the committee and the one-year anniversary of the grant date.

The performance events for a PSU must occur within ten years from the grant date (or upon the earlier date specified for certain financial goals). Vesting of equity awards to employees typically ceases upon termination of employment. Prior to the vesting of a PSU, the recipient does not have any rights as a stockholder with respect to the shares subject to such PSU, including voting rights and the right to receive dividends or dividend equivalents.

In connection with the annual review of each executive officer's individual performance and consistent with our compensation philosophy, our PC&C committee approved annual equity incentive awards for our executive officers for 2022 performance in February 2023. The guideline for award levels for NEOs for 2022 was generally between the 60th and 75th percentile of market, and the guideline for award levels for NEOs for 2021 performance was generally between the 60th and 75th percentile of market, in each case subject to adjustment for individual performance.

The annual equity incentive awards granted to our NEOs for 2022 and 2021 performance, the value of such awards and the percentage change from 2022 versus 2021, are set forth in the table below:

Annual Equity Incentive Awards

Name	Annual Equity Incentive Award Values*		2022 versus 2021 Year-over-Year Change(%)
	2022 Award Value**	2021 Award Value**	
Yvonne L. Greenstreet, MBChB, MBA	13,500,000	10,000,000	35***
Akshay K. Vaishnaw, M.D., Ph.D.	4,400,000	4,700,000	(6)
Jeffrey V. Poulton	4,350,000	2,900,000	50***
Pushkal P. Garg, M.D.	4,350,000	3,800,000	14
Indrani L. Franchini, J.D.****	2,000,000	—	N/A

* The value of annual equity incentive awards for each NEO is split equally between stock options and PSUs for 2021 award values and is split 50% for PSUs, 25% for stock options and 25% for RSUs for 2022 award values. See Note 5 and Note 8 to Summary Compensation Table for additional information on the calculation of the value of awards.

** Reflects awards made in first quarter of 2023 and 2022 for 2022 and 2021 performance, respectively. Awards granted in Q1 2023 are presented for comparative purposes and are not reflected in the Summary Compensation Table for 2022. These awards will be included as 2023 compensation in the 2024 proxy statement.

*** Reflects increases that more closely align the executive officer's award value with market competitive levels. For Dr. Greenstreet, also reflects an increase for her performance during fiscal 2022, which was her first full year serving as our Chief Executive Officer. For Mr. Poulton, also reflects an increase for his performance during fiscal 2022.

**** Ms. Franchini joined the company as Executive Vice President, Chief Legal Officer and Secretary in January 2022 and therefore did not receive any annual incentive awards in 2022 for 2021 performance.

Benefits and Other Compensation

Other compensation to our executive officers consists primarily of the broad-based benefits we provide to all U.S. based employees, including health and dental insurance, life and disability insurance and a 401(k) plan; however, our 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. We provide an immediately vested matching contribution in our 401(k) plan that equals 100% of the first 2% of a plan participant's contributions and 50% of the next 4% of contributions.

Committee Process for Setting Total Compensation

The PC&C committee reviews the compensation of our CEO and recommends any changes to our board for approval. For our other executive officers, the PC&C committee directly approves their

compensation. The committee may also review the compensation of our NEOs during the course of the year. The committee may apply its discretion, as it deems appropriate, in determining executive compensation.

During the first quarter of each year, annual corporate goals and individual performance objectives are determined and set forth in writing. Corporate goals are weighted and approved by our PC&C committee and our full board. 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, if necessary and subject to board approval. For 2022, the individual objectives for our executive officers were the same as the corporate goals for the purpose of determining annual cash incentive awards. The individual contributions of each executive officer towards the achievement of the corporate goals were considered for purposes of determining base salary and long-term incentive awards. In 2022, our PC&C committee established the maximum cash bonus opportunity for executive officers under the 2022 annual incentive program, represented as a percentage of each individual's base salary.

Annual performance reviews and the determination of base salary merit increases, annual cash incentive awards and annual equity awards for a given year occur in the first quarter of the following year. Accordingly, with respect to 2022 compensation matters, our senior management team evaluated our performance against the 2022 corporate goals during the first quarter of 2023 and recommended to the PC&C committee weightings with respect to company performance against these goals. Our PC&C committee then discussed the recommendations and considered the appropriate level of achievement against the respective corporate goals. As part of this process, our Chief Human Resources Officer, or CHRO, and CEO, with the assistance of Pay Governance, reviewed the performance of each of our NEOs (other than the CEO and CHRO), and our PC&C committee evaluated each of these NEOs' compensation and determined any increases in base salary and the value of annual equity awards. Our PC&C committee reviewed the performance of our CHRO based upon the recommendation of our CEO, without the CHRO being present for such discussion. Our PC&C committee reviewed the performance of our CEO, without the CEO being present for such discussion, and determined whether to recommend to the full board for approval a base salary increase, the value of a fiscal 2023 equity award and the amount of a cash award under our annual incentive program for our CEO based on her target award percentage, as well as overall corporate performance for the year. Consistent with our year-end compensation process, our PC&C committee made grants of annual equity awards and determined changes in base salary and the amount of any annual cash incentive payments in February 2023.

Compensation Peer Group and Peer Selection Process

We develop our compensation programs after reviewing publicly available compensation data and subscription survey data for our peer group, provided by Aon during the first half of 2022 and Pay Governance during the second half of 2022. In evaluating the total compensation of our NEOs, our PC&C committee, using information provided by our independent compensation consultant,

establishes a peer group of publicly traded companies in the biopharmaceutical and biotechnology industries that is selected based on a balance of the following criteria:

Peer Selection Considerations

Organizational Structure	Companies whose organizational structure, number of employees (headcount between 500 and 3,000) and positions, stage of development (commercial stage with robust pipeline), market capitalization (\$5 billion to \$75 billion, with a focus on companies with market capitalization greater than \$20 billion), and product revenues (\$500 million to \$3 billion) are similar to ours
Executive Positions	Companies with similar executive positions to ours
Executive Talent Pool	Companies against which we believe we compete for executive talent
Global Operations	Public companies with international presence

In addition to the criteria above, our PC&C committee also reviewed the peer selection criteria used by proxy advisors and considered the specific peers identified independently by each advisor.

2022 Peer Group

Our PC&C committee periodically reviews the company's peer group to ensure that the peer companies continue to be appropriate peers for compensation benchmarking purposes. Alnylam's 2021 peer group (used for compensation decisions made in fiscal 2022, including the annual equity awards for 2021 performance approved and granted in 2022) consisted of 16 companies operating in the biopharmaceutical/biotechnology industry. After review and analysis performed by Pay Governance during the second half of 2022, the PC&C committee determined that five companies (Accelaron Pharma, Inc., Alexion Pharmaceuticals, Inc., Ionis Pharmaceuticals, Novavax, Inc. and Ultragenyx Pharmaceutical Inc.) were no longer appropriate as peers on a go-forward basis due to changes in market capitalization and/or revenue or were recently acquired in a business transaction, and also added three companies (Biogen Inc., Moderna Inc. and Vertex Pharmaceuticals Inc.) to our peer group based primarily on our financial and business position as a maturing commercial company. The 2022 peer group reflecting these changes and approved by our PC&C committee is shown below, with the new peer companies identified in italics. The 2022 peer group was used in connection with compensation decisions made in February 2023 relating to merit increases, salary market adjustments and annual equity awards for 2022 performance.

2022 Peer Group

BeiGene, Ltd.	Horizon Therapeutics plc	Neurocrine Biosciences, Inc.
<i>Biogen Inc.</i>	Incyte Corporation	Sarepta Therapeutics, Inc.
BioMarin Pharmaceutical Inc.	Ionis Pharmaceuticals, Inc.	Seagen Inc.
Exact Sciences Corporation	Jazz Pharmaceuticals plc	United Therapeutics Corporation
Exelixis, Inc.	<i>Moderna, Inc.</i>	<i>Vertex Pharmaceuticals Incorporated</i>

Compensation Benchmarking

To provide the appropriate context for executive pay decisions, our PC&C committee, in consultation with Pay Governance, assessed the compensation practices and pay levels of our peer group. We believe that the compensation practices of our peer group are appropriate to reference in evaluating the compensation of our NEOs during 2022.

Notwithstanding the similarities of our 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. Because we need to retain significant clinical expertise and because our corporate headquarters is located in a geographic region that is highly competitive for talent, we also compete with prestigious academic and non-profit institutions. In keeping with our pay-for-performance philosophy, actual compensation levels are correlated to the achievement of corporate goals and individual performance against those goals. In addition, our PC&C committee uses competitive compensation data from the annual total compensation study of peer companies to inform its decisions about overall compensation opportunities and specific compensation elements. Additionally, the committee uses multiple reference points when establishing targeted compensation levels. The committee does not make decisions based solely on benchmarking for specific compensation elements or total compensation and does not fix compensation to any specific percentile relative to the peer companies or the broader U.S. market. Instead, the committee applies judgment and discretion in establishing targeted pay levels, taking into account not only competitive market data, but also factors such as experience level of the executive, scope of responsibility, critical needs and skill sets, leadership potential and succession planning, individual performance against established corporate goals, and contributions to the achievement of long-term strategic objectives.

Our PC&C committee continues to evaluate our incentive compensation programs, with continued assistance from Pay Governance, and to make adjustments based upon our evolution as a global commercial-stage biopharmaceutical company. In 2020, we transitioned from a unit-based to a value based approach for our long-term incentive awards. In 2023, we introduced restricted stock units and remixed our long-term incentive awards to 50% performance-based stock units, 25% stock options and 25% restricted stock units. We expect to continue to review our incentive compensation programs annually and to make adjustments, as appropriate, to reflect our continued global growth as we advance and continue to execute against our pipeline and commercialization strategies.

Other Key Performance Factors and Industry Specific Considerations

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. While we became a commercial-stage company in 2018 and have independently launched four products to date, we have not achieved profitability and therefore, several of the traditional benchmarking metrics, such as earnings per share, remain inappropriate measures for Alnylam as we move towards our goal of self-sustainability. Accordingly, the specific performance factors our PC&C committee considers when determining the compensation of our NEOs include:

- key research and development achievements, including advances in RNAi delivery and technology and identification of new therapeutic areas and novel disease targets;
- initiation and progress of clinical trials, in particular late-stage programs;
- achievement of regulatory milestones, including regulatory filings for product approvals and regulatory approvals;
- establishment of global commercial and medical infrastructure and commercial launch readiness, as well as patient and physician education initiatives;
- revenue results, as well as other key metrics, including progress on pricing and reimbursement efforts, for our recently launched products;
- establishment and maintenance of key strategic relationships and new business initiatives;
- filing, prosecution, defense and enforcement of key intellectual property rights;
- success in our human capital management strategy, including development of global organizational capabilities, success in hiring, employee retention, growth management and diversity, equity and inclusion initiatives, executed with excellence, patient focus, safety, quality and compliance; and
- financial and operating performance.

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

Compensation Risk Oversight

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. In addition, we have established, and the PC&C committee endorses, several controls to address and mitigate compensation-related risk, such as maintaining an anti-hedging and anti-pledging policy, stock ownership guidelines for our CEO and other executive officers, good standing requirements under cash incentive programs for eligibility to receive an award, and a clawback policy to recover cash and equity incentive awards in the event that incentive plan award decisions are based on financial results that are subsequently restated.

We engaged our outside compensation consultant, Pay Governance, to assist the PC&C committee in updating its evaluation of our policies and practices to determine if they create excessive risk in our compensation programs. Given our transition over the last several years to being a global, commercial organization, this updated evaluation included an assessment of the potential

risks associated with field-based incentive compensation and commercial-related goals and targets, as well as other changes to our compensation policies and practices. In conducting its independent assessment, Pay Governance reviewed all of our incentive compensation and other programs and determined there were no compensation policies or practices that encourage excessive or inappropriate risk-taking. Pay Governance discussed the detailed findings of this review with management in February 2023, and management provided the results of the review to the PC&C committee. As a result, the PC&C committee concluded that our compensation policies and practices are not reasonably likely to have a material adverse effect on the company. The PC&C committee will continue to evaluate on an ongoing basis the potential risks associated with our compensation policies and practices with input from its compensation consultant and internal and external counsel.

Employment Arrangements

Our executive officers are at-will employees and do not have employment agreements, with the exception of our current CEO, Dr. Greenstreet, who entered into an employment agreement, or the Greenstreet Employment Agreement, with the company on December 14, 2021. Each executive officer has signed a nondisclosure, non-competition and assignment of intellectual property 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 at least 12 months after termination of employment.

Pursuant to the terms of the Greenstreet Employment Agreement, Dr. Greenstreet received a one-time cash award of \$250,000 on January 1, 2022 to facilitate her transition to the Boston area in connection with her serving as CEO of the Company. In the event Dr. Greenstreet terminates her employment with the company without Good Reason or she is terminated by the company for Cause, as such terms are defined in the Greenstreet Employment Agreement, within the following 24 months, Dr. Greenstreet will be required to repay all or a portion of the gross amount of the award. Effective January 1, 2022, the company will no longer provide any housing or travel relocation benefits to Dr. Greenstreet. The Greenstreet Employment Agreement has an initial term through December 31, 2023 and will automatically renew for one year periods unless written notice to terminate is given by either party.

Potential Payments Upon Termination or Change-in-Control

Certain executives, including our NEOs, may be entitled to severance and/or change in control protections pursuant to their employment agreement, in the case of Dr. Greenstreet, or change in control agreement, in the case of each of our other NEOs, the terms of which are described below under Executive Compensation—Potential Payments upon Termination or Change-in-Control. We provide these severance and change in control arrangements because we believe that, in a competitive market for talent, severance arrangements are necessary to attract and retain high quality executives. In addition, the change in control benefit allows and incentivizes executives to maintain their focus on our business during a period when they otherwise might be distracted.

CEO Employment Agreement

Under the Greenstreet Employment Agreement, if Dr. Greenstreet's employment is terminated by the company without Cause or by Dr. Greenstreet for Good Reason, as such terms are defined in the Greenstreet Employment Agreement, prior to a CIC, she will not receive any cash

severance, her outstanding unvested equity awards will continue to vest until the second anniversary of the termination date, and her outstanding stock options shall remain exercisable until the earlier of the second anniversary of the termination date and the original expiration dates of such options; provided that in the event that a CIC occurs on or before the second anniversary of the termination date, her then-outstanding stock options will be treated in the same manner as the then-outstanding stock options held by continuing members of the company's executive leadership team.

In addition, under the Greenstreet Employment Agreement, if Dr. Greenstreet's employment is terminated by the company without Cause or by Dr. Greenstreet for Good Reason within 18 months following a CIC, she will be entitled to receive (i) a lump sum cash payment equal to two times, the sum of: (A) her annual base salary in effect immediately prior to termination (or prior to the CIC, if higher) and (B) her target bonus for the fiscal year in which the CIC occurred; and (ii) if she was participating in our group health plan immediately prior to such termination and elects continuation coverage under COBRA, a monthly cash payment for 24 months (or the expiration of the COBRA continuation period, if earlier) equal to the monthly employer contribution we would have paid to provide the executive with health insurance if she had remained employed. In addition, following a CIC and qualifying termination of employment, all of her outstanding unvested stock options and other stock-based awards shall immediately accelerate and become fully exercisable or nonforfeitable.

If any payment and benefits to be paid or provided to Dr. Greenstreet, whether pursuant to the terms of her employment agreement or otherwise, would be subject to "golden parachute" excise taxes under the Internal Revenue Code of 1986, as amended, or the Code, the payments and benefits will be reduced to the extent necessary to avoid such excise taxes, but only if such a reduction of pay or benefits would result in a greater after-tax benefit to her.

Change in Control Agreements

We have entered into an individual CIC agreement with each of our executive officers, including all NEOs, with the exception of our CEO. The CIC agreements entitle each executive officer to certain benefits in the event of certain terminations of employment within 12 months following a CIC (as defined in the CIC agreement). Pursuant to each CIC agreement, if an executive officer is terminated by us without Cause (as defined in the CIC agreement) or if an executive officer terminates employment for Good Reason (as defined in the CIC agreement), in either case, within 12 months following a CIC, such executive officer will be entitled to receive (i) a lump sum cash payment equal to one and a half times the sum of: (A) such executive officer's annual base salary in effect immediately prior to termination (or prior to the CIC, if higher) and (B) such executive officer's target bonus for the fiscal year in which the CIC occurred; and (ii) if the executive officer was participating in our group health plan immediately prior to such termination and elects continuation coverage under COBRA, a monthly cash payment for 18 months (or the expiration of the COBRA continuation period, if earlier) equal to the monthly employer contribution we would have paid to provide the executive with health insurance if such executive officer remained employed. In addition, following a CIC and qualifying termination of employment, all of an executive officer's outstanding unvested stock options and other stock-based awards shall immediately accelerate and become fully exercisable or nonforfeitable.

If any payment and benefits to be paid or provided to an executive officer, whether pursuant to the terms of a CIC Agreement, employment agreement or otherwise, would be subject to "golden

parachute” excise taxes under the Code, the payments and benefits will be reduced to the extent necessary to avoid such excise taxes, but only if such a reduction of pay or benefits would result in a greater after-tax benefit to the executive.

Each CIC Agreement will terminate upon the earlier of (i) an executive officer’s termination of employment with us for any reason prior to a CIC, (ii) an executive officer’s termination of employment with us after a CIC for Cause or without Good Reason or (iii) the date that is 12 months after a CIC, if the executive officer is still employed by the company.

There are no other agreements with our NEOs that provide for separation pay in the event of a termination of employment.

Stock Ownership Guidelines

We have stock ownership guidelines for our directors and executive officers. Under these guidelines, directors (other than our CEO) are required to hold shares of our stock that have a minimum value of three times the annual cash retainer (currently \$165,000), our CEO is required to hold shares of our stock that have a minimum value of six times her base salary and all of our other executive officers are required to hold shares of our stock that have a minimum value of three times their base salary. Each current non-employee director and all executive officers (other than the CEO) have five years from October 5, 2020 to achieve the new guidelines and newly appointed/elected persons have five years from the date of appointment/election to achieve the applicable guideline.

The following forms of equity count toward the ownership guideline: shares owned outright; unvested restricted stock, restricted stock units, or RSUs (whether or not performance-based) and deferred stock units to be settled in shares; and vested but unexercised “in-the-money” stock options. The company reviews compliance with these guidelines annually and all of our directors (including our CEO) and our executive officers are currently in compliance. Based on stockholder feedback, our PC&C committee is evaluating our ownership guidelines, particularly the forms of equity that count towards the guideline, to determine if any changes are warranted at this time. Although our PC&C committee expected to update these guidelines before the 2023 annual meeting, it determined that it would be appropriate to further deliberate and revise the guidelines after the transition to its new compensation consultant, Pay Governance, and after receiving any subsequent feedback from stockholders. Our PC&C committee intends to finalize any updates to these guidelines during fiscal 2023.

Anti-Hedging and Anti-Pledging Policy

Our insider trading policy expressly prohibits all of our employees, including our NEOs, as well as our directors, from engaging in speculative transactions in our stock, including short sales, puts/calls, hedging transactions and margin accounts or pledges. Waivers of these prohibitions allowing for pre-clearance/pre-approval under certain situations are also not permitted under the policy.

Clawback Policy

We have a clawback policy that covers all employees at the level of vice president and above, including our executive officers. The policy provides that covered executives who engage in misconduct, including embezzlement, fraud, willful misconduct or breach of fiduciary duty, resulting

in a financial restatement shall be required, upon the determination of our board of directors, to repay the company any excess proceeds from cash and equity incentive compensation earned during the covered period prior to such financial restatement. Any clawback would be in addition to any other relief available to the company as a result of such misconduct. We are planning to adopt an updated clawback policy that will be in compliance with SEC rules and the new Nasdaq rules (once such rules become effective).

Role of the Compensation Consultant

Pursuant to its charter, our PC&C committee has the authority to select and retain independent advisors and counsel to assist it with carrying out its duties and responsibilities, and we have provided appropriate funding to the PC&C committee to do so. The PC&C committee previously exercised this authority and engaged Aon's Human Capital Solutions practice (formerly Radford), a division of Aon plc, or Aon, as an independent compensation consultant. During 2022, our PC&C committee determined that it would be appropriate to review the retention of Aon as its adviser. Our PC&C committee made this determination after consideration of the company's continued evolution as a global, commercialized biopharmaceutical company, its strategic goal of becoming a top-tier global biotech company, and the departure from Aon of the long-term representative who provided primary advice to the committee. Our PC&C committee, with management's assistance, conducted a review of potential advisers and, after deliberation determined that it would be appropriate to change advisers and retain the services of Pay Governance as its independent compensation consultant, effective July 2022.

During the first half of 2022, Aon served as an advisor to our PC&C committee on topics primarily related to our total compensation program, our equity compensation program, and director and executive compensation. Aon reported directly to our PC&C committee chair on the matters on which it had been retained. For 2022, we paid Aon approximately \$193,000 for advice and services provided to the PC&C committee in its capacity as an independent compensation consultant. During the second half of fiscal 2022, Pay Governance served as the advisor to our PC&C committee on topics primarily related to our total rewards practices review, our long-term incentive compensation program and our future incentive compensation program strategy, director and executive compensation, and peer group selection and evaluation. For 2022, we paid Pay Governance approximately \$236,000 for advice and services provided to the PC&C committee. Pay Governance did not provide any services to the company in addition to services that it provided to our PC&C committee.

Our PC&C committee regularly reviews the services provided by its outside consultants and believes that both Aon and Pay Governance are independent from the company in providing executive compensation consulting services. Our PC&C committee has assessed the independence of Aon and Pay Governance consistent with Nasdaq Global Select Market listing standards and SEC rules and has concluded that the engagement of Aon and Pay Governance does not raise any conflicts of interest. Our PC&C committee continues to monitor the independence of its compensation consultant on a periodic basis.

In addition to their services with respect to compensation for the NEOs, directors and other matters, described above, in 2022, Aon provided compensation consulting services to our management with respect to the compensation of employees outside the United States, as well as assistance with certain proxy-related matters. For 2022, we paid Aon approximately \$375,600 for

advice and services that were not related to executive compensation, director compensation and the related matters specified above, including for international benefit brokerage services and consulting, and compensation surveys. The decision to use Aon for such additional advice and services was made by management. While the PC&C committee does not pre-approve these non-executive compensation services, it reviewed Aon's internal guidelines and practices designed to guard against conflicts to ensure the objectivity of advice, as well as the services provided to ensure transparency. The PC&C committee believes that the advice and services unrelated to executive compensation, director compensation and related matters that Aon provided to the company in 2022 did not impact advice and services that Aon provided to the PC&C committee on such matters or the independence of Aon with respect to management.

Tax and Accounting Considerations

Section 162(m) of the Code generally places a \$1 million limit on the amount of compensation a company can deduct in any one year for certain executive officers and certain other individuals, unless the compensation qualifies for certain limited exceptions (including the "performance-based compensation" exception) for certain compensation paid pursuant to a written binding contract in effect on November 2, 2017 and not materially modified on or after such date. While the PC&C committee considers tax deductibility as one factor in determining executive compensation, the PC&C committee also looks at other factors in making its decisions, as noted above, and retains the flexibility to award compensation that it determines to be consistent with the goals of our executive compensation program even if the awards are not deductible by us for tax purposes. The PC&C committee believes that stockholder interests are best served if its discretion and flexibility in awarding compensation is not restricted, even though some compensation awards may result in non-deductible compensation expenses.

People, Culture and Compensation Committee Report on Executive Compensation

The members of our people, culture and compensation committee have 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 people, culture and 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, 2022, which was filed with the SEC on February 23, 2023.

This people, culture and compensation committee report shall not be deemed to be incorporated by reference into any filing made by the company under the Securities Act of 1933 or the Exchange Act, notwithstanding any general statement contained in any such filing incorporating this Proxy Statement by reference, except to the extent the company incorporates such Report by specific reference.

By the people, culture and compensation committee of the board of directors of Alnylam,

Colleen F. Reitan, Chair
Olivier Brandicourt, M.D.
Amy W. Schulman

Executive Compensation

The following table sets forth the total compensation paid or accrued for the years ended December 31, 2022, 2021 and 2020 to our NEOs.

Summary Compensation Table

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards (\$)	Option Awards \$(5)	Non-Equity Incentive Plan Compensation \$(6)	All Other Compensation \$(7)	Total (\$)
Yvonne L. Greenstreet, MBChB, MBA (1) <i>Chief Executive Officer (principal executive officer)</i>	2022	850,000	—	—	(8) 2,498,790	977,500	262,520	4,588,810
	2021	619,100	—	—	(8) 7,341,000(10)	429,120	186,000	8,575,220
	2020	621,500	—	—	(8) 1,798,843	434,736	178,922	3,034,001
Akshay K. Vaishnav, M.D., Ph.D. (2) <i>President</i>	2022	725,000	—	—	(8) 2,348,850	500,250	17,520	3,591,620
	2021	632,200	—	—	(8) 4,339,785(10)	438,150	14,900	5,425,035
	2020	634,600	—	—	(8) 1,798,843	443,880	14,903	2,892,226
Jeffrey V. Poulton <i>Executive Vice President, Chief Financial Officer (principal financial officer)</i>	2022	604,500	—	—	(8) 1,449,280	350,750	17,100	2,421,630
	2021	569,200	—	—	(8) 1,884,125	330,630	14,220	2,798,175
	2020	556,800	—	—	(8) 1,598,986	322,560	14,622	2,492,968
Pushkal P. Garg, M.D. (3) <i>Chief Medical Officer and Executive Vice President, Development & Medical Affairs</i>	2022	625,000	—	—	(8) 1,899,100	359,380	17,100	2,900,580
	2021	568,900	—	—	(8) 3,084,650	380,220	14,220	4,047,990
	2020	553,200	—	—	(8) 1,698,950	321,360	14,240	2,587,750
Indrani L. Franchini, J.D. (4) <i>Executive Vice President, Chief Legal Officer and Secretary</i>	2022	535,400	—	2,250,040(9)	2,247,940	333,500	41,340	5,408,220

- (1) Dr. Greenstreet has served as our CEO since January 1, 2022. She previously served as our president and chief operating officer since October 2020, and was our chief operating officer since March 2019. Prior to that time, she was our executive vice president, chief operating officer from September 2016 to March 2019.
- (2) Dr. Vaishnav was appointed President effective January 1, 2022.
- (3) Dr. Garg was appointed executive vice president, chief medical officer in January 2022.
- (4) Ms. Franchini joined Alnylam as executive vice president, chief legal officer and secretary in January 2022. The amount reported as salary for 2022 represents the total salary earned by Ms. Franchini during 2022 and is based upon an annual salary of \$580,000, pro-rated to reflect her partial year of employment. Ms. Franchini was eligible to participate in the 2022 annual cash incentive program. In addition, Ms. Franchini received a stock award upon commencement of her employment. Ms. Franchini was eligible to receive an annual stock award for 2022, which was granted in February 2023 and therefore, is not reflected in the table above.
- (5) The amounts reported in the Option Awards column represent the aggregate grant date fair value for the fiscal years ended December 31, 2022, 2021, and 2020 of grants of time-based stock options to each of the NEOs, calculated in accordance with the provisions of FASB ASC Topic 718. The assumptions we used in calculating these amounts are included in Note 12 of our audited consolidated financial statements for the year ended December 31, 2022 included in our Annual Report on Form 10-K, filed with the SEC on February 23, 2023. To see the value actually realized by the NEO from stock option exercises in 2022, see the 2022 Option Exercises and Stock Vested table appearing below.

Options granted in February 2020 for 2019 performance are reflected in the Summary Compensation Table above for 2020. Options granted in February 2021 for 2020 performance are reflected in the Summary Compensation Table above for 2021. Options granted in February 2022 for 2021 performance are reflected in the Summary Compensation Table above for 2022. Options granted in February 2023 for 2022 performance are not reflected in the Summary Compensation Table above for 2022 and will be included as 2023 compensation in the 2024 proxy statement.

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

- (6) The amounts reported in the Non-Equity Incentive Plan Compensation column reflect the annual cash incentive bonus earned by the NEOs for each respective year. The annual cash incentive bonuses were paid in the first quarter of the calendar year following the year to which the cash bonus relates.
- (7) The amounts reported in the All Other Compensation column reflect, for each NEO, the sum of (i) the dollar value of life insurance premiums we paid; (ii) the amount we contributed to the 401(k) plan; 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 Insurance Premiums Paid by Alnylam (\$)	Dollar Value of Contribution by Alnylam to the Executive's Account Under 401(k) Plan (\$)	Incremental Cost to Alnylam of All Perquisites and Other Personal Benefits (\$)
Yvonne L. Greenstreet, MBChB, MBA	2022	7,520	5,000	250,000(a)
	2021	4,900	5,000	176,100(a)
	2020	5,357	7,000	166,565(a)
Akshay K. Vaishnav, M.D., Ph.D.	2022	7,520	10,000	—
	2021	4,900	10,000	—
	2020	5,386	11,000	111(b)
Jeffrey V. Poulton	2022	4,900	12,200	—
	2021	2,620	11,600	—
	2020	2,713	11,400	—
Pushkal P. Garg, M.D.	2022	4,900	12,200	—
	2021	2,620	11,600	—
	2020	2,840	11,400	—
Indrani L. Franchini, J.D.	2022	2,420	9,520	29,400(c)

- (a) For 2022, pursuant to the terms of the Greenstreet Employment Agreement, Dr. Greenstreet received a one-time award of \$250,000 on January 1, 2022 to facilitate her transition to the Boston area in connection with her serving as CEO of the company. For 2021, represents amounts paid to Dr. Greenstreet for relocation assistance pursuant to her letter of employment, including \$98,000 in reimbursement for relocation expenses and \$78,100 for a gross-up related to taxable relocation benefits. For 2020, amount represents \$111 for an employee fitness benefit, paid by the company, \$117,600 in reimbursement for relocation expenses and \$48,854 for a gross-up related to taxable relocation benefits.
- (b) Represents amounts for an employee fitness benefit, paid by the company.
- (c) Represents amounts paid for commuting and lodging expenses for Ms. Franchini in connection with travel to our Cambridge office.
- (8) Amounts represent the aggregate grant date fair value for grants of PSUs, calculated in accordance with the provisions of FASB ASC Topic 718. In accordance with SEC rules, these amounts are calculated based on the probable outcome of the performance conditions as of the grant date. For PSUs granted during 2022 for 2021 performance, we determined that, as of the date of grant, it was not probable, as defined under applicable accounting guidance, that any of the performance conditions would be achieved and assigned a grant date fair value of \$0. If we had determined that, as of the date of grant, it was probable that 100% of the performance conditions would be achieved, we would have assigned a grant date fair value of \$7,500,030 for Dr. Greenstreet, \$2,350,080 for Dr. Vaishnav, \$1,450,070 for Mr. Poulton and \$1,900,000 for Dr. Garg. Ms. Franchini joined Alnylam in January 2022 and did not receive a PSU award in 2022 for 2021 performance. For PSUs granted during 2021 for 2020 performance, we determined that, as of the date of grant, it was not probable, as defined under applicable accounting guidance, that any of the performance conditions would be achieved and assigned a grant date fair value of \$0. If we had determined that, as of the date of grant, it was probable that 100% of the performance conditions would be achieved, we would have assigned a grant date fair value of \$2,340,090 for Dr. Greenstreet, \$2,340,090 for Dr. Vaishnav, \$1,885,020 for Mr. Poulton and \$1,885,020 for Dr. Garg. For PSUs granted during 2020, which included awards granted in February 2020 for 2019 performance and a one-time strategic award granted in October 2020 to all members of our executive leadership team, including the NEOs (but excluding the CEO), we determined that, as of the dates of grant, it was not probable, as defined under applicable accounting guidance, that any of the performance conditions would be achieved and assigned a grant date fair value of \$0. If we had determined that, as of the dates of grant, it was probable that 100% of the performance conditions would be achieved, we would have assigned a grant date fair value of \$2,403,873 for Dr. Greenstreet, \$2,416,668 for Dr. Vaishnav, \$2,137,739 for Mr. Poulton and \$2,135,703 for Dr. Garg.
- (9) Ms. Franchini received an RSU award upon commencement of her employment in January 2022. The amounts reported represent the aggregate grant date fair value of such award, calculated in accordance with the provisions of FASB ASC Topic 718.

- (10) Includes stock option awards made to each of Dr. Greenstreet and Dr. Vaishnaw on December 31, 2021 in connection with promotions that took effect as of January 1, 2022.

The following table sets forth information concerning each grant of an award made to a NEO during the fiscal year ended December 31, 2022 under any plan, contract, authorization or arrangement pursuant to which cash, securities, similar instruments or other property may be received:

2022 Grants of Plan-Based Awards(1)

Name	Date of Grant	Estimated Future Payouts Under Non-Equity Incentive Plan Awards (2)			Estimated Future Payouts Under Equity Incentive Plan Awards (3)			All Other Option Awards: Number of Securities Underlying Options (#)	Exercise Price of Option Awards (\$/Share)	Grant Date Fair Value of Stock and Option Award Grants \$(4)
		Threshold (\$)	Target (\$)	Maximum (\$)	Threshold (#)	Target (#)	Maximum (#)			
Yvonne L. Greenstreet, MBChB, MBA	— 2/23/2022(5) 2/23/2022(6)	425,000	850,000	1,275,000	—	50,858	50,858	31,747	147.47	2,498,790
Akshay K. Vaishnaw, M.D., Ph.D.	— 2/23/2022(5) 2/23/2022(6)	217,500	435,000	652,500	—	15,936	15,936	29,842	147.47	2,348,850
Jeffrey V. Poulton	— 2/23/2022(5) 2/23/2022(6)	152,500	305,000	457,500	—	9,833	9,833	18,413	147.47	1,449,280
Pushkal P. Garg, M.D.	— 2/23/2022(5) 2/23/2022(6)	156,250	312,500	468,750	—	12,884	12,884	24,128	147.47	1,899,100
Indrani L. Franchini, J.D.	— 2/1/2022(7) 2/1/2022(8)	145,000	290,000	435,000				29,182 15,525	144.93 144.93	2,247,940 2,250,040

- (1) As described in the "Compensation Discussion and Analysis" and under the Summary Compensation Table, the equity awards for each of 2020, 2021 and 2022 annual performance were granted in the first quarter of the following year.
- (2) The amounts shown in the threshold, target and maximum columns reflect the minimum, target and maximum amounts payable, respectively, under our AIP, which is described above in the "Compensation Discussion and Analysis" under the heading "Short-Term Incentives—2022 Annual Incentive Program." The actual amounts paid to each NEO can be found above in the Summary Compensation Table under the column entitled Non-Equity Incentive Plan Compensation.
- (3) The amounts shown in the threshold, target and maximum columns reflect the minimum, target and maximum potential future payout range for equity awards granted with performance-based vesting milestones.
- (4) The grant date fair value is computed in accordance with FASB ASC Topic 718 and represents the value of awards granted during the year. The grant date fair value for PSUs, in accordance with SEC rules, is calculated based on the probable outcome of the performance conditions as of the grant date. For PSUs granted during 2022 we determined that, as of the date of grant, it was not probable, as defined under applicable accounting guidance, that any of the performance conditions would be achieved and assigned a grant date fair value of \$0. The grant date fair value for stock option awards is calculated based on the assumptions included in Note 12 of our audited consolidated financial statements for the year ended December 31, 2022 included in our Annual Report on Form 10-K, filed with the SEC on February 23, 2023. The amounts reported reflect our accounting expense, excluding the effect of estimated forfeitures, and may not represent the amounts our NEOs will actually realize from the awards. Whether, and to what extent, a NEO realizes value will depend on our actual operating performance, stock price fluctuations and the NEO's continued employment.
- (5) Represents the portion of the annual equity award for 2022 performance in the form of time-based stock option awards granted during 2022. The time-based portion of the option awards vest as to 25% of the shares on the first anniversary of the grant date and as to the remaining shares ratably at the end of each three-month period thereafter over the following thirty-six months, assuming the NEO continues to be employed with us through each vesting date.

- (6) Represents the portion of the annual equity award for 2022 performance in the form of PSUs granted during 2022. The PSUs granted in February 2022 were split equally into four performance-based vesting conditions. As of the grant date, none of the four vesting conditions were considered probable, as defined under applicable accounting guidance.
- (7) Represents the time-based stock option award Ms. Franchini received upon commencement of her employment. The option award vests as to 25% of the shares on the first anniversary of the grant date and as to the remaining shares ratably at the end of each three-month period thereafter over the following thirty-six months, assuming Ms. Franchini continues to be employed with us through each vesting date.
- (8) Represents the RSU award Ms. Franchini received upon commencement of her employment, as described in further detail in Note 9 to the Summary Compensation Table above.

Information Relating to Equity Awards and Holdings

The following table sets forth information concerning outstanding equity awards held by each of our NEOs on December 31, 2022.

Outstanding Equity Awards at Fiscal Year-End for 2022

Name	Grant Date	Option Awards(1)				Stock Awards(2)			
		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested (\$)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested (\$)
Yvonne L. Greenstreet, MBChB, MBA	12/20/2016	650	—	42.22	12/20/2026				
	3/1/2018	25,000	—	119.13	03/01/2028				
	3/1/2018	25,000(7)	—	119.13	03/01/2028				
	2/28/2019	30,468	2,032	85.00	02/28/2029				
	2/26/2020	18,990	8,633	118.05	02/25/2030				
	2/26/2020	—	—	—	—			5,082(8)	1,207,737
	2/24/2021	12,600	16,200	151.59	02/23/2031				
	2/24/2021	—	—	—	—			11,578(9)	2,751,512
	12/31/2021	13,988	41,961	169.58	12/30/2031				
	2/23/2022	—	31,747	147.47	02/22/2032				
	2/23/2022	—	—	—	—			50,858(10)	12,086,404
Akshay K. Vaishnav, M.D., Ph.D.	12/18/2013	30,913	—	63.00	12/18/2023				
	12/18/2013	10,832	—	63.00	12/18/2023				
	5/1/2015	35,125(4)	—	96.45	12/17/2024				
	5/1/2015	35,125(5)	—	96.45	12/17/2024				
	12/18/2015	28,876	—	88.95	12/18/2025				
	12/18/2015	30,000(6)	—	88.95	12/18/2025				
	2/23/2016	10,000(3)	—	94.14	02/23/2026				
	12/20/2016	—	—	42.22	12/20/2026				
	3/1/2018	25,000	—	119.13	03/01/2028				
	3/1/2018	25,000(7)	—	119.13	03/01/2028				
	2/28/2019	30,468	2,032	85.00	02/28/2029				
	02/26/2020	18,990	8,633	118.05	02/25/2030				
	02/26/2020	—	—	—	—			5,082(8)	1,207,737
	02/24/2021	12,600	16,200	151.59	02/23/2031				
	02/24/2021	—	—	—	—			11,578(9)	2,751,512
	12/31/2021	5,595	16,785	169.58	12/30/2031				
	02/23/2022	—	29,842	147.47	02/22/2032				
	02/23/2022	—	—	—	—			15,936(10)	3,787,190

Name	Grant Date	Option Awards(1)				Stock Awards(2)		
		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price (\$)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested (\$)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)
Jeffrey V. Poulton	08/01/2019	101,562	23,438	75.36	08/01/2029			
	02/26/2020	16,881	7,673	118.05	02/25/2030			
	02/26/2020							4,518(8)
	02/24/2021	10,150	13,050	151.59	02/23/2031			2,216,324
	02/23/2022	—	18,413	147.47	02/22/2032			9,833(10)
Pushkal P. Garg, M.D.	05/01/2015	2,500(4)	—	96.45	12/17/2024			
	05/01/2015	2,500(5)	—	96.45	12/17/2024			
	12/18/2015	23,876	—	88.95	12/18/2025			
	12/18/2015	25,000(6)	—	88.95	12/18/2025			
	12/20/2016	5,445	—	42.22	12/20/2026			
	03/01/2018	13,750	—	119.13	03/01/2028			
	03/01/2018	13,750(7)	—	119.13	03/01/2028			
	02/28/2019	23,437	1,563	85.00	02/28/2029			
	02/26/2020	17,936	8,153	118.05	02/25/2030			
	02/26/2020							4,518(8)
	02/24/2021	10,150	13,050	151.59	02/23/2031			2,216,324
	02/24/2021							9,326(9)
	12/31/2021	3,357	10,071	169.58	12/30/2031			
Indrani L. Franchini, J.D.	02/23/2022	—	24,128	147.47	02/22/2032			12,884(10)
	02/23/2022							3,061,883
	02/01/2022	—	29,182	147.47	02/22/2032			
	02/01/2022					15,525(11)	3,689,516	

- (1) All stock option awards were granted with a ten-year term and typically 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, unless otherwise noted, assuming the NEO continues to be employed with us through each vesting date.
- (2) The market value of PSUs or RSUs that have not vested is based on the number of unvested PSUs or RSUs outstanding multiplied by \$237.65 per share (the closing price of our common stock on the Nasdaq Global Select Market on the last trading day of 2022).
- (3) These options were granted in recognition of ten years of service by the employee and were fully vested on the date of grant.
- (4) On December 17, 2014, our PC&C committee approved the grant of the 2014 Contingent Option Awards to members of our management team, including our NEOs, in connection with their performance and compensation review for 2014. These 2014 Contingent Option Awards were approved subject to and contingent upon approval by our stockholders at the 2015 annual meeting of the Amended and Restated 2009 Stock Incentive Plan, which approval was obtained on May 1, 2015. These options represent the half of the 2014 Contingent Option Award subject to time-based vesting.
- (5) These options represent the half of the 2014 Contingent Option Award described in Note 4 above subject to performance-based vesting. These options vested in three equal installments upon the achievement of each of three specific clinical development or regulatory events. One-third of these options vested in February 2016 based upon the completion of patient enrollment in our APOLLO Phase 3 study, one-third vested in July 2017 based on the initiation of the ATLAS Phase 3 program for fitusiran and one-third of these options vested in August 2018 based on FDA approval of ONPATTRO.
- (6) These options were granted on December 18, 2015 and vested in four equal installments upon the achievement of each of four specific clinical development or commercial events. One-fourth of these options vested in November 2017 based upon the start of our fourth Phase 3 clinical trial, one-fourth of these options vested in August 2018 based upon the completion of patient enrollment in our third Phase 3 study, one-fourth of these options vested in September 2018 based on the positive Phase 3

clinical data in our second Phase 3 program and one-fourth of these options vested in August 2019 based upon the achievement of the first \$100 million in cumulative gross product sales.

- (7) These options vested in three equal installments upon the achievement of each of three specific clinical development, regulatory or commercial events. One-third of these options vested in November 2019 based upon achievement of human POC for an investigational RNAi therapeutic utilizing our ESC+GalNAc conjugate platform, one-third of these options vested in December 2019 based upon the filing by our partner of an NDA with the FDA for inclisiran, and one-third of these options vested in February 2021 based upon achievement of the first \$500 million in cumulative net product revenues.
- (8) These PSU awards were granted on February 26, 2020 in connection with 2019 performance and will vest in three equal installments upon the later of one year from the date of grant and the achievement of each of three specific clinical development, regulatory or commercial events, assuming the NEO continues to be employed with us through each vesting date. One-third of these PSUs vested in April 2021 based upon achievement of positive results from the HELIOS-A Phase 3 study of vutrisiran and one-third vested in August 2022 based upon achievement of positive efficacy and safety data from the APOLLO-B Phase 3 study of patisiran. The amount reported in this table reflects the final one-third of these PSUs that remains subject to achievement of a specified performance target. For a description of the performance target, please see the description of the 2019 awards in the section of the CD&A entitled "Annual Equity Awards."
- (9) These PSU awards were granted on February 24, 2021 in connection with 2020 performance and will vest in four equal installments upon the later of one year from the date of grant and the achievement of each of four specific clinical development, regulatory or commercial events, assuming the NEO continues to be employed with us through each vesting date. One-quarter of these PSUs vested in August 2022 based upon achievement of positive efficacy and safety data from the APOLLO-B Phase 3 study of patisiran. The amount reported in this table reflects the remaining three-quarters of these PSUs that remain subject to achievement of specified performance targets. For a description of these performance targets, please see the description of the 2020 awards in the section of the CD&A entitled "Annual Equity Awards."
- (10) These PSU awards were granted on February 23, 2022 in connection with 2021 performance and will vest in four equal installments upon the later of one year from the date of grant and the achievement of each of four specific clinical development, regulatory or commercial events, assuming the NEO continues to be employed with us through each vesting date. For a description of these performance targets, please see the description of the 2021 awards in the section of the CD&A entitled "Annual Equity Awards."
- (11) Represents the RSU award Ms. Franchini received upon commencement of her employment, which vest ratably on each of the first, second and third anniversaries of the grant date, subject to her continued employment.

The following table sets forth information concerning the exercise of stock options and the vesting of PSUs during 2022 for each of our NEOs.

2022 Option Exercises and Stock Vested

Name	Option Awards		Stock Awards	
	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise (\$)(1)	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting (\$)
Yvonne L. Greenstreet, MBChB, MBA	—	—	13,095	2,776,271
Akshay K. Vaishnaw, M.D., Ph.D.	5,079	848,930	13,183	2,794,928
Jeffrey V. Poulton	—	—	11,325	2,401,013
Pushkal P. Garg, M.D.	—	—	11,311	2,398,045
Indrani L. Franchini, J.D.	—	—	—	—

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

Potential Payments Upon Termination or Change-in-Control (CIC)

CEO Employment Agreement

Under the Greenstreet Employment Agreement, if Dr. Greenstreet's employment is terminated by the company without Cause or by Dr. Greenstreet for Good Reason prior to a CIC as such terms are defined in the Greenstreet Employment Agreement, she will not receive any cash severance, her outstanding unvested equity awards will continue to vest until the second anniversary of the termination date, and her outstanding stock options shall remain exercisable until the earlier of the second anniversary of the termination date and the original expiration dates of such options; provided that in the event that a CIC occurs on or before the second anniversary of the termination date, her then-outstanding stock options will be treated in the same manner as the then-outstanding stock options held by continuing members of our executive leadership team. The Greenstreet Employment Agreement has an initial term through December 31, 2023 and will automatically renew for one year periods unless written notice to terminate is given by either party. Assuming Dr. Greenstreet's employment had been terminated without Cause or for Good Reason on December 31, 2022, and not in connection with a CIC, the estimated value of continued vesting of her equity awards for an additional two years is \$6,454,410, based on \$237.65 per share (the closing price of our common stock on the Nasdaq Global Select Market on the last trading day of 2022).

Change in Control Arrangements

We have entered into an individual CIC agreement with each member of our executive leadership team, and all of our other current NEOs, with the exception of our CEO, Dr. Greenstreet, with whom we entered into the Greenstreet Employment Agreement in December 2021 as described above. The CIC agreements and Greenstreet Employment Agreement, respectively, entitle each executive to certain benefits in the event of certain terminations of employment with us within a specified period following a CIC. Pursuant to each CIC Agreement and the Greenstreet Employment Agreement, if an executive is terminated by us without Cause (as defined in the applicable agreement) or if an executive terminates his or her employment for Good Reason (as defined in the applicable agreement), in either case, within 12 months following a CIC (or, in the case of our CEO, 18 months), such executive will be entitled to receive (i) a lump sum cash payment equal to one and a half times, or in the case of our CEO, two times, the sum of: (A) his or her annual base salary in effect immediately prior to termination (or prior to the CIC, if higher) and (B) his or her target bonus for the fiscal year in which the CIC occurred; and (ii) if the executive was participating in our group health plan immediately prior to such termination and elects continuation coverage under COBRA, a monthly cash payment for 18 months (or, in the case of our CEO, 24 months) (or the expiration of the COBRA continuation period, if earlier) equal to the monthly employer contribution we would have paid to provide the executive with health insurance if he or she had remained employed. In addition, in the event of a CIC and a qualifying termination of employment, all of an executive's outstanding unvested stock options and other stock-based awards shall immediately accelerate and become fully exercisable or nonforfeitable. Receipt of these payments and benefits is subject to execution of a general release of claims in favor of us.

If any payment and benefits to be paid or provided to an executive, whether pursuant to the terms of a CIC Agreement, Greenstreet's Employment Agreement, or otherwise, would be subject to "golden parachute" excise taxes under the Code, the payments and benefits will be reduced to the

extent necessary to avoid such excise taxes, but only if such a reduction of pay or benefits would result in a greater after-tax benefit to the executive.

Each CIC Agreement will terminate upon the earlier of (i) an executive's termination of employment with us for any reason prior to a CIC, (ii) an executive's termination of employment with us after a CIC for Cause or without Good Reason or (iii) the date that is 12 months after a CIC, if the executive is still employed by us.

Accordingly, the following table sets forth potential payments and benefits payable assuming a termination date of December 31, 2022 for our NEOs in connection with a CIC. Other than the CIC agreements with the members of our management board and the employment agreement with our CEO, each as described above, we do not maintain employment agreements with any of our executive officers pursuant to which they would become eligible for potential severance payments upon termination or upon a change in control absent a corresponding termination.

Name(1)	Cash Severance Benefits\$(2)	Continuation of Medical, Dental and Vision Benefits\$(3)	Accelerated Vesting of Stock Options\$(4)	Accelerated Vesting of Restricted Stock Awards\$(5)	Total Amount (\$)
Yvonne L. Greenstreet, MBChB	2,550,000	41,650	8,456,090	16,045,650	27,093,390
Akshay K. Vaishnaw, M.D., Ph.D.	1,740,000	41,470	6,570,570	7,746,440	16,098,480
Jeffrey V. Poulton	1,372,500	41,650	7,505,010	5,626,840	14,546,000
Pushkal P. Garg, M.D.	1,406,250	41,650	5,198,170	6,351,910	12,997,980
Indrani L. Franchini, J.D.	1,305,000	41,650	2,631,630	3,689,520	7,667,800

- (1) We have entered into an individual CIC agreement with each member of our management board and all of our other NEOs, with the exception of Dr. Greenstreet with whom we entered into an employment agreement in December 2021 that includes potential payments and benefits payable upon termination or upon a CIC.
- (2) The amount represents 150% or, in the case of our CEO, 200%, of the sum of his or her (i) base salary for 2022 and (ii) target bonus for 2022.
- (3) The amount is calculated as the monthly contribution we would pay to provide the executive with medical, dental and vision benefits if he or she remained employed based on rates as of January 2023 multiplied by 18 months, or in the case of our CEO, 24 months, based on each NEO's participation status as of December 31, 2022.
- (4) The value is calculated based on the number of stock options unvested as of December 31, 2022 multiplied by the result of \$237.65 per share (the closing price of our common stock on the Nasdaq Global Select Market on the last trading day of 2022) less the respective exercise price per share.
- (5) The value is calculated based on the number of unvested PSUs or RSUs multiplied by \$237.65 per share (the closing price of our common stock on the Nasdaq Global Select Market on the last trading day of 2022).

The actual amount an executive would realize upon termination related to a CIC would likely differ from the amounts above, including adjustments to base salary, adjustments to target bonus, stock price fluctuations and the vesting and grant of additional stock-based awards, as well as the exercise and sale of any stock-based award prior to any such termination. In the event an executive would be subject to "golden parachute taxes" under the Code, payments and benefits in connection with a CIC will be reduced to the extent necessary to avoid such taxes, but only if such reduction provided a greater after-tax benefit to an executive.

CEO Pay Ratio

In connection with Item 402(u) of Regulation S-K adopted pursuant to Section 953(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act, we are required to calculate and disclose the median annual compensation of all of our employees (excluding our CEO during 2022, Dr. Greenstreet), the annual compensation of Dr. Greenstreet, and the ratio of these two amounts.

Based on a significant number of new hires in 2022, we did not elect to use the same median employee as the prior year. Our median employee was identified using the entire population of our employees as of October 1, 2022 based on a consistently applied compensation measure, or CACM, that reasonably reflects the annual compensation of employees. The CACM selected by us for our disclosure included annual base salary for salaried employees (or wages based on an annual work schedule for non-permanent employees), overtime for the year-to-date period ended October 1, 2022, target bonus opportunity for 2022 and the grant-date fair value for stock-based awards (calculated in accordance with requirements for the Summary Compensation Table). In 2022, the target bonus opportunity for our non-field-based employees was based on corporate and individual performance under our AIP and the target bonus opportunity for field-based employees consisted of sales-related metrics in connection with the continued launch and commercialization of our commercial products during 2022 under our field-based incentive plan.

Based on the CACM methodology described above, we identified the median employee. We calculated the 2022 compensation for our median employee of \$237,547 in the same manner we determine the annual total compensation of our NEOs for purposes of the Summary Compensation Table. Dr. Greenstreet's 2022 compensation as disclosed in the Summary Compensation Table is \$4,588,810. As a result, our CEO to median employee pay ratio for 2022 is 19:1, representing a decrease from the ratio for 2021 as a result of our change in CEO.

This pay ratio is a reasonable estimate calculated by a method consistent with the SEC requirements, described above, based on our payroll and employment records. As a result of a variety of factors, including employee populations, potential differences in the components used for the CACM, compensation philosophies and certain assumptions, pay ratios reported by other companies may not be comparable to our pay ratio. The pay ratio is not utilized by our management or our PC&C committee for compensation-related decisions.

Pay Versus Performance

The following section has been prepared in accordance with the SEC's new pay versus performance, or PVP, disclosure rules. Under the PVP rules, the SEC has developed a new definition of pay, referred to as Compensation Actually Paid, or CAP, which we are required to calculate and then compare to certain specified performance measures. Under the PVP rules, CAP for the principal executive officer, or PEO, and the average non-PEO NEOs is calculated by starting with the Summary Compensation Table values for the relevant years and then making the following adjustments (as are applicable):

- Subtracting: the grant date fair value of equity awards granted during the year; and the change in pension value for the year; and
- Adding: the year-end fair value of unvested equity awards granted during the year; for equity awards granted in prior years that are outstanding and unvested at the end of the year, the

difference between the fair value at the end of the year as compared to the end of the immediately prior year; for equity awards granted in prior years that vested during the year, the difference between the fair value as of the vesting date as compared to the end of the immediately prior year; and the pension service cost for that year.

As a general matter, our Board and PC&C committee do not use CAP as a basis for making compensation decisions. Our PC&C committee has adopted an executive compensation philosophy that is designed to ensure that a substantial majority of NEO compensation is performance-based and at risk. Further to this philosophy, our PC&C committee has adopted incentive structures and governance policies that we believe align the interests of our NEOs with those of long-term stockholders, including strong emphasis on performance-based equity awards, annual incentive payouts based on our performance against preset goals (with no guaranty of any minimum payout), and no guaranteed increases in base salaries. We believe that these structures and governance policies incentivize our NEOs and other employees to achieve goals aimed at increasing the long-term value of our enterprise. Importantly, because of the SEC-mandated formula for calculating CAP, period-to-period fluctuations in CAP reported for our NEOs may not correlate with our performance against our goals and the related compensation decisions made by our Board and PC&C committee.

Most Important Financial Measures for 2022 Compensation

As described above and in greater detail in the Compensation Discussion & Analysis section of this proxy statement, our executive compensation programs reflect a pay-for-performance philosophy. Our compensation programs incorporate goals and measures to link pay and performance in alignment with our business strategies and the interests of long-term stockholders. In accordance with the PvP rules, we have listed below the most important financial measures we used to link 2022 pay to performance. Note that we have identified these performance measures because they were among the most important financial and non-financial measures that were used in our 2022 annual incentive cash compensation program, but they are not the only measures we used to measure our 2022 performance.

- Net product revenues
- Collaboration and royalty revenues
- non-GAAP operating expenses*
- non-GAAP operating loss*

* Non-GAAP operating expenses and non-GAAP operating loss are non-GAAP financial measures that exclude the impact of stock-based compensation expense from the corresponding GAAP numbers.

The performance measures listed above are not ranked by relative importance, and their impact on annual incentive compensation in 2022 varied depending on their weighting and the weightings of the other financial and non-financial performance measures used by our Board and PC&C committee (refer to the Compensation Discussion and Analysis section of this proxy for a more complete discussion). However, under the PvP rules, we are required to identify a “Company Selected Measure”, or CSM, which is used for purposes of the pay-versus-performance data and analysis presented below. The PvP rules specify that the CSM represents our most important financial performance measure (other than total shareholder return or net income) used to link 2022 NEO CAP to our 2022 performance. As noted above, as a general matter our Board and PC&C committee do

not use CAP for purposes of making compensation decisions. However, for purposes of the PvP rules, we have chosen global net product revenues as our 2022 CSM. We chose this financial measure as our 2022 CSM because it is one of the two most important financial measures used in our annual incentive program and had the most significant impact on the corporate score that was awarded by our Board for 2022 performance against goals and therefore the amount of cash payouts received by our NEOs and other employees under this program.

Pay Versus Performance Table

Year	Summary Compensation Table Total for PEO \$(1)	Compensation Actually Paid to PEO \$(1)(3)(5)	Average Summary Compensation Table Total for non-PEO NEOs \$(2)	Average Compensation Actually Paid to non-PEO NEOs \$(2)(4)(5)	Value of Initial Fixed \$100 Investment Based on:		(in thousands)	
					TSR \$(6)	Peer Group TSR \$(6)	Net Loss \$(6)	Company Selected Measure (CSM) - Net Product Revenue \$(6)
2022	4,588,810	30,375,480	3,580,510	17,466,190	206.35	113.65	(1,131,156)	894,329
2021	10,176,685	17,514,345	5,918,910	10,714,290	147.24	126.45	(852,824)	662,138
2020	7,818,164	17,306,949	4,240,550	6,617,560	112.85	126.42	(858,281)	361,520

- (1) For 2022, our PEO was Yvonne L. Greenstreet, MBChB, MBA. For 2021 and 2020, our PEO was John M. Maraganore, Ph.D.
- (2) For 2022, our non-PEO NEOs were Akshay K. Vaishnav, Jeffrey V. Poulton, Pushkal P. Garg, M.D., and Indrani L. Franchini, J.D. For 2021, our non-PEO NEOs were Dr. Greenstreet, Dr. Vaishnav, Mr. Poulton, and Mr. Tangler. For 2020, our non-PEO NEOs were Dr. Greenstreet, Dr. Vaishnav, Mr. Poulton, Laurie B. Keating, and Barry E. Greene.
- (3) Following is a summary of the adjustments made to PEO compensation as reported in the Summary Compensation Table to determine PEO CAP as reported in this table:

	2022	2021	2020
Total Compensation Reported in SCT	4,588,810	10,176,685	7,818,164
LESS: the grant date fair value of equity awards granted in the year indicated	(2,498,790)	(7,861,410)	(5,746,295)
ADD: the year-end fair value of outstanding and unvested equity awards granted in the year indicated (a)	18,073,160	9,100,080	14,001,000
ADD: the change in fair value of equity awards granted years prior to the year indicated that were outstanding and unvested at the end of the year indicated (as compared to fair value at the end of the immediately prior year) (a)	6,436,300	2,419,780	953,260
ADD: the change in fair value of equity awards granted years prior to the year indicated that vested in the year indicated (fair value at vesting date as compared to the end of the immediately prior year) (a)	3,776,000	3,679,210	280,820
Total (Net) Adjustments	30,375,480	17,514,345	17,306,949

- (a) We determined the year-end fair value of PSUs for the year indicated, if the achievement of the performance condition for the PSU was not probable, as defined under applicable accounting guidance, then we assigned a fair value of \$0.

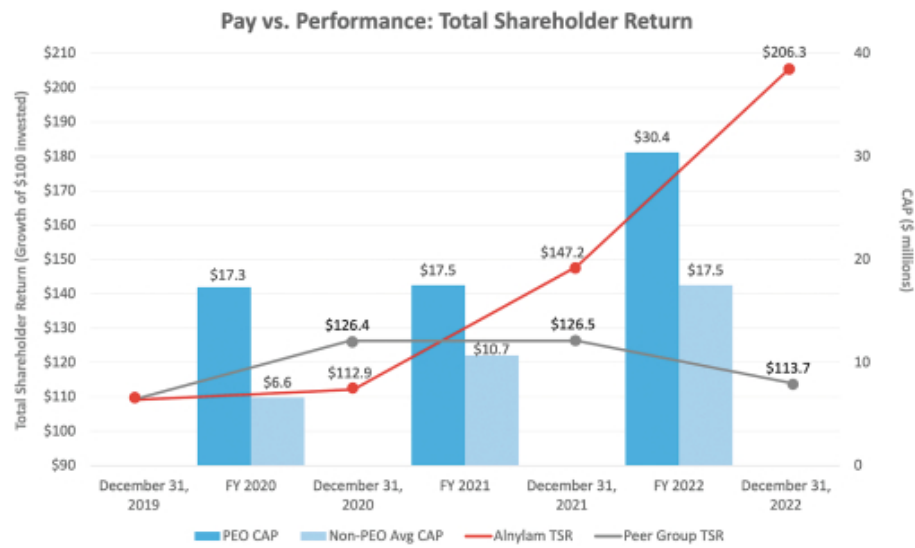
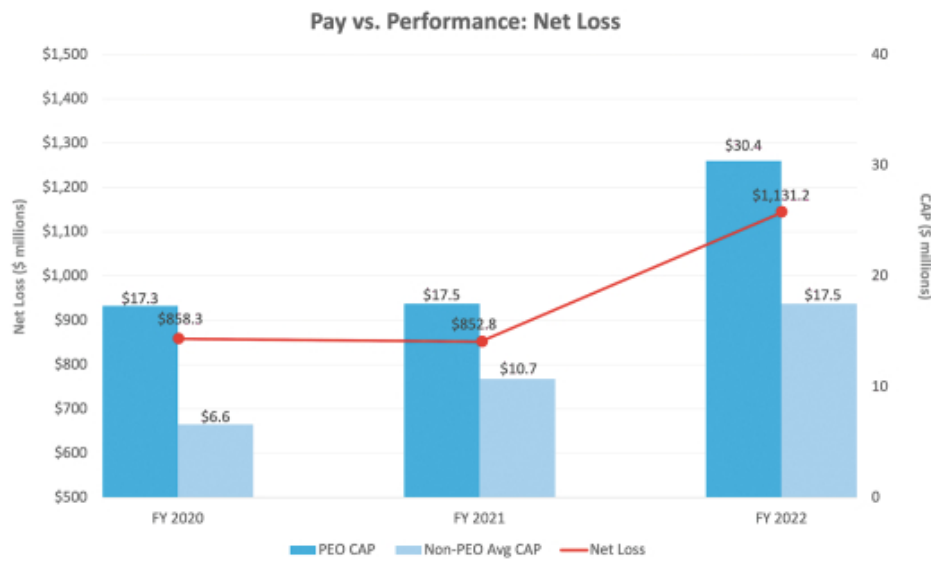
- (4) Following is a summary of the adjustments made to average non-PEO NEO compensation as reported in the Summary Compensation Table to determine average non-PEO NEO CAP as reported in this table:

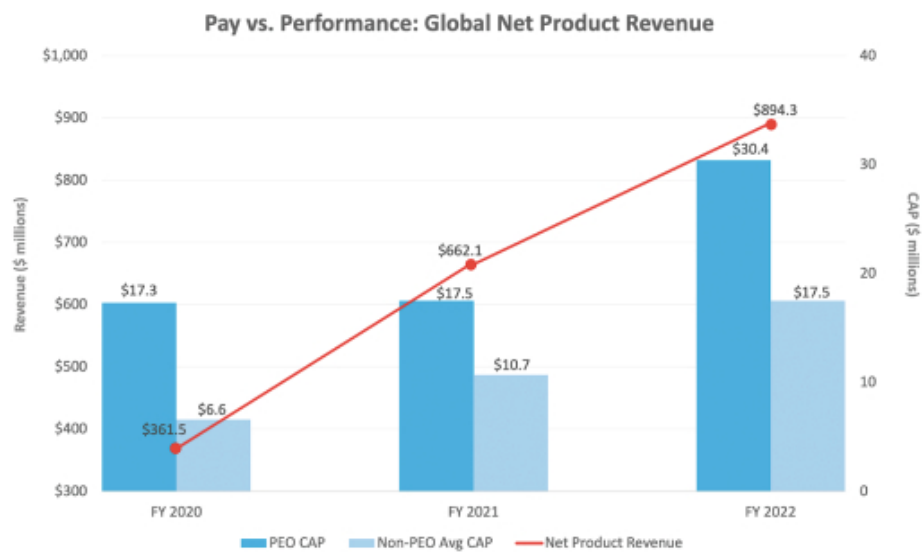
	2022	2021	2020
Average Total Compensation Reported in SCT	3,580,510	5,918,910	4,240,550
LESS: the grant date fair value of equity awards granted in the year indicated	(2,548,800)	(4,891,560)	(3,113,250)
ADD: the year-end fair value of outstanding and unvested equity awards granted in the year indicated (a)	11,045,880	6,583,990	4,670,300
ADD: the change in fair value of equity awards granted years prior to the year indicated that were outstanding and unvested at the end of the year indicated (as compared to fair value at the end of the immediately prior year) (a)	3,343,110	962,260	450,100
ADD: the change in fair value of equity awards granted years prior to the year indicated that vested in the year indicated (fair value at vesting date as compared to the end of the immediately prior year) (a)	2,045,490	2,140,690	369,860
Total (Net) Adjustments	17,466,190	10,714,290	6,617,560

- (a) We determined the year-end fair value of PSUs for the year indicated, if the achievement of the performance condition for the PSU was not probable, as defined under applicable accounting guidance, then we assigned a fair value of \$0.
- (5) In calculating CAP reflected in these columns, the fair value or change in fair value, as applicable, of the equity award adjustments included in such calculations were computed in accordance with FASB ASC Topic 718. We did not report a change in pension benefit values for any of the years reflected in the table, and therefore adjustments to pension benefit values were not included in calculating CAP reflected in these columns, because we do not sponsor, maintain or contribute to a defined benefit pension plan.
- (6) The Company TSR and the Company's Peer Group TSR reflected in these columns for each applicable fiscal year is calculated based on a fixed investment of \$100 at the applicable measurement point on the same cumulative basis as is used in Item 201(e) of Regulation S-K. The peer group used to determine the Company's Peer Group TSR for each applicable fiscal year is the following published industry index, as disclosed in our Annual Report on Form 10-K for the year ended December 31, 2022 pursuant to Item 201(e) of Regulation S-K: Nasdaq Biotechnology Total Return Index (XNBI).

Pay versus Performance Comparative Disclosure

The following reflect the relationships between (i) CAP to our PEO, and the average of CAP to our non-PEO NEOs, to our net income, (ii) CAP to our PEO, and the average of CAP to our non-PEO NEOs, to our cumulative total shareholder return and our cumulative total shareholder return to our peer group total shareholder return, and (iii) CAP to our PEO, and the average of CAP to our non-PEO NEOs, to our global net product revenues (the CSM), in each case for the years 2020 through 2022.





SAY-ON-PAY – ADVISORY VOTE ON EXECUTIVE COMPENSATION (PROPOSAL 2)

We are providing our stockholders with the opportunity to vote to approve, on an advisory, non-binding basis, the compensation of our NEOs as disclosed in this proxy statement in accordance with the SEC's rules. This proposal, which is commonly referred to as "say-on-pay," is required by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, which added Section 14A to the Exchange Act.

We encourage stockholders to read closely the "Executive Compensation" section of this proxy statement beginning with the "Compensation Discussion and Analysis" on page 47, which describes in detail our executive compensation programs and the decisions made by our PC&C committee and our board with respect to the fiscal year ended December 31, 2022.

As we describe in the "Compensation Discussion and Analysis," we maintain straight-forward executive compensation programs that generally consist of base salary, an annual cash incentive award and equity incentive awards upon the commencement of employment and annually thereafter. These elements of compensation have been selected by our PC&C 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 PC&C 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 NEOs is fair, reasonable and competitive. Further, we believe our programs do not encourage excessive risk-taking by management, as supported by the assessment described above conducted by Pay Governance, an independent compensation consultant to the PC&C committee.

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 generally differentiate among executive officers primarily based on size of annual cash incentive awards and annual equity incentive awards and, to a lesser extent, base salary. Annual compensation decisions for executive officers are made by our PC&C committee, and, in the case of our CEO, recommended to our board of directors for approval, based on the achievement of specified corporate performance goals, and with respect to base salary and annual equity incentive awards, consideration of the executive officer's individual contributions to the achievement of the corporate goals, as described above under "Compensation Discussion and Analysis."

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

RESOLVED, that the compensation paid to the named executive officers of Alnylam Pharmaceuticals, Inc., as disclosed pursuant to the compensation disclosure rules of the SEC, including the compensation discussion and analysis, the compensation tables and any related material disclosed in the proxy statement of Alnylam Pharmaceuticals, Inc., is hereby approved.

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 PC&C 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 NEOs.

BOARD RECOMMENDATION

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

SAY-ON-FREQUENCY – ADVISORY VOTE ON FREQUENCY OF FUTURE EXECUTIVE COMPENSATION ADVISORY VOTES (PROPOSAL 3)

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 advisory votes on the compensation of our named executive officers. Under Section 14A(a)(2) of the Exchange Act, generally, each public company must submit this proposal to its stockholders not less than every six years and this proposal was last submitted to our stockholders at our 2017 annual meeting of stockholders. Stockholders may vote for a frequency of every one, two or three years, or may abstain.

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

After careful consideration, our board believes that a non-binding, advisory vote on the compensation of our named executive officers should continue to be held every year. Our board believes that continuing to hold an annual advisory vote on the compensation of our named executive officers will facilitate more direct stockholder input about executive compensation. An annual advisory vote on the compensation of our named executive officers is consistent with our policy of reviewing our compensation programs annually, as well as seeking regular input from our stockholders on corporate governance and executive compensation matters. We believe the continuation of 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 the compensation of our named executive officers.

Our board of directors will take into consideration the outcome of this vote in determining the frequency of future non-binding, advisory votes on the compensation of our named executive officers. 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 the compensation of our named executive officers more or less frequently.

BOARD RECOMMENDATION

Our board of directors unanimously recommends that you vote “FOR” a frequency of every “ONE YEAR” on Proposal 3 for future non-binding, advisory votes on the compensation of our named executive officers.

RATIFICATION OF APPOINTMENT OF INDEPENDENT AUDITORS (PROPOSAL 4)

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, 2023. 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 audit committee will reconsider its appointment of PricewaterhouseCoopers LLP. Representatives of PricewaterhouseCoopers LLP are expected to participate in 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 unanimously recommends a vote "FOR" the ratification of the appointment of PricewaterhouseCoopers LLP as our independent auditors for the fiscal year ending December 31, 2023.

AUDIT INFORMATION

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. A complete copy of the current audit committee charter is posted on the Corporate Governance page of the Investors section of our website, www.alnylam.com.

Our audit committee has reviewed our audited financial statements for the fiscal year ended December 31, 2022, 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, Auditing Standard No. 1301, *Communications with Audit Committees*, 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, critical accounting estimates, alternative accounting treatments, accounting for significant unusual transactions, and other 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, including the matters required by the applicable requirements of the PCAOB and the SEC. 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 on Form 10-K for the year ended December 31, 2022. 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, 2023.

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

Marsha H. Fanucci, Chair
Olivier Brandicourt, M.D.
Colleen F. Reitan

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	2022(\$)	2021(\$)
Audit Fees(1)	3,478,700	2,385,544
Audit-Related Fees	—	—
Tax Fees(2)	130,000	70,000
All Other Fees(3)	9,720	2,756
Total Fees	3,618,420	2,458,300

- (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, statutory audits of our international operations, and other professional services provided in connection with regulatory filings or audit engagements. In 2022, this amount also includes \$225,000 for fees in connection with the review of the consolidated financial statements incorporated by reference into our outstanding Japanese registration statements.
- (2) "Tax Fees" in 2022 and 2021 consist of fees for procedures completed in connection with a research and development tax credit study.
- (3) "All Other Fees" in 2022 and 2021 represent non-audit fees in connection with access to the PricewaterhouseCoopers LLP on-line accounting research and disclosures 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.

IMPORTANT INFORMATION ABOUT THE ANNUAL MEETING AND VOTING

Notice and Access

We have made these proxy materials available to you on the Internet in connection with the solicitation by our board of directors of proxies to be voted at our 2023 annual meeting of stockholders to be held online on Thursday, May 18, 2023 at 8:30 a.m., Eastern Time (ET). We have elected to provide access to our proxy materials over the Internet under the SEC's "notice and access" rules. On or about April 5, 2023, we will mail to our stockholders a Notice of Internet Availability containing instructions on how to access our proxy materials, including our proxy statement and our 2022 Annual Report. We believe that providing our proxy materials over the Internet expedites stockholders' receipt of proxy materials, lowers costs and reduces the environmental impact of our annual meeting. As a stockholder of Alnylam, you are invited to participate in our annual meeting virtually via the Internet, and are entitled and requested to vote on the proposals described in this proxy statement. The Notice of Internet Availability instructs you on how to submit your proxy or voting instructions through the Internet.

In accordance with the SEC rules, we may furnish proxy materials, including this proxy statement and our 2022 Annual Report, to our stockholders by providing access to such documents on the Internet instead of mailing printed copies. If you would like to receive a paper copy of our proxy materials, the Notice of Internet Availability instructs you on how to request a paper copy of our proxy materials, including a proxy card or voting instruction form that includes instructions on how to submit your proxy or voting instructions by mail or telephone. Other stockholders, in accordance with their prior requests, have received e-mail access to our proxy materials and instructions to submit their vote via the Internet, or have been mailed paper copies of our proxy materials and a proxy card or voting instruction form.

Who Can Vote

To be entitled to vote, you must be a stockholder of record at the close of business on March 24, 2023, the record date for our annual meeting. As of the record date, there were 124,223,536 shares of our common stock outstanding.

If you were a stockholder of record on March 24, 2023, you are entitled to vote all of the shares that you held on that date at the annual meeting and at any postponement or adjournment thereof.

Voting Rights

Each outstanding share of our common stock will be entitled to one vote on each matter considered at the annual meeting.

Voting

Alnylam's stockholders may vote their shares over the Internet, by telephone or during the annual meeting by going to www.virtualshareholdermeeting.com/ALNY2023. If you requested and/or received a printed version of the proxy card, you may also vote by mail.

- **By Internet.** You may vote at www.proxyvote.com, 24 hours a day, seven days a week. You will need the 16-digit control number included on your proxy card or voting instruction form. Votes submitted through the Internet must be received by 11:59 p.m. ET on May 17, 2023.
- **By Telephone.** You may vote using a touch-tone telephone by calling 1-800-690-6903, 24 hours a day, seven days a week. You will need the 16-digit control number included on your proxy card or voting instruction form. Votes submitted by telephone must be received by 11:59 p.m. ET on May 17, 2023.
- **By Mail.** If you received printed proxy materials, you may submit your vote by completing, signing and dating each proxy card received and returning it in the prepaid envelope. Sign your name exactly as it appears on the proxy card. Proxy cards submitted by mail must be received no later than May 17, 2023 to be voted at the annual meeting.
- **During the Annual Meeting.** You may vote during the annual meeting by going to www.virtualshareholdermeeting.com/ALNY2023. You will need the 16-digit control number included on your proxy card or voting instruction form. If you previously voted via the Internet (or by telephone or mail), you will not limit your right to vote online at the annual meeting.

If you vote via the Internet or by telephone, your electronic vote authorizes the named proxies in the same manner as if you signed, dated and returned your proxy card. If you vote via the Internet or by telephone, do not return your proxy card.

Revoking a Proxy

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:

- 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. ET on May 17, 2023.
- Sign a new proxy and submit it as instructed above. Only your latest dated proxy, received by no later than May 17, 2023, will be counted.
- Participate in the annual meeting virtually via the Internet and vote again. Participating in the annual meeting will not revoke your Internet vote, telephone vote or proxy, unless you vote again.

Note that if your shares are held in "street name," you may submit new voting instructions by contacting your bank, broker or other nominee.

Discretionary Voting Authority

If your shares are registered directly in your name, you are a “stockholder of record” who may vote at the meeting. As the stockholder of record, you have the right to direct the voting of your shares by voting over the Internet, by telephone, by returning your proxy or by voting online during the annual meeting at www.virtualshareholdermeeting.com/ALNY2023.

If your shares are held in an account at a bank or at a brokerage firm or other nominee holder, you are considered the beneficial owner of shares held in “street name,” and these proxy materials are being forwarded to you by your bank, broker or other nominee who is considered the stockholder of record for purposes of voting at the annual meeting. As the beneficial owner, you have the right to direct your bank, broker or other nominee on how to vote your shares and to participate in the virtual annual meeting. You will receive instructions from your bank, broker or other nominee explaining how you can vote your shares and whether they permit Internet or telephone voting. Follow the instructions from your bank, broker or other nominee included with these proxy materials, or contact your bank, broker or other nominee to request a proxy form. We encourage you to provide voting instructions to your bank, broker 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 will not be able to vote shares you hold in “street name” at the annual meeting; instead, you must instruct your bank, broker or other nominee in advance of the meeting.**

Note that under New York Stock Exchange, or NYSE, rules, if you hold shares through a bank, broker or other institution and you do not provide your voting instructions to them at least ten days before the annual meeting, that firm has the discretion to vote your shares on proposals that the NYSE has determined are routine. Such firm will not have the discretion to vote your shares on proposals that the NYSE has determined are non-routine. A “broker non-vote” refers to a share represented at the meeting held by a broker, as to which instructions have not been received from the beneficial owner or person entitled to vote such shares and with respect to which, on one or more but not all matters, the broker does not have discretionary voting power to vote such share.

Participating in the Virtual Annual Meeting

This year our annual meeting will be a completely virtual meeting. There will be no physical meeting location. The meeting will only be conducted via live webcast.

To participate in the virtual meeting, visit www.virtualshareholdermeeting.com/ALNY2023 and enter the 16-digit control number included on your proxy card or on the instructions that accompanied your proxy materials. You may begin to log into the meeting platform beginning at 8:15 a.m. ET on May 18, 2023. The meeting will begin promptly at 8:30 a.m. ET on May 18, 2023.

If you wish to submit a question, you may do so in two ways. If you want to ask a question before the meeting, then beginning on April 5, 2023 and until 11:59 p.m. ET on May 17, 2023, you may log into www.proxyvote.com and enter your 16-digit control number. Once past the login screen, click on “Questions for Management,” type in your question, and click “Submit.” Alternatively, if you want to submit your question during the meeting, log into the virtual meeting platform at www.virtualshareholdermeeting.com/ALNY2023, type your question into the “Ask a Question” field, and click “Submit.”

Questions pertinent to meeting matters will be answered during the meeting, subject to time constraints. The meeting is not to be used as a forum to present personal matters, or general economic, political or other views that are not directly related to the business of Alnylam and the matters properly before the meeting, and therefore questions on such matters will not be answered.

Any questions pertinent to meeting matters that cannot be answered during the meeting due to time constraints will be posted online and answered at <http://investors.alnylam.com/shareholder-services/annual-meeting>. The questions and answers will be available as soon as practical after the meeting and will remain available until one week after posting.

If you encounter any technical difficulties with the virtual meeting platform on the meeting day, please call the technical support number that will be posted on the virtual Annual Meeting log-in page. Technical support will be available starting at 8:00 a.m. ET on May 18, 2023 and will remain available until thirty minutes after the meeting has finished.

Requirements for a Meeting Quorum

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 shares that are voted over the Internet, by telephone, by completing and submitting a proxy, or that are represented online at the meeting, as well as any abstentions and broker non-votes. If a quorum is not present, we expect to adjourn the annual meeting until we obtain a quorum.

Vote Required to Approve Each Item on the Proxy

You may vote “for,” “against” or “abstain” on proposals 1, 2 and 4 and “1 year,” “2 years,” “3 years” or “abstain” on Proposal 3, the say-on-frequency advisory vote. Abstentions and broker non-votes are included in the determination of the number of shares present at the annual meeting for determining a quorum at the meeting, but they are not counted as shares cast. Accordingly, abstentions and broker non-votes, if any, would have no effect on the vote for any of the Proposals to be considered at the annual meeting, because these Proposals are based on a percentage of the votes that are actually cast at the annual meeting.

Proposal 1 – Election of Four (4) Class I Directors

With respect to the election of directors (Proposal 1), each nominee presented in Proposal 1 must be elected by a majority of the votes properly cast. Nominees are elected by a majority vote for non-contested director elections. Because the number of nominees properly nominated for the annual meeting is the same as the number of directors to be elected, the election of directors at this annual meeting is non-contested. If the number of votes FOR a nominee exceeds the number of votes AGAINST a nominee (among votes properly cast by stockholders who are either present online or represented by proxy), then the nominee will be elected.

With respect to Proposal 1, you may:

- vote FOR all nominees;
- vote FOR one or more nominee(s) and AGAINST one or more of the other nominee(s);

- vote AGAINST all nominees; or
- ABSTAIN from voting for or against one or more nominee(s).

Proposal 2 – Non-binding Advisory Vote on the Compensation of Our Named Executive Officers

To approve Proposal 3, stockholders holding a majority of the votes either cast on the matter online or by proxy at the annual meeting 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.

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 PC&C 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 Advisory Vote on the Frequency of Future Executive Compensation Advisory Votes

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);
- vote CHOICE 3 (every three years); or
- ABSTAIN from voting on the non-binding resolution.

The frequency choice that receives the highest numbers 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.

As an advisory vote, this proposal is not binding. Our board of directors will take into consideration the outcome of this vote in determining the frequency of future non-binding, advisory votes on the compensation of our named executive officers. 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 the compensation of our named executive officers more or less frequently.

Proposal 4 – Ratification of Appointment of Independent Auditors

To approve Proposal 4, stockholders holding a majority of the votes either cast on the matter online or by proxy at the annual meeting must vote FOR the proposal.

Although stockholder approval of our audit committee’s appointment of PricewaterhouseCoopers LLP as our independent auditors for the year ending December 31, 2023 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 ending December 31, 2023.

Other Matters to be Voted On

The board of directors is not aware of any other issue or matter that may come before the annual meeting other than the election of four (4) Class I directors, the non-binding advisory vote on the compensation of our named executive officers, the non-binding advisory vote on the frequency of future votes to approve the compensation of our named executive officers 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 best judgment on the matter.

Vote Results

Preliminary voting results will be announced at the annual meeting. We expect to report the voting results in a Current Report on Form 8-K within four business days following the adjournment of our annual meeting. If final voting results are not available to us in time to file a Current Report on Form 8-K within four business days after the annual meeting, we intend to file a Current Report on Form 8-K to publish preliminary results and, within four business days after the final results are known to us, to file an additional Current Report on Form 8-K to publish the final results.

Inspector of Election

The inspector of election and the tabulator of all proxies, ballots and voting tabulations that identify stockholders are independent and are not Alnylam employees.

Cost of Soliciting Proxies

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 Innisfree M&A Incorporated 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 paid a fee of approximately \$30,000, 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 materials to beneficial owners.

Alnylam's 401(k) Savings Plan

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 the proxy card to Broadridge Financial Solutions, Inc. The 401(k) plan trustee will vote your shares according to your instructions. Only Broadridge 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 Broadridge before 11:59 p.m. ET on May 15, 2023, 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., 675 West Kendall Street, Henri A. Termeer Square, 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.

ADDITIONAL INFORMATION AND OTHER MATTERS

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 and our chief financial officer. The policy calls for the proposed related person transaction to be reviewed by our general counsel and/or our chief financial officer and, if 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 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 related person 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 the compensation of our executive officers shall be reviewed and approved by our PC&C committee in the manner specified in its charter.

In addition to the policy described above, we have adopted a number of internal procedures to assist with the identification and approval of any related person transactions, including annual questionnaires to our directors and officers, quarterly questionnaires to certain legal, human resource and finance personnel, and quarterly review with our audit committee and independent registered public accounting firm.

Related Person Transactions

During 2022, we were not a participant in any transaction, nor is there any currently proposed transaction, that is currently reportable under Item 404(a) of Regulation S-K.

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 the proxy materials for the 2024 annual meeting of stockholders, stockholders' proposals must be received by us at our principal executive offices, 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142 no later than December 5, 2023. 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 February 18, 2024 (90 days prior to the first anniversary of our 2023 annual meeting of stockholders) and not before January 19, 2024 (120 days prior to the first anniversary of our 2023 annual meeting of stockholders). However, if the 2024 annual meeting of stockholders is advanced by more than 20 days, or delayed by more than 60 days, from the first anniversary of the 2023 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 2024 annual meeting of stockholders. Proxies solicited by the board will confer discretionary voting authority with respect to these proposals, subject to SEC rules governing the exercise of this authority. To comply with the universal proxy rules, stockholders who intend to solicit proxies in support of director nominees other than the company's nominees must provide notice that sets forth the information required by Rule 14a-19 under the Securities Exchange Act of 1934, as amended, no later than March 19, 2024.

OUR BOARD OF DIRECTORS ENCOURAGES STOCKHOLDERS TO PARTICIPATE ONLINE IN OUR VIRTUAL ANNUAL MEETING. WHETHER OR NOT YOU PLAN TO PARTICIPATE IN THE VIRTUAL ANNUAL MEETING, 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 VIRTUAL ANNUAL MEETING AND YOUR COOPERATION WILL BE APPRECIATED. YOU WILL NOT BE ABLE TO ATTEND THE ANNUAL MEETING IN PERSON.

ALNYLAM PHARMACEUTICALS, INC.
ATTN: SECRETARY
675 West Kendall Street
Henri A. Termeer Square
CAMBRIDGE, MA 02142

VOTE BY INTERNET

Before The Meeting - Go to www.proxyvote.com

Use the Internet to transmit your voting instructions and for electronic delivery of information. Vote by 11:59 p.m. Eastern Time on May 17, 2023 for shares held directly and by 11:59 p.m. Eastern Time on May 15, 2023 for shares held in a 401(k) Plan. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

During The Meeting - Go to www.virtualshareholdermeeting.com/ALNY2023

You may attend the meeting via the Internet and vote during the meeting. Have the information that is printed in the box marked by the arrow available and follow the instructions. There will be no physical location at which stockholders may attend the meeting.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions. Vote by 11:59 p.m. Eastern Time on May 17, 2023 for shares held directly and by 11:59 p.m. Eastern Time on May 15, 2023 for shares held in a 401(k) Plan. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL

If you received printed proxy materials by hand, mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

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

E61195-P19478

KEEP THIS PORTION FOR YOUR RECORDS

DETACH AND RETURN THIS PORTION ONLY

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

ALNYLAM PHARMACEUTICALS, INC.

Proposals — The Board of Directors recommends you vote FOR each of the listed director nominees to serve for a term ending in 2026 and FOR Proposals 2 and 4 and ONE YEAR on Proposal 3, 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:

a. Michael W. Bonney

For Against Abstain

☐ ☐ ☐

b. Yvonne L. Greenstreet, MBChB, MBA

☐ ☐ ☐

c. Phillip A. Sharp, Ph.D.

☐ ☐ ☐

d. Elliott Sigal, M.D., Ph.D.

☐ ☐ ☐

For Against Abstain

2. To approve, in a non-binding advisory vote, the compensation of Alnylam's named executive officers.

☐ ☐ ☐

3. To recommend, in a non-binding advisory vote, the frequency of advisory stockholder votes on executive compensation.

1 Year 2 Years 3 Years 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, 2023.

For Against Abstain
☐ ☐ ☐

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.

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

Signature [PLEASE SIGN WITHIN BOX] Date

Signature (Joint Owners) Date

**Important Notice Regarding the Availability of Proxy Materials for the Virtual Annual Meeting of
Stockholders to be Held on May 18, 2023:**

**The Proxy Statement, our Annual Report on Form 10-K and our Annual Report to Stockholders are available
for viewing, printing and downloading at www.proxyvote.com.**

E61196-P19478

Proxy — ALNYLAM PHARMACEUTICALS, INC.

VIRTUAL ANNUAL MEETING OF STOCKHOLDERS

To be held on May 18, 2023 at 8:30 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 Yvonne L. Greenstreet, MBChB, Indrani L. Franchini and Jeffrey V. Poulton (each with full power of substitution), as Proxies of the undersigned, to participate in the annual meeting of stockholders of Alnylam to be held online at 8:30 a.m., Eastern Time, on Thursday, May 18, 2023, 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 online 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 a proposal specified herein, this proxy will be voted in accordance with the recommendation of the Board of Directors. 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**