

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

SCHEDULE 14A
(Rule 14a-101)

INFORMATION REQUIRED IN PROXY STATEMENT
SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the Securities
Exchange Act of 1934

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material Pursuant to §240.14a-12

Alnylam Pharmaceuticals, Inc.

(Name of Registrant as Specified in Its Charter)

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

Payment of Filing Fee (Check 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 5, 2022

To our Stockholders:

We invite you to attend the 2022 Annual Meeting of Stockholders of Alnylam Pharmaceuticals, Inc., which will be held online on Wednesday, May 18, 2022, beginning at 12:00 p.m., Eastern Time. You may attend the meeting virtually via the Internet at www.virtualshareholdermeeting.com/ALNY2022, 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 28, 2022 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 2022 ANNUAL MEETING OF STOCKHOLDERS

Date:	Wednesday, May 18, 2022
Time:	12:00 p.m., Eastern Time
Place:	Online at www.virtualshareholdermeeting.com/ALNY2022
Record Date:	March 28, 2022. 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:	<ol style="list-style-type: none">1. To elect three (3) members to our board of directors, as nominated by our board of directors, each to serve as a Class III director for a term ending in 2025, or until a successor has been duly elected and qualified;2. To approve Alnylam's Amended and Restated 2018 Stock Incentive Plan, to, among other things, increase the number of shares authorized for issuance thereunder by 6,000,000 shares;3. 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;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, 2022; and5. 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/ALNY2022 . 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 three (3) Class III 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, 2022**

This Notice of 2022 Annual Meeting, Proxy Statement, 2021 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 5, 2022



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: Wednesday, May 18, 2022
Time: 12:00 p.m., Eastern Time
Location: Online at www.virtualshareholdermeeting.com/ALNY2022
Record Date: March 28, 2022
You will not be able to attend the annual meeting in person.

Voting Items and Board Recommendations

		Board Recommendation
Proposal 1	Election of Three (3) Class III Directors	FOR All Nominees
Proposal 2	Approval of the Amended and Restated 2018 Stock Incentive Plan	FOR
Proposal 3	Say-on-Pay—Advisory Vote on Approval of Executive Compensation	FOR
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 shall 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, 2022

We are furnishing proxy materials to our stockholders primarily via the Internet. On or about April 6, 2022, 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 2021 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, 2021, as filed with the Securities and Exchange Commission, or SEC, on February 10, 2022, 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, 2021 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
9 of 11 directors (82%) 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
Lead Independent Director 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.

After a thorough review, the board recently adopted an updated 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 also adopted corporate governance guidelines. We have posted copies of these documents on the Corporate Governance page of the Investors section of our website, www.alnylam.com. We intend to disclose on our website any amendments to, or waivers from, our code of business conduct and ethics required to be disclosed by law or Nasdaq Global Select Market listing standards.

CEO Transition

We successfully completed a CEO succession, with Yvonne L. Greenstreet, MBChB, MBA, assuming the role of CEO effective January 1, 2022 upon the retirement of John M. Maraganore, Ph.D., Alnylam's founding CEO, after nearly 19 years of service, the timing of which was mutually agreed upon with our 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. As we continue to develop initiatives in CR and ESG, and build our practice of transparency in reporting, board oversight is crucial to ensuring we prioritize CR throughout our actions.

In 2021, we implemented a CR Steering Committee structure that aligned key Working Groups for each of our CR pillars. Each pillar's Working Group includes 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.

In 2021, stemming from our core beliefs, 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 Corporate Responsibility

- Hired a **dedicated CR director** and formed cross-functional global teams in each of our CR pillar areas
- Completed our inaugural **materiality assessment** to identify and prioritize issues based on their importance to stakeholders and our business model
- Published 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**

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've 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.

We aim to maintain consistent pricing approaches that enable sustainable innovation for rare and ultra-rare diseases. This philosophy includes our pledge against arbitrary price increases beyond the cost of inflation. As evidence of our commitment to responsible pricing, we have taken zero price increases on any of our marketed products since launch.

In the U.S., we continued our support for commercially insured patients through the Commercial Copay Program. A majority of patients pay \$0 out-of-pocket costs for our therapies. In 2021, 30% of patients using ONPATTRO® were enrolled in our Commercial Copay Program. That number is 54% for GIVLAARI® and 50% for OXLUMO®. For uninsured patients who meet financial and other eligibility criteria, the Patient Assistance Program provides our therapies at no cost.

As we expand our global footprint, we intend to continue to price our medicines responsibly, commensurate with the value delivered, and proportional to the rare and ultra-rare diseases they treat. We also intend to continue to actively engage with stakeholders across the global healthcare community to address financial barriers to patient access to appropriate treatment and pursue innovative solutions to the significant healthcare system challenges we face as a society.

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.

2021 Patient Access Highlights

2,500+

patients receiving our RNAi therapeutics globally

~600

patients worldwide receiving our therapeutics under Compassionate Use and early access

\$0 Out-of-Pocket

costs for a majority of patients

Zero Price Increases

beyond Consumer Price Index for All Urban Consumers on all approved medicines

2,180+

people participated in Alnylam-sponsored testing programs in Europe

40+

Value-Based Agreements with U.S. payers

921

U.S. patients enrolled in Alnylam Assist®

4.9

on a 5.0 scale in overall patient satisfaction surveys

In 2021, our Chief Diversity, Equity and Inclusion Officer brought together a global cross-functional team to develop an Action Plan for Diversity, Equity and Inclusion.

As a result of our efforts in 2021, we:

- Met 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 and increased our percentage of employees identifying with two or more races by 78%
- Set 2022 goal to increase our employee base of Black or African American and Hispanic or Latino individuals by an additional 20% YOY
- Partnered with our Employee Resource Networks, key affinity groups and professional societies to broaden recruitment efforts
- Expanded our intern and co-op programs in the U.S. to Historically Black Colleges and Universities
- Ensured in-house recruiting team is licensed through ADP as AIRS Certified Diversity & Inclusion Recruiters
- Provided Unconscious Bias and Understanding Race & Ethnicity training to 100% of Vice Presidents and above; more than 400 employees completed our Understanding Race & Ethnicity training
- Adopted priorities in 2022 to include integrating unconscious bias training for people managers into the company's core training curriculum and launching the Athena Project, our female leadership accelerator program
- Awarded #1 on Boston Globe's "Top Places to Work" in 2021; included for the seventh consecutive year on this list
- Recognized as a "Great Place to Work" in Italy, the Netherlands, Spain, Brazil, Germany, Japan, Switzerland, U.K., and Asia.

Global Employee Snapshot 2021*	
Alnylam Employees	
Total employees	1,665
Total U.S. employees	1,290
Global Gender Diversity	
Female	52%
Male	48%
Racial Diversity of U.S. Workforce**	
American Indian or Alaska Native or Pacific Islander	0%
Asian	21%
Black or African American	6%
Hispanic or Latino	5%
Two or more races	5%
White	63%
Alnylam's Management	
Executives	10
Female executives	4
Executives from underrepresented populations***	4

* All diversity statistics based on totals collected in December 2021.
 ** 22% 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 took meaningful steps forward to collect baseline data across our most important areas of focus in environmental management. We established important tools and strategies to begin setting targets that drive positive environmental performance.

As we continuously strive to reduce our impact, in 2021 we:

- Partnered with a global technical sustainability leader and developed baseline data and operational parameters to accurately calculate our environmental footprint to begin the process of setting targets
- Calculated our Scope 1 and Scope 2 GHG emissions and selected three Scope 3 emissions categories to begin our Scope 3 process
- Utilized the WRI GHG Protocol and ISO 14064-1 standards to quantify GHG emissions from all our facilities and vehicles as well as purchased electricity, steam, and water
- Began process of independent third-party verification of baseline and 2021 GHG emissions and waste management data.
- Realized carbon-neutrality for the 186 vehicles in our U.S. fleet, through the EMKAY goGREEN Program, where we purchased carbon offset options equivalent to vehicle carbon emissions
- Reduced maintenance by a LED lighting upgrade at our Alewife manufacturing facility
- Cut energy use significantly by using outdoor air to directly cool our Norton manufacturing site
- Developed a plan to manage and mitigate hazardous/non-hazardous waste inventory, verified by third-party compliance audit
- Eliminated approximately 37,000 kg of plastic and carton waste each year by reducing the use of insulated shippers within our European operation

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 2021, we:

- Hired a Vice President of Information Security
- Launched a new employee intranet page during Data Privacy Week dedicated to privacy and expanded regular privacy-related communications for employees
- Created 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
- Recognized October as Information Security Awareness Month, where we provided educational content, best practices, tips, and strategies to ensure all employees play a part in ensuring the safety and security of data and information

For additional information please view our [2021 Corporate Responsibility Report](#).

INFORMATION CONCERNING DIRECTOR NOMINEES – ELECTION OF CLASS III 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. To deliver on this mission, 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 October 2021, in connection with the planned CEO transition of our founding CEO, Dr. Maraganore, to Dr. Greenstreet, at year-end 2021, our board of directors increased its size from eleven members to twelve members and elected Dr. Greenstreet as a Class I director to fill the vacancy, effective October 28, 2021. Dr. Greenstreet's term expires at the annual meeting of stockholders to be held in 2023. At that time, the board also approved, at the recommendation of our nominating and corporate governance committee, a reduction in the size of the board from twelve to eleven members effective upon Dr. Maraganore's departure, which was effective December 31, 2021.

In March 2022, Dr. Steven M. Paul resigned from our board of directors, effective as of April 16, 2022. 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 the event that our nominating and corporate governance committee nominates, and our board elects, a new director, he or she will become a Class I director, who, if elected by our board prior to the 2023 annual meeting of stockholders, would be a nominee for election by our stockholders at the 2023 annual meeting.

At the annual meeting, we are proposing the election of three (3) Class III directors to hold office until the annual meeting of stockholders to be held in 2025, 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 Margaret A. Hamburg, M.D., Colleen F. Reitan and Amy W. Schulman for election to the board of directors as Class III directors. Dr. Hamburg and Mses. Reitan and Schulman are currently serving as Class III directors. Dr. Hamburg has served as a director since January 2019, Ms. Reitan has served as a director since June 2018 and Ms. Schulman has served as a director since July 2014. The persons named in the enclosed proxy will

vote to elect each nominee for Class III director unless the proxy is marked otherwise. Dr. Hamburg and Mses. Reitan and Schulman 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 III 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 III directors elected at this year’s annual meeting will serve as members of our board until the 2025 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 Dr. Hamburg and Mses. Reitan and Schulman as a Class III director.

Set forth below for each continuing director, including the Class III director nominees, is information as of March 15, 2022 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 executive chair, Mr. Bonney and our CEO, Dr. Greenstreet, 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 III—Directors/Nominees to be elected at the 2022 annual meeting (terms expiring in 2025)

<p>Margaret A. Hamburg, M.D. Independent Director</p> <p>Committees:</p> <ul style="list-style-type: none">• Science and Technology Committee• Nominating and Corporate Governance Committee <p>Director since: 2019 Age: 66</p>	<p>Experience, Expertise and Qualifications</p> <p>Dr. Hamburg currently serves as 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 May 2009 to April 2015, Dr. Hamburg served as the Commissioner of the U.S. Food and Drug Administration (FDA). 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.</p> <p>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 Joint Coordinating Group for the Coalition for Epidemic Preparedness Initiative (CEPI), 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.</p> <p>Key Contributions to the Board</p> <p>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 as we continue to advance our late stage clinical development pipeline, initiate additional clinical programs, and further develop and scale our global commercial operations.</p>
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<p>Colleen F. Reitan Independent Director</p> <p>Committees:</p> <ul style="list-style-type: none">• Audit Committee <p>Director since: 2018 Age: 62</p>	<p>Experience, Expertise and Qualifications</p> <p>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.</p> <p>Ms. Reitan also serves as a director of Myriad Genetics, Inc.</p> <p>Key Contributions to the Board</p> <p>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 on which she serves.</p>
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<p>Amy W. Schulman Lead Independent Director</p> <p>Committees:</p> <ul style="list-style-type: none">• People, Culture and Compensation Committee (Chair)• Nominating and Corporate Governance Committee <p>Director since: 2014 Age: 61</p>	<p>Experience, Expertise and Qualifications</p> <p>Ms. Schulman joined Polaris Partners, a venture capital firm, in August 2014 where she is currently a managing partner. Ms. Schulman currently serves as Chair of the Board of SQZ Biotech, as well 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. Since July 2014, Ms. Schulman has also been 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.</p> <p>Ms. Schulman also serves as a director of Hudson Executive Investment Corp. II and previously served as a director of Cycleron Therapeutics, Inc., Ironwood Pharmaceuticals, Inc., Arsanis, Inc., Blue Buffalo Pet Products, Inc. and Hudson Executive Investment Corp.</p> <p>Key Contributions to the Board</p> <p>Ms. Schulman brings to our board a diverse background that includes legal, operational and commercial expertise. As our business grows and becomes more complex, Ms. Schulman's unique qualifications enable her to counsel us in a number of critical areas, including commercial strategy and capability building, as well as legal, regulatory and transactional considerations. 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 the chair of our PC&C committee.</p>
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Class I—Directors Whose Terms Expire in 2023

Michael W. Bonney

Executive Chair of the Board

Director since: 2014

Age: 63

Mr. Bonney has served as a member of our board of directors since December 2014 and was appointed chair of our board in December 2015. In August 2021, Mr. Bonney was appointed executive chair of our board.

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., Sarepta Therapeutics, Inc. and Global Blood 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 as executive chair of our board as we continue to enhance and integrate 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: 59

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 Pacira BioSciences, Inc. and The American Funds. Dr. Greenstreet previously served on the board of directors of argenx SE, Indivior PLC 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 five biotech company, as measured by market capitalization, by the end of 2025.

<p>Phillip A. Sharp, Ph.D. Independent Director</p> <p>Committees:</p> <ul style="list-style-type: none">• Science and Technology Committee (Chair) <p>Director since: 2002 Age: 77</p>	<p>Dr. Sharp is a scientific founder of Alnylam 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 Dr. Sharp was re-elected as a director at the 2020 annual meeting of stockholders.</p> <p>Experience, Expertise and Qualifications</p> <p>Dr. Sharp is an Institute Professor 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.</p> <p>Dr. Sharp also serves as a director of Syros Pharmaceuticals, Inc. and Vir Biotechnology, Inc. and formerly served as a director of Biogen Inc., which he co-founded in 1978.</p> <p>Key Contributions to the Board</p> <p>Dr. Sharp, a leading researcher in molecular biology and biochemistry, brings to our board a fundamental understanding of the core scientific principles of our business. 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.</p>
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Class II—Directors Whose Terms Expire in 2024

<p>Dennis A. Ausiello, M.D. Independent Director</p> <p>Committees:</p> <ul style="list-style-type: none">• Nominating and Corporate Governance Committee• Science and Technology Committee <p>Director since: 2012 Age: 76</p>	<p>Dr. Ausiello has served as a member of our board of directors since April 2012. As required by our corporate governance guidelines, Dr. Ausiello offered his resignation to the board of directors upon reaching the age of 75. After considering Dr. Ausiello'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. Ausiello's resignation and Dr. Ausiello was re-elected as a director at the 2021 annual meeting of stockholders.</p> <p>Experience, Expertise and Qualifications</p> <p>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.</p> <p>He also serves as a director of Seres Therapeutics, Inc. and Rani Therapeutics Holdings, Inc. and formerly served as a director of Pfizer Inc.</p> <p>Key Contributions to the Board</p> <p>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.</p>
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<p>Olivier Brandicourt, M.D. Independent Director</p> <p>Committees:</p> <ul style="list-style-type: none">• People, Culture and Compensation Committee• Audit Committee <p>Director since: 2020 Age: 66</p>	<p>Experience, Expertise and Qualifications</p> <p>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.</p> <p>Key Contributions to the Board</p> <p>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 committee on which he serves.</p>
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Marsha H. Fanucci

Independent Director

Committees:

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

Director since: 2010

Age: 68

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 Cycleron Therapeutics, Inc. and serves as a director of Syros Pharmaceuticals, Inc. and Forma Therapeutics Holdings, Inc., and formerly served as a director of 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.

<p>David E.I. Pyott Independent Director</p> <p>Committees:</p> <ul style="list-style-type: none">• Nominating and Corporate Governance Committee (Chair) <p>Director since: 2015 Age: 68</p>	<p>Experience, Expertise and Qualifications</p> <p>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 a member of the Supervisory Board of Royal Philips in the Netherlands. Mr. Pyott formerly served as a director of Avery Dennison Corporation.</p> <p>Key Contributions to the Board</p> <p>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.</p>
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THE BOARD OF DIRECTORS AND ITS COMMITTEES

Board of Directors Meetings and Attendance

Our board met eight times during 2021 either in person or by teleconference. During 2021, 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 2021 annual meeting of stockholders.

Board Determination of Independence

Under the Nasdaq Marketplace Rules, 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 Mses. Fanucci, Reitan and Schulman, Drs. Ausiello, Brandicourt, Hamburg and Sharp, and Mr. Pyott 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 was appointed as executive chair of our board in August 2021, and Dr. Greenstreet, our chief executive officer since January 1, 2022, 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 director independence standards of the Nasdaq Global Select Market and the Exchange Act. 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. Mr. Bonney, who served as our chair since December 2015, was appointed as executive chair of our board in August 2021 to further enhance our ethics and compliance function and its integration with the business, in what is expected to be a temporary expansion of his role. In connection with Mr. Bonney's transition to executive chair, Ms. Schulman was appointed as lead independent director of our board in August 2021 to ensure strong independent oversight of management. In October 2021, we announced the planned transition of our founding CEO John Maraganore, Ph.D., to Yvonne Greenstreet, MBChB, MBA, effective January 1, 2022. Dr. Greenstreet was also appointed to our board in October 2021. Separating these positions allows our CEO to focus on our day-to-day business operations, while allowing the executive chair to further enhance our compliance function, and our lead independent director to lead the board in its fundamental role of providing advice to and independent oversight of management. The board believes this structure will help ensure continuity of strong and effective leadership.

Lead Independent Director

Our board believes that strong, independent board leadership is a critical aspect of effective corporate governance. Our corporate governance guidelines provide that if the chair of the board is not an independent director, then the nominating and corporate governance committee may designate an independent director to serve as "Lead Independent Director," who shall be approved by a majority of the independent directors. Since her appointment in August 2021, Ms. Schulman has served as our lead independent director. We believe this structure provides our board independent leadership, while providing the benefit of having our current executive chair and CEO participate in regular board meetings as directors. Combined with the lead independent director and experienced and independent committee members, our board structure provides strong independent oversight of management.

The Board's Role in Risk Oversight

We face a number of risks in our business, including risks related to: the ongoing COVID-19 pandemic and its impact on our business, financial condition and results of operations; pre-clinical and clinical research and development; manufacturing and clinical and commercial drug supply; regulatory reviews, approvals, 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; 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 the executive chair and the board committees, has responsibility for the oversight of risk management.

Our board administers its risk oversight function directly and through its four committees.

Our lead independent director meets regularly with our executive chair, chief executive officer and other executive officers to discuss strategy and risks facing the company. Our lead independent director and the chair of our nominating and corporate governance committee also meet with our executive chair individually and with the global head of ethics and compliance and 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 on strategic matters involving our business. 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, which was established in 2019. 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 independent 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 our compliance programs with respect to non-financial compliance matters, including commercial compliance and quality programs.

Our executive 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.

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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, 2022 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.			●	●
Michael W. Bonney ★				
Olivier Brandicourt, M.D.	●	●		
Marsha H. Fanucci	●		●	
Yvonne L. Greenstreet, MBChB				
Margaret A. Hamburg, M.D.			●	●
Steven M. Paul, M.D.		●		●
David E.I. Pyott			●	
Colleen F. Reitan	●			
Amy W. Schulman#		●	●	
Phillip A. Sharp, Ph.D.				●

★ Executive Chair of Board # Lead Independent Director ● 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 entered into by us. Our policies and procedures for the review and approval of related person transactions are summarized under the heading “Policies and Procedures for Related Person Transactions,” which appears below.

The current members of our audit committee are Ms. Fanucci (Chair) and Reitan and Dr. Brandicourt. Dr. Brandicourt replaced Mr. Bonney as a member of our audit committee in August 2021. 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 five times during 2021, 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;

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- 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 46 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. Schulman (Chair) and Drs. Brandicourt and Paul. Dr. Paul announced his intention to resign from our board and as a member of our PC&C committee effective April 16, 2022. Following Dr. Paul's resignation from our PC&C committee on April 16, 2022, Ms. Reitan will be appointed as a member of the committee. 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 five times during 2021, either in person or by teleconference.

PC&C Committee Interlocks and Insider Participation

During fiscal year 2021, 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 2021, 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, Aon’s Human Capital Solutions practice (formerly Radford), a division of Aon plc, or Aon, 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, Aon 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. Aon discussed the detailed findings of this review with management in February 2021, 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.

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 2021, 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. In August 2021, Mr. Bonney resigned as a member of our nominating and corporate governance committee in connection with his appointment as executive chair of the board, at which time Dr. Hamburg was appointed as a member of the committee. 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 17 times during 2021, 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, Hamburg and Paul. Dr. Paul announced his intention to resign from our board and as a member of our science and technology committee effective April 16, 2022.

Our science and technology committee met two times during 2021, 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;

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- 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 III 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 she 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 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.

	Ausubello	Bonney	Bronckowart	Fanucci	Greenstreet	Hamborg	Paul	Pyott	Raitan	Schulman	Storp
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	N	Y	Y	Y	Y	Y	Y

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



* The tables above do not include Dr. Paul, who resigned from our board of directors effective April 16, 2022.

Board Diversity Matrix as of March 31, 2022

Board Size:				
Total Number of Directors	11			
Gender:	Male	Female	Non-Binary	Gender Undisclosed
Number of directors based on gender identity	6	5	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	6	3	0	0
Two or More Races or Ethnicities	0	1	0	0
LGBTQ+(1)				0
Undisclosed				0

(1) None of our directors self-identified as lesbian, gay, bisexual, transgender, or a member of the queer community.

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 Dr. Hamburg and Mses. Reitan and Schulman, each of whom currently serves on our board of directors. Dr. Hamburg and Mses. Reitan and Schulman 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 2021, 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. Our lead independent director, 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 lead independent director, 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, starting as of August 2, 2021, Mr. Bonney, do not receive any additional compensation for their service as directors.

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 2020, our PC&C committee, with the assistance of Aon, 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. In addition, based on the results of this review and consistent with our broader equity strategy to transition from a unit-based to a value-based approach for determining equity awards, the PC&C committee and our board of directors determined to transition to a value-based equity approach and reduce the initial and annual stock option award value for non-employee directors to align with our peer group. Our PC&C committee reviewed the compensation we pay our non-employee directors, with input from its independent compensation consultants, in February 2021 and recommended to our board that no changes be made. In August 2021, in connection with Ms. Schulman's appointment as lead independent director, the PC&C committee recommended to our board, and our board approved, annual cash compensation of \$40,000 for the lead independent director.

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The table below reflects the non-employee director compensation in effect for 2021, including the compensation that was approved effective as of August 2, 2021 with respect to lead independent director fees (shown in italics). Such fees were pro-rated for 2021 based upon the date of approval.

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

* 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.

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 option awards to our non-employee directors, subject to the limitations contained in our 2018 Stock Incentive Plan, as amended and restated, or the 2018 Plan. The exercise price of stock option awards is the fair market value of our common stock on the date of grant. During 2021, the PC&C committee recommended, and the board approved, an award of RSUs to Mr. Bonney and a stock option award to Ms. Schulman in connection with their appointment as executive chair and lead independent director, respectively. These awards are set forth in the Director Compensation tables below.

Our board of directors, following the recommendation of our PC&C committee, has approved a 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. The aggregate value limits replaced the previous limits in the 2018 Plan that only related to equity awards. In May 2020, our stockholders approved a second amendment to our 2018 Plan, which included these maximum aggregate values for initial and annual non-employee director compensation.

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 2021:

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	—	399,952	—	469,952
Michael W. Bonney(1)	64,167	4,000,007	399,952	253,800(1)	4,464,126
Olivier Brandicourt, M.D.	70,208	—	399,952	—	470,160
Marsha H. Fanucci	87,500	—	399,952	—	487,452
Margaret A. Hamburg, M.D.	65,625	—	399,952	—	465,577
Steven M. Paul, M.D.(2)	72,500	—	399,952	—	472,452
David E.I. Pyott	70,000	—	399,952	—	469,952
Colleen F. Reitan	67,500	—	399,952	—	467,452
Amy W. Schulman	99,167	—	599,849	—	699,016
Phillip A. Sharp, Ph.D.	67,917	—	399,952	25,000(6)	492,869

- (1) Mr. Bonney was appointed executive chair of the board on August 2, 2021, and was no longer eligible for non-employee director compensation as of such date. The amount reported in the All Other Compensation column represents salary paid to Mr. Bonney in connection with his executive chair role.
- (2) Dr. Paul has resigned from our board of directors effective April 16, 2022.
- (3) The amount reported in the Stock Awards column for 2021 represents the aggregate grant date fair value of RSUs granted to Mr. Bonney in August 2021 in connection with his appointment as executive chair and does not represent compensation to him for service as a non-employee director. Grant date fair values are calculated in accordance with the provisions of FASB ASC Topic 718 and the aggregate grant date fair value is determined by multiplying the number of RSUs awarded 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 for the fiscal year ended December 31, 2021, in accordance with Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 718, of stock options granted under our equity plans for service on our board and treated for accounting purposes as employee awards. There can be no assurance that these amounts will ever be realized. 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 14 to our audited consolidated financial statements for the fiscal year ended December 31, 2021 included in our Annual Report on Form 10-K, filed with the SEC on February 10, 2022.

- (5) The following table summarizes the equity awards granted to our non-employee directors for their service on our board during 2021 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 \$(a)	Grant Date Fair Value of Stock Award Grants\$(b)
Dennis A. Ausiello, M.D.	7/15/2021	4,032	—	399,952	—
Michael W. Bonney	7/15/2021	4,032	—	399,952	—
	8/2/2021	—	22,477(c)	—	4,000,007(c)
Olivier Brandicourt, M.D.	7/15/2021	4,032	—	399,952	—
Marsha H. Fanucci	7/15/2021	4,032	—	399,952	—
Margaret A. Hamburg, M.D.	7/15/2021	4,032	—	399,952	—
Steven M. Paul, M.D.(d)	7/15/2021	4,032	—	399,952	—
David E.I. Pyott	7/15/2021	4,032	—	399,952	—
Colleen F. Reitan	7/15/2021	4,032	—	399,952	—
Amy W. Schulman	7/15/2021	4,032	—	399,952	—
	10/27/2021	1,814(e)	—	199,897(e)	—
Phillip A. Sharp, Ph.D.	7/15/2021	4,032	—	399,952	—

- (a) The grant date fair value computed in accordance with FASB ASC Topic 718 represents the value of stock options granted during 2021. The grant date fair value per option was \$99.19, with the exception of the grant to Ms. Schulman on October 27, 2021, for which the grant date fair value per option was \$110.20. There can be no assurance that the grant date fair value computed in accordance with FASB ASC Topic 718 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 July 15, 2021 and October 27, 2021 grants is \$171.95 and \$191.16, respectively.
- (b) The grant date fair value computed in accordance with FASB ASC Topic 718 represents the value of a stock award granted during 2021. The grant date fair value per RSU was \$177.96.
- (c) Mr. Bonney received a grant of RSUs on August 2, 2021 in connection with his appointment to executive chair of the board.
- (d) In connection with Dr. Paul's resignation from our board, effective April 16, 2022, Mr. Paul's stock award accelerated in accordance with its terms. As noted above, 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.
- (e) Ms. Schulman received a stock option award on October 27, 2021 in connection with her appointment to lead independent director of the board.

- (6) This amount reflects compensation paid to Dr. Sharp for service as the chair of our scientific advisory board during 2021.

The following table summarizes the equity awards that were outstanding as of December 31, 2021 for each of our non-employee directors serving during 2021:

Director Outstanding Equity Awards at Fiscal Year-End for 2021

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	60,363	—	—
Michael W. Bonney(b)	90,363	—	22,477(b)
Olivier Brandicourt, M.D.	12,644	—	—
Marsha H. Fanucci	75,363	—	—
Margaret A Hamburg, M.D.	35,613	—	—
Steven M. Paul, M.D.(c)	108,751	—	—
David E.I. Pyott	74,113	—	—
Colleen F. Reitan	35,613	—	—
Amy W. Schulman	92,177	—	—
Phillip A. Sharp, Ph.D.	154,033	—	—

- (a) Unexercised option awards represent both exercisable and unexercisable awards.
- (b) Mr. Bonney was appointed executive chair of the board on August 2, 2021 and received a grant of RSUs in connection with his appointment.
- (c) Following Dr. Paul's resignation from our board, effective April 16, 2022, 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, 2022, 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, 2021, our principal financial officer, our three other most highly compensated executive officers who were serving as executive officers on December 31, 2021 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(2)	+	Number of Shares Acquirable Within 60 Days(2)	=	Total Beneficial Ownership(2)	Percentage of Common Stock Beneficially Owned(3)
Holders of more than 5% of our common stock						
FMR LLC(4)	17,940,020		—		17,940,020	14.9
The Vanguard Group (5)	10,702,771		—		10,702,771	8.9
Baillie Gifford & Co.(6)	10,616,751		—		10,616,751	8.8
BlackRock, Inc.(7)	7,671,402		—		7,671,402	6.4
Wellington Management Group LLP(8)	6,839,821		—		6,839,821	5.7
Directors and Named Executive Officers						
Dennis A. Ausiello, M.D.	3,500(9)		56,331		59,831	*
Michael W. Bonney	4,000(10)		86,331		90,331	*
Olivier Brandicourt, M.D.	—		5,742		5,742	*
Marsha H. Fanucci	—		71,331		71,331	*
Margaret A. Hamburg, M.D.	—		31,581		31,581	*
Steven M. Paul, M.D.**	1,000		104,719		105,719	*
David E.I. Pyott	27,900(11)		70,081		97,981	*
Colleen F. Reitan	—		31,581		31,581	*

Name and Address of Beneficial Owner(1)	Number of Shares Owned(2)	+	Number of Shares Acquirable Within 60 Days(2)	=	Total Beneficial Ownership(2)	Percentage of Common Stock Beneficially Owned(3)
Amy W. Schulman	—		86,331		86,331	*
Phillip A. Sharp, Ph.D.	266,899(12)		150,001		416,900	*
Yvonne L. Greenstreet, MBChB, MBA	14,309(13)		96,036		110,345	*
Akshay K. Vaishnav, M.D., Ph.D.	11,730(13)		281,336		293,066	*
Jeffrey V. Poulton	3,192(13)		96,202		99,394	*
Tolga Tanguler	—		14,116		14,116	*
John M. Maraganore, Ph.D.***	230,796(13)		935,557		1,166,353	*
All current directors and current executive officers as a group (16 persons)	344,403		1,306,134		1,650,537	1.4

* Less than 1% of our outstanding common stock.

** Dr. Paul has resigned from our board of directors effective April 16, 2022.

*** Served as our Chief Executive Officer throughout 2021, and resigned effective December 31, 2021.

- (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, 2022.
- (3) Percentage of beneficial ownership is based on 120,201,347 shares of our common stock outstanding as of January 31, 2022. Shares of common stock subject to options currently exercisable, or exercisable within 60 days of January 31, 2022, 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. 17 to a Schedule 13G filed by FMR LLC (previously known as FMR Corp.) with the SEC on February 9, 2022, as of December 31, 2021, 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 17,940,020 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 17,940,020 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.
- (5) According to Amendment No. 6 to a Schedule 13G filed by The Vanguard Group with the SEC on February 9, 2022, as of December 31, 2021, The Vanguard Group has shared power to vote 114,605 of the shares owned, sole dispositive power for 10,441,860 of the shares owned and shared dispositive power for 260,911 of the shares owned. The address of The Vanguard Group is 100 Vanguard Blvd., Malvern, PA 19355.
- (6) According to Amendment No. 2 to a Schedule 13G filed by Baillie Gifford & Co. with the SEC on January 18, 2022, as of December 31, 2021, 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 9,119,698 of the shares owned, and sole dispositive power for 10,616,751 of the shares owned. The address of Baillie Gifford & Co. is Calton Square, 1 Greenside Row, Edinburgh EH1 3AN, Scotland, UK.

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- (7) According to Amendment No. 5 to a Schedule 13G filed by BlackRock, Inc. with the SEC on February 3, 2022, as of December 31, 2021, BlackRock, Inc. has the sole power to vote or direct the voting of 6,925,905 of the shares owned and sole power to dispose or to direct the disposition of 7,671,402 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.
- (8) According to Amendment No. 10 to a Schedule 13G filed by Wellington Management Group LLP (formerly Wellington Management Company, LLP), or Wellington Management, with the SEC on February 4, 2022, as of December 31, 2021, Wellington Management, in its capacity as an investment adviser, may be deemed to beneficially own 6,839,821 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 6,484,784 shares of our common stock and shared power to dispose or to direct the disposition of 6,839,821 shares of our common stock. The address of Wellington Management is 280 Congress Street, Boston, MA 02210.
- (9) Represents shares of our common stock of our common stock held in a trust, of which Dr. Ausiello's spouse is the trustee.
- (10) Represents shares of our common stock 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.
- (11) Represents shares of our common stock 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.
- (12) 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.
- (13) Includes shares of our common stock contributed by Alnylam to our 401(k) plan for the benefit of our NEOs through January 31, 2022: Dr. Greenstreet, 406 shares; Dr. Vaishnaw, 514 shares; Mr. Poulton, 57 shares; and Dr. Maraganore, 3,133 shares.

Section 16(a) Beneficial Ownership Reporting Compliance

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, 2021.

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, 2022 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.

Michael W. Bonney, 63, has served as Executive Chair of our Board since August 2021, and as a member of our board of directors since December 2014. Prior to his appointment as Executive Chair, Mr. Bonney served as Chair of our Board since December 2015. 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., Sarepta Therapeutics, Inc. and Global Blood Therapeutics, Inc.

Yvonne L. Greenstreet, MBChB, MBA, 59, 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 Pacira BioSciences, Inc. and The American Funds. Dr. Greenstreet previously served on the board of directors of argenx SE, Indivior PLC and Moelis & Company.

Akshay K. Vaishnaw, M.D., Ph.D., 59, has served as our President since January 2022. Dr. Vaishnaw 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, 54, 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, 49, 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 across sales, market access, marketing, operations, and patient services. Before Alexion, Mr. Tanguler spent the majority of his career at Pfizer serving in roles of increasing responsibility, most recently as Regional President, North America for Rare Diseases and prior to that as Global Vice President and Alliance Co-Head, Eliquis, as well as serving as a country manager of Denmark and Iceland during his tenure.

Pushkal P. Garg, M.D., 54, 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., 50, 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 PC&C committee is responsible for overseeing the total compensation of our senior management team, which includes our named executive officers, or NEOs, and our other senior leaders. The PC&C committee reviews the compensation of our CEO and recommends any changes to our board for approval. For the rest of the NEOs, executive vice presidents and senior vice presidents, the PC&C committee directly approves the compensation. This Compensation Discussion and Analysis (“CD&A”) describes the pay philosophy established for Alnylam’s NEOs, 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 2021 are named below.

Name	Title
John M. Maraganore, Ph.D.(1)	Chief Executive Officer
Yvonne L. Greenstreet, MBChB, MBA(2)	President, Chief Operating Officer
Akshay K. Vaishnav, M.D., Ph.D.(3)	President, Research and Development
Jeffrey V. Poulton	Executive Vice President, Chief Financial Officer
Tolga Tanguler	Executive Vice President, Chief Commercial Officer

(1) Dr. Maraganore resigned as our Chief Executive Officer, effective December 31, 2021.

(2) Dr. Greenstreet was appointed as our Chief Executive Officer effective January 1, 2022.

(3) Dr. Vaishnav was appointed as our President effective January 1, 2022.

Executive Summary – Why You Should Vote FOR The 2022 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

The compensation structure for Dr. Maraganore, who was our CEO throughout 2021, reinforces our commitment to performance-based incentives:

- 94% of Total Direct Compensation was variable and at-risk
- 43% of 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
- 43% of at-risk pay elements included equity-based vesting no earlier than 3 years

This structure is *aligned with stockholder feedback* received as we *implemented our executive succession* plan. Accordingly, Dr. Greenstreet's employment agreement in connection with her promotion to CEO further reinforces our commitment to performance-based incentives.

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 2021, we engaged with stockholders who collectively own a meaningful percentage of outstanding shares
- Stockholders we spoke with affirmed strong support for our executive compensation 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 below.

Our Compensation Aligns With Long-Term Stockholder Interests

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

- Strong emphasis on performance-based equity for every employee using the same metrics applicable to NEOs
- NEO annual incentive payout 100% based on Company performance against preset goals, and 42% of total direct compensation was in the form of equity that vests over at least 3 years
- No guaranteed annual bonuses or salary increases for executive officers
- Robust compensation risk-mitigation policies including clawback, prohibition on margin accounts and pledging and hedging of Company stock, stock ownership guidelines

Our broad-based compensation structure ensures *all employees are rewarded for actions that create sustainable stockholder value*.

Board Response to Stockholder Feedback

We value feedback received from our stockholders concerning our executive compensation program, and have routinely enjoyed stockholder support in the high-90% range for our say-on-pay proposal. At our 2021 annual meeting, our say-on-pay proposal received support from 80% of the votes cast by our stockholders on the matter. In response, we reached 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 2022, except as described below.

The following table outlines the feedback themes received during our 2021 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
- Stockholders requested disclosure of rationale for separation agreements with executives
- Strong Support for Overall Compensation Practices: stockholders, even those who voted against the 2021 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 2022 PSUs to incorporate performance event triggers that are mutually exclusive with prior year performance equity; the PC&C committee is committed to ensuring this design feature is incorporated into future performance equity grants
- The PC&C committee is actively discussing the design of our stock ownership guidelines with the Nominating and Corporate Governance committee and expects to update guidelines before the 2023 annual meeting
- We committed to provide detailed disclosures, and have provided stockholders with rationale and consideration for the agreements through enhanced disclosure provided in the "Employment Arrangements" section
- 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 performance-sensitive direct compensation structure, Alnylam has strong compensation governance practices. Our compensation governance practices are rooted in our 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 our executive officer compensation is at-risk and may be realized only if corporate goals are met.

- **No Automatic Single-Trigger Equity Acceleration**

All of our change-in-control, or CIC, agreements, provisions and equity plans do not permit any automatic accelerated vesting of outstanding equity awards upon a CIC event only, but require both a CIC event and termination of employment.

- **Long-Term Alignment with Stockholders**

For 2021, and in each year since 2013, 50% of our executive officers' equity awards were performance-based equity incentives that 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 officers (vice president and above).

- **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, with no exceptions or waivers.

- **Good Standing Requirement**

We require our executive officers and all other employees to be in good standing in order to be eligible for awards under our short-term cash incentive programs.

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

Our executive 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 executives with excise tax gross-ups and we generally do not provide other tax gross-ups.

Select Business Highlights For 2021

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 today's 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 genetic and other diseases.

We believe 2021 was a year of impressive 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 five 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 2021 making meaningful progress towards these goals, with four marketed products and 13 clinical programs, including five in late-stage development, and we continued to advance earlier stage candidates and optimize our product platform. Based on our performance in 2021, our board determined that we achieved 115% of our corporate goals for fiscal year 2021, including all 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 2021

COMMERCIAL ACHIEVEMENTS

- Recognized global net revenue of \$474.7 million for the year ended December 31, 2021 for ONPATTRO (patisiran), our marketed product approved in the U.S. for the treatment of the polyneuropathy of hereditary transthyretin-mediated amyloidosis, or hATTR amyloidosis, in adults, and in the European Union, or EU, for the treatment of hATTR amyloidosis in adult patients with stage 1 or stage 2 polyneuropathy, as well as in other countries
- Attained approximately 2,050 patients worldwide on commercial ONPATTRO treatment as of December 31, 2021
- Recognized global net revenue of \$127.8 million for the year ended December 31, 2021 for GIVLAARI (givosiran), our marketed product approved in the U.S. for the treatment of adults with acute hepatic porphyria, or AHP, and in the EU for the treatment of AHP in adults and adolescents aged 12 years and older, as well as in other countries
- Attained approximately 350 patients worldwide on commercial GIVLAARI treatment as of December 31, 2021
- Recognized global net revenue of \$59.6 million for the year ended December 31, 2021 for OXLUMO (lumasiran), our marketed product approved in the U.S. and the EU for the treatment of primary hyperoxaluria type 1, or PH1, in all age groups, as well as in other countries
- Attained approximately 140 patients worldwide on commercial OXLUMO treatment as of December 31, 2021

CLINICAL & REGULATORY ACHIEVEMENTS

- Advanced robust pipeline ending 2021 with 13 active clinical-stage programs
- Reported positive results for 18-month endpoints and safety from the HELIOS-A Phase 3 study of vutrisiran in hATTR amyloidosis patients with polyneuropathy
- Our partner, Novartis AG, received U.S. Food and Drug Administration approval for Leqvio as an adjunct to diet and maximally tolerated statin therapy for the treatment of adults with heterozygous familial hypercholesterolemia or clinical atherosclerotic cardiovascular disease who require additional lowering of LDL-C
- Reported positive topline results from the ILLUMINATE-C Phase 3 study of lumasiran in patients with advanced PH1
- Our partner, Sanofi, reported positive results from the Phase 3 ATLAS-A/B and ATLAS-INH studies, demonstrating fitusiran significantly reduced bleeds in people with hemophilia A or B, with or without inhibitors
- Advanced early-stage pipeline, including cemdisiran for the treatment of complement-mediated diseases and zilebesiran (ALN-AGT) for the treatment of hypertension

BUSINESS AND STRATEGIC INITIATIVES

- Announced the planned transition of founding CEO John Maraganore, Ph.D., to Yvonne Greenstreet, MBChB, MBA effective January 1, 2022
- Entered into a collaboration with Novartis to explore a targeted therapy designed to promote the regrowth of functional liver cells and to provide an alternative to transplantation for patients with liver failure
- Launched a partnership with Our Future Health, the UK's largest ever health research program that aims to genotype samples from up to 5 million participants
- Ranked #1 in Boston Globe's 2021 Top Places to Work in the "Largest Employer" category
- Received recognition as world's No. 3 biopharma employer from Science magazine based on more than 7,000 responses to its annual survey of the biotech and pharmaceutical industry

FINANCIAL RESULTS

- Ended 2021 with \$2.44 billion in cash, cash equivalents and marketable securities
- Lowered non-GAAP operating loss for 2021 compared with the prior year, and grew global net product revenues by over 80%

DISAPPOINTMENTS

- Did not meet all commercial objectives for GIVLAARI commercialization activities
- Did not meet all strategic infrastructure objectives

STOCKHOLDER RETURN

- Our three-year total stockholder return (TSR) for fiscal years 2019-2021 was 32.49% and our five-year TSR for fiscal years 2017-2021 was 35.27%. Our one-year TSR for 2021 was 30.48%

Significant Compensation Decisions in 2021

Our PC&C committee regularly reviews our policies and program design for both our NEOs and all employees. Additionally, as part of its broad oversight of our human capital initiatives, the PC&C committee also considered the potential continuing impact of the ongoing Covid-19 pandemic on our compensation practices and policies, including on executive compensation.

No Covid-19 Changes to Executive Compensation: Following a review by the independent compensation consultant to the PC&C committee, 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 or 2021.

Continuation of Enhanced Workplace Benefits for All Employees: We understand that our >1,600 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:

- 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, and a company-wide initiative to reduce weekly meetings by 20%;
- additional paid time off, including increased vacation carry over into 2021, 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.

Proactive Management of Dilution: Given our broad-based equity participation and recognizing our headcount growth of 42% from January 2018 to the end of 2020, beginning with annual awards for 2020 (that were made in February 2021) and new hire awards in 2021, we transitioned from a unit-based to a value-based approach for determining equity awards for all employees, including our NEOs. Continuing this careful proactive management approach, we transitioned new hire awards from 100% stock options to 50% stock options/50% restricted stock units, or RSUs, effective January 1, 2022. The committee's commitment to reduce burn rate through these measures has resulted in a burn rate during 2021 of 2.29%.

Review of Pay Strategies: Given our transition to a fully integrated commercial stage biopharmaceutical company, Aon reviewed the pay strategies of life science and pharmaceuticals companies with our PC&C committee and the committee endorsed management conducting an analysis of pay practices in 2022.

One-Time Strategic PSUs: In February 2021, the PC&C committee approved a one-time strategic PSU award for our Chief Commercial Officer to align with the one-time strategic PSU award made to all 8 members of our management board, including the NEOs (but excluding the CEO) then employed in October 2020. In October 2021, the PC&C committee approved a one-time strategic PSU award for all vice president level and above employees (excluding all members of our management board), in connection with the planned CEO transition. These one-time strategic performance awards were intended to, as part of the implementation of an executive succession plan, align senior management and establish commitment around the achievement of a key development milestone supporting Alnylam's path to self-sustainability and to reward senior leaders who are critical to Alnylam achieving its long-term goals and vision.

Peer Group Evaluation: Our PC&C committee evaluated our peer group, with assistance from Aon, and determined that certain changes were appropriate given our commercial transition, market capitalization and revenues.

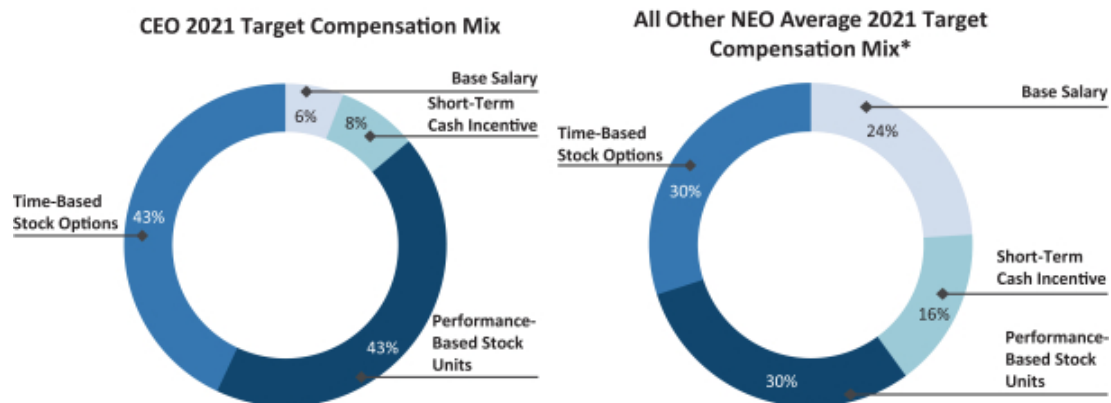
Components of our Compensation Program

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 executive talent and to motivate such executives to achieve clinical, business and financial goals that create 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	% of CEO TDC	% of Other NEO TDC	At-Risk?	Description	Rationale
Base Salary	6%	24%		<ul style="list-style-type: none"> Fixed cash compensation targeted within the range of the market median, reflective of individual performance, skills, experience and internal equity 	<ul style="list-style-type: none"> Attracts and rewards high performing executives via market competitive pay and industry norms and reflects individual performance
Short-Term Cash Incentives	8%	16%	✓	<ul style="list-style-type: none"> Annual performance against preset goals Payouts earned only if corporate performance exceeds 50% of preset targets Awards capped at specified target percentage (150% for fiscal year 2021) 	<ul style="list-style-type: none"> Drives company-wide and individual performance Rewards annual performance 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	86%	60%	✓	<ul style="list-style-type: none"> Value split 50% PSUs and 50% stock options PSUs only vest upon achievement of clinical development, regulatory and/or commercial milestones Stock options only have value to the extent our stock price appreciates following grant Equity awards for 2021 performance were granted in February 2022 	<ul style="list-style-type: none"> Motivates executives to achieve multi-year strategic objectives and clinical development, regulatory and commercial milestones, and deliver sustained long-term growth Unique position within our peer group 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
At-Risk %	94%	76%			

The PC&C committee is committed to ensuring that a substantial portion of executive compensation is “at-risk” and variable. As such, 94% of our CEO’s total direct compensation for 2021 and, on average, 76% of our other NEOs’ total direct compensation for 2021, 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 annual equity compensation was made up of performance-based equity awards beginning in 2013. Awards with respect to 2021, which were granted in February 2022, were a mix of time-based stock options and PSUs.



*This figure excludes Mr. Tanguler's on-hire stock option and RSU awards.

Note: The figures above include the annual equity awards made in 2021 with respect to 2020 performance, as reflected in the Summary Compensation Table for 2021 compensation below. 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. Equity awards made for 2021 performance were granted in February 2022 and are not reflected above.

Base Salary

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

Merit-based increases in base salary for all of our continuing executive officers, other than our CEO, are approved by our PC&C committee based upon a recommendation from our CEO. Any merit-based increase in base salary for our CEO is based upon an assessment of his or her performance by our PC&C committee and a review by our PC&C committee of the base salaries of chief executive officers in our peer group. Our PC&C committee recommends any changes to our CEO's base salary to our board for review and approval.

During the first quarter of 2022, our PC&C committee approved increases for 2022 base salary for each of our NEOs other than our President, Research and Development and our President and Chief Operating Officer, due to their promotions to President and to CEO, respectively, effective January 1, 2022. These increases, reflected below, were effective as of March 1, 2022 and were based upon the company's performance against the corporate goals in 2021, as well as each NEO's individual contribution in 2021 to the achievement of those corporate goals, and a review by our PC&C committee of the base salaries of comparable NEOs in our 2021 peer group.

The table below sets forth the 2022 and 2021 base salaries, in dollars, and the adjustment to base salaries, as a percentage, for each of our NEOs:

Base Salary Adjustments

Name*	2022 Base Salary(\$)	2021 Base Salary(\$)	Increase(%)
Yvonne L. Greenstreet, MBChB, MBA**	850,000	621,915	36.7
Akshay K. Vaishnav, M.D., Ph.D.**	725,000	635,000	14.2
Jeffrey V. Poulton	610,000	575,000	6.1***
Tolga Tanguer	567,600	550,000	3.2

* Dr. Maraganore resigned from the company in December 2021 and therefore, he has been excluded from the table.

** Dr. Greenstreet was appointed as our Chief Executive Officer and Dr. Vaishnav was appointed as our President effective January 1, 2022. The adjustments to base salary reflected above were effective January 1, 2022 and represent the salaries for the new roles rather than a merit adjustment.

*** Includes a market adjustment of 2.25% to address a gap in Mr. Poulton's base salary relative to the market median.

Short-Term Incentives—2021 Annual Incentive Program

Annual cash incentives are paid to our NEOs through Alnylam's Annual Incentive Program, or AIP. Our short-term incentive structure is intended to align NEOs' interests directly with Alnylam's corporate goals. In making its determination regarding awards for 2021 under the AIP for our NEOs, our PC&C committee and our board considered our success against pre-established 2021 corporate goals. Based on our performance in 2021, our board determined that we achieved 115% of our corporate goals for fiscal year 2021, including all of our commercial execution and late-stage pipeline goals, all of our growth and growth management goals, 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

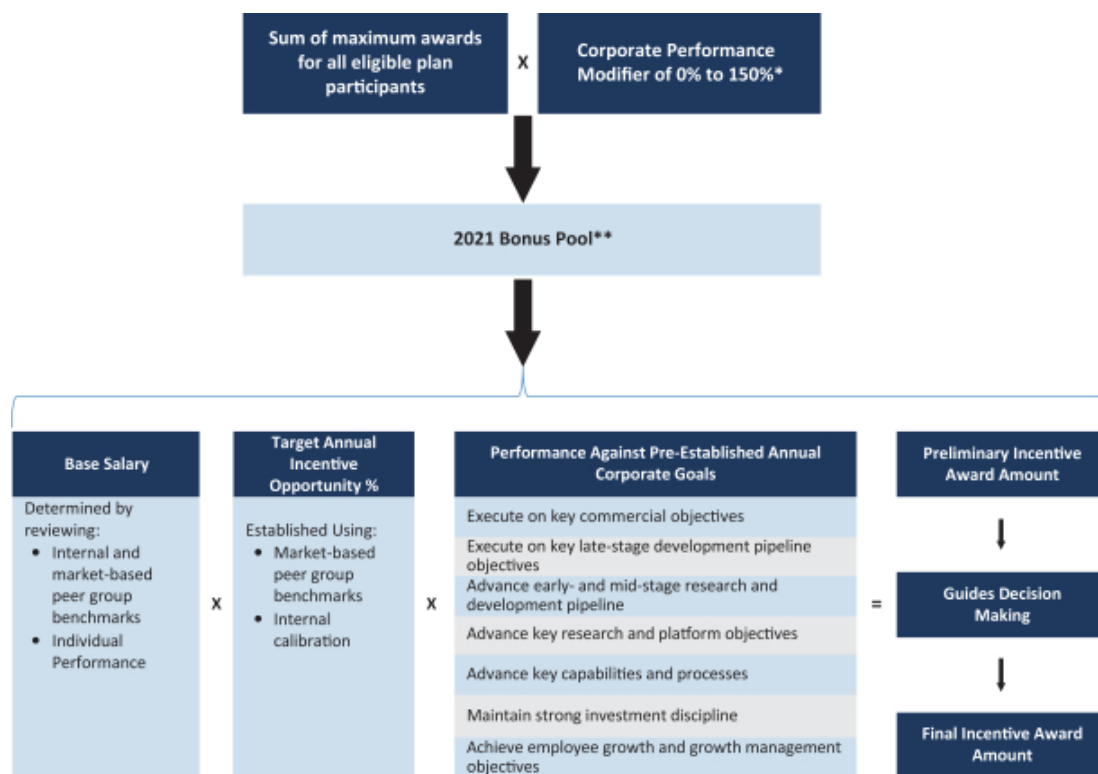
The 2021 corporate goals approved by our board, the relative weightings assigned to each goal, our actual achievement during the performance period as a percentage of target and the weighted performance against these corporate goals for 2021, as approved by our PC&C committee and our full board in determining our NEOs' compensation, were as follows:

Annual Incentive Payout Matrix

2021 Corporate Goals	Relative Weighting(%)	Actual Achievement For 2021 (As % of Target)	Weighted Performance(%)
<ul style="list-style-type: none"> • Execute on key commercial objectives, including: <ul style="list-style-type: none"> ; Achieve ONPATTRO, GIVLAARI, and OXLUMO success, and prepare for vutrisiran launch; focusing on patient impact; and ; Stretch Goals—Exceed more aggressive ONPATTRO, GIVLAARI and OXLUMO commercial metrics. 	30	100	30
<ul style="list-style-type: none"> ; Stretch Goals—Exceed more aggressive ONPATTRO, GIVLAARI and OXLUMO commercial metrics. 	25	0	0
<ul style="list-style-type: none"> • Execute on key late-stage development pipeline objectives, including: <ul style="list-style-type: none"> ; Execute on five late-stage clinical programs, including positive Phase 3 studies and regulatory submissions, toward our <i>AInylam P5x25</i> profile; and ; Stretch Goals – Exceed certain specified pipeline advancement timelines. 	25	100	25
<ul style="list-style-type: none"> ; Stretch Goals – Exceed certain specified pipeline advancement timelines. 	20	100	20
<ul style="list-style-type: none"> • Advance early- and mid-stage research and development pipeline to achieve <i>AInylam P5x25</i> profile, while managing operating expenses to support transition to self-sustainability. <ul style="list-style-type: none"> ; Stretch Goal – Exceed certain specified early-stage pipeline advancement metrics. 	15	83	12.5
<ul style="list-style-type: none"> ; Stretch Goal – Exceed certain specified early-stage pipeline advancement metrics. 	5	0	0
<ul style="list-style-type: none"> • Advance key research and platform objectives, including advancement of ESC+ GaINAc Conjugate Platform and extra-hepatic platforms. 	5	100	5
<ul style="list-style-type: none"> • Advance key capabilities and processes to support global commercial readiness objectives. 	5	50	2.5
<ul style="list-style-type: none"> • Maintain strong investment discipline by prioritizing pipeline and commercial investment opportunities and executing on plans to achieve self-sustainable financial profile consistent with <i>AInylam P5x25</i> strategy. 	15	100	15
<ul style="list-style-type: none"> • Achieve employee growth and growth management objectives with excellence, patient focus, safety, quality and compliance. 	5	100	5
Approved 2021 Corporate Performance Level for NEOs	150		115

Calculation of Annual Cash Incentives

Annual cash incentives were calculated as shown below.



* If the 2021 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.
 ** Board of directors and/or PC&C committee has the discretion to make adjustments in connection with the AIP as it deems appropriate. Our board of directors did not exercise such discretion with respect to the determination of awards under the AIP for 2021.

Our PC&C committee aims to determine an appropriate mix of cash incentive opportunities and equity incentive grants to meet short- and long-term goals and objectives. In February 2021, our PC&C committee approved the target awards for 2021 under the AIP, including the opportunity for eligible participants to achieve incentive awards above established bonus targets based on the company's performance against 2021 corporate goals. No changes were made to the target award levels for our NEOs for 2021. Each potential bonus award for 2021 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 2021 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 2021 AIP as a percentage of each NEO's annual base salary in 2021, 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 in dollars for 2021 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 AIP for 2021 performance, which were paid in March 2022, and (4) the actual bonus payment as a percentage of the target award opportunity.

2021 Annual Incentive Program Awards

Name	2021 Target Award (% of Base Salary)	2021 Target Award Opportunity(\$)	2021 Maximum Award Opportunity(\$)**	2021 Actual AIP Payout(\$)	2021 Actual AIP Payout (% of Target Award Opportunity)
John M. Maraganore, Ph.D.*	100	952,800	1,429,200	1,095,720	115
Yvonne L. Greenstreet, MBChB, MBA	60	373,150	559,730	429,120	115
Akshay K. Vaishnaw, M.D., Ph.D.	60	381,000	571,500	438,150	115
Jeffrey V. Poulton	50	287,500	431,250	330,630	115
Tolga Tanguler	50	275,000	412,500	316,250	115

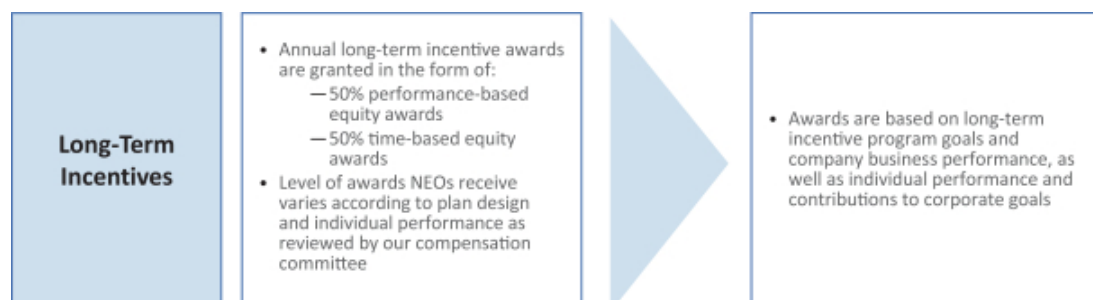
* Dr. Maraganore resigned from the company, effective December 31, 2021. Under the terms of his separation agreement, described below, Dr. Maraganore received a cash bonus award calculated consistent with other NEOs under the AIP.

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

Long-Term Incentives – 2021 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 employees are focused on the creation of stockholder value, the equity compensation structure for all our employees mirrors that of our NEO group: every employee receives annual performance-based equity awards that vest upon the same performance criteria as our NEOs with only the value of stock awards differing based on their individual levels, roles and responsibilities.



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 have taken the form of stock options, which we believe further strengthens the long-term alignment between our executives and stockholders. 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 with the awards for 2018 performance, granted in February 2019, our PC&C committee determined that a 50/50 split between stock options and PSUs was more aligned with the achievement of our long-term equity strategy and growth objectives, our desire to maintain competitive levels of executive compensation and to underscore the strong performance orientation of both our long-term incentive equity and our overall executive compensation program.

Equity awards typically vary among our executive officers based on their positions and annual performance assessments. In addition, our PC&C committee reviews all components of each executive officer's compensation to ensure that his or her total compensation is aligned with our overall philosophy and objectives. Stock options granted to our executives have exercise prices equal to the fair market value of our common stock on the date of grant, so that the recipient will not earn any compensation from his or her stock options unless our stock price increases above the value on the date of grant. PSUs will only vest in the event that specified performance criteria are met and will vest no earlier than one year after the date of grant. Accordingly, each portion of our executive officers' annual equity compensation is "at risk" and is directly aligned with stockholder value creation.

Stock options are granted to our executive officers upon commencement of employment and are granted annually, typically vest over four years, and, as noted above, performance-based awards vest only upon achievement of the specified performance events, which we believe provides in both cases an incentive to our executives to add value to the company over the long-term and to remain with Alnylam.

Annual Equity Awards

Our annual equity awards for 2021 performance were in the form of PSUs and stock option awards. 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. 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 date of grant 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*
2018	• Filing an IND or CTA for CNS or Ocular Product Candidate (33%)	✓ December 2021	
	• Filing of Fourth NDA or MAA for Regulatory Approval with the FDA or EMA (33%)	✓ April 2020	
	• Achievement of First \$500.0 Million in Cumulative Net Product Revenues (33%)	✓ February 2021	
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%)		• Timing of achievement depends on progress and success of Phase 3 programs in indication
	• 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%)		• Timing of achievement depends on progress and success of Phase 3 programs in indication
	• 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 Alynlam 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
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

* 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 date of grant.

The performance events for a PSU must occur within ten years from the date of grant. Vesting of equity awards to employees typically ceases upon termination of employment. Prior to the vesting of a PSU, the holder 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 2021 performance in February 2022. As noted above, in connection with the continued assessment of our equity incentive program, beginning with annual awards for 2019 (that were made in February 2020) and new hire awards in 2021, we transitioned from a unit-based to a value-based approach for determining equity awards for all employees, including our NEOs. The guideline for award levels for NEOs for 2020 and 2021 was generally between the 50th and 60th percentile of market, subject to adjustment for individual performance.

We view equity incentive compensation as a critical component of our compensation strategy and therefore to date we have maintained a broad-based program for all employees to have an opportunity to participate as owners of the company. This program is consistent with the description above for our NEOs and includes equity incentive awards upon the commencement of employment and annual equity incentive awards for all employees. Annual awards are structured in the same way for all employees, with 50% vesting over time and 50% vesting only upon the achievement of specified performance milestones.

The annual equity incentive awards granted to our NEOs for 2021 and 2020 performance, the value of such awards and the percentage change from 2021 versus 2020, are set forth in the table below:

Annual Equity Incentive Awards

Name	Number of Stock Options Granted			Number of Performance Stock Units Granted			Annual Equity Incentive Award Values*		
	2021 (#)**	2020 (#)**	2021 versus 2020 Year-over-Year Change(%)	2021 (#)**	2020 (#)**	2021 versus 2020 Year-over-Year Change(%)	2021 (\$)**	2020 (\$)**	2021 versus 2020 Year-over-Year Change(%)
John M. Maraganore, Ph.D.***	—	79,998	N/A	—	42,879	N/A	—	13,000,000	N/A
Yvonne L. Greenstreet, MBChB, MBA****	31,747	28,800	10	50,858	15,437	229	10,000,000	4,680,000	114
Akshay K. Vaishnav, M.D., Ph.D.	29,842	28,800	4	15,936	15,437	3	4,700,000	4,680,000	—
Jeffrey V. Poulton	18,413	23,200	(21)	9,833	12,435	(21)	2,900,000	3,770,000	(23)
Tolga Tanguler*****	18,413	—	N/A	9,833	—	N/A	2,900,000	—	N/A

* The value of annual equity incentive awards for each NEO is split equally between stock options and PSUs. See Note 5 and Note 8 to Summary Compensation Table for additional information on the calculation of the value of awards.

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- ** Reflects awards made in first quarter of 2022 and 2021 for 2021 and 2020 performance, respectively. Awards granted in February 2022 for 2021 performance are presented for comparative purposes and are not reflected in the Summary Compensation Table for 2021. These awards will be included as 2022 compensation in the 2023 proxy statement.
- *** Dr. Maraganore resigned from the company, effective December 31, 2021. Under the terms of his separation agreement, described below, Dr. Maraganore was not entitled to receive any additional equity awards after his resignation date.
- **** Dr. Greenstreet was appointed as our Chief Executive Officer effective January 1, 2022. In connection with her appointment as CEO, Dr. Greenstreet was granted a promotional award having a value of \$5,000,000. The award was granted on December 31, 2021 in the form of stock options rather than stock options and PSUs. Her annual award was adjusted to provide for additional value in the form of PSUs and lesser value in the form of stock options, allowing for alignment on performance metrics with the rest of the NEOs.
- ***** Mr. Tanguler did not receive any annual incentive awards in 2021 for 2020 performance.

In February 2021, the PC&C committee approved a one-time strategic PSU award for Mr. Tanguler to align with the one-time strategic PSU awards approved in October 2020 for all members of our management board who were employed at such time (excluding the CEO). The value of this one-time strategic PSU award was equal to Mr. Tanguler's 2021 annual base salary, resulting in the grant of 3,629 PSUs with a value of \$550,000.

Benefits and Other Compensation

Other compensation to our executives consists primarily of the broad-based benefits we provide to all employees, including health and dental insurance, life and disability insurance and a 401(k) plan. Our 401(k) plan is a tax-qualified retirement savings plan pursuant to which all U.S. based employees, including executive officers, are able to contribute the lesser of up to 60% of their annual salary or the limit prescribed by the Internal Revenue Service on a before-tax basis. We match 100% of the first 2% of a plan participant's contributions and 50% of the next 4% of contributions in cash. Prior to 2020, our matching contributions were made in the form of shares of our common stock. We do not have an annual maximum for matching contributions (subject to statutory maximums under the Code) and such matching contributions are fully vested immediately.

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 the rest of our NEOs, executive vice presidents and senior vice presidents, the PC&C committee directly approves the 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 2021, 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 the purposes of determining other elements of compensation. Individual objectives for 2021 for the remaining members of our senior management team focused on contributions that were intended to drive achievement of the

corporate goals and were approved by our chief executive officer. In 2021, our PC&C committee established the maximum cash bonus opportunity for each member of our senior management team for 2021 under the annual incentive program, representing a percentage of each individual's base salary.

Given that we are a global commercial organization, 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 year-end 2021 compensation matters, our senior management team evaluated our corporate performance at the end of 2021 and the individual performance of employees, as compared to the corporate goals for that year, during the first quarter of 2022. During the first quarter of 2022, our Chief Human Resources Officer, with the assistance of Aon, reviewed the performance of our NEOs (other than the CEO and her own performance), and our PC&C committee evaluated each of these NEOs' compensation and determined any increases in base salary and any annual equity awards and/or, based solely on our performance against corporate goals, cash awards under our annual incentive program. Decisions with respect to the increase in base salary and annual equity awards for our new President were made by our PC&C committee in connection with his appointment. In addition, due to the timing of our CEO transition, our PC&C committee, together with the Executive Chair of our board of directors, determined our new CEO's annual base salary and annual equity awards in connection with her appointment. Our PC&C committee determined whether to recommend to the full board for approval a cash award under our annual incentive program for the new CEO based on her target award percentage for 2021, 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 2022, except with respect to our new CEO and President. Accordingly, equity awards made with respect to 2021 performance were not granted until 2022, and therefore, are not reflected in the executive compensation tables for 2021. Rather, the awards reflected in the executive compensation tables for 2021 were granted in respect of 2020 performance. The 2021 awards, granted in February 2022, are reflected in the tables included in this Compensation Discussion and Analysis to provide all details of compensation related to 2021 performance. Changes in base salary of our NEOs approved in February 2022 were effective as of March 1, 2022. The cash incentive payments awarded under our annual incentive program for 2021 were paid in March 2022.

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. In evaluating the total compensation of our NEOs, our PC&C committee, using information provided by Aon, establishes a peer group of publicly traded, national and regional companies in the biopharmaceutical and biotechnology industries that is selected based on a balance of the following criteria:

Peer Selection Considerations

Organizational Structure	<ul style="list-style-type: none">Companies whose organizational structure, number of employees (headcount between 500 and 5,000) and positions, stage of development (early commercial), market capitalization (\$10 billion to \$50 billion, with emphasis on middle of the range), and product revenues (\$300 million to \$2 billion) are similar to ours
Executive Positions	<ul style="list-style-type: none">Companies with similar executive positions to ours
Executive Talent Pool	<ul style="list-style-type: none">Companies against which we believe we compete for executive talent
Operations in U.S.	<ul style="list-style-type: none">Public companies with substantial operations in the U.S. whose compensation and financial data are available in proxy statements or other public documents

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. There are limited companies with a comparable profile to Alnylam, in light of our market capitalization, the recency of our commercial launches, the depth of our pipeline for the continued development of a new class of medicines and our rapid global growth. As such, Aon identified three categories of companies that were all considered for purposes of selecting a balanced group of peers: Large Biopharma; Similarly Situated Commercial; and Governance Peers meeting at least two selection criteria.

2021 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 2020 peer group (used for compensation decisions made in calendar year 2021, including the annual equity awards for 2020 performance approved and granted in 2021) consisted of 19 companies operating in the biopharmaceutical/biotechnology industry. After consultation with Aon, the PC&C committee determined that two companies (Alkermes, plc and bluebird bio, Inc.) were no longer appropriate as peers on a go-forward basis for a variety of reasons, primarily market capitalization and revenue, and also selected three companies (BeiGene, Ltd., Exact Science Corporation and Novavax, Inc.) to be added as peer companies based primarily on our financial and business position as an early-stage commercial company in 2021. The 2021 peer group reflecting these changes and

approved by our PC&C committee is shown below, with the new peer companies identified in italics. The 2021 peer group was used in connection with compensation decisions made in February 2022 relating to merit increases, salary market adjustments and annual equity awards for 2021 performance.

2021 Peer Group		
Acceleron Pharma, Inc.	Horizon Therapeutics plc	Sarepta Therapeutics, Inc.
Alexion Pharmaceuticals, Inc.	Incyte Corporation	Seagen Inc.
<i>BeiGene, Ltd.</i>	Ionis Pharmaceuticals, Inc.	Ultragenyx Pharmaceutical Inc.
BioMarin Pharmaceutical Inc.	Jazz Pharmaceuticals plc	United Therapeutics Corporation
<i>Exact Sciences Corporation</i>	Neurocrine Biosciences, Inc.	
Exelixis, Inc.	<i>Novavax, Inc.</i>	

From the 2020 peer group, the following companies were excluded as a peer for 2021: Alkermes plc and bluebird bio, Inc.

Compensation Benchmarking

To provide the appropriate context for executive pay decisions, our PC&C committee, in consultation with Aon, 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 2021.

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, as well as 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. 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 benchmark specific compensation elements or total 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 equity incentive compensation and our long-term equity strategy, with continued assistance from Aon, and to make adjustments to equity incentive awards based upon our stock price and peer position. As noted above, beginning with annual awards for 2019 (that were made in February 2020) and new hire awards in 2020, we transitioned from a unit-based to a value-based approach for determining equity awards for all employees, including our NEOs. Our PC&C committee, with input from Aon, reviewed the value-

based guidelines for equity incentive compensation awards for 2021 (including the annual equity awards that were made in February 2022) for our NEOs and for all of our employees, and retained the guidelines established in 2019, subject to adjustment of annual awards based upon individual performance. The guideline for award levels for NEOs for 2021 was set at the 60th percentile of market, subject to adjustment for individual performance. We expect to continue to review our equity incentive compensation guidelines annually and to make adjustments in 2022 and beyond, as needed and dependent on our stock price and peer position, particularly in light of our continued global growth as we advance our commercialization efforts in 2022 and beyond.

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 three products to date, we have not achieved profitability and therefore, several of the traditional benchmarking metrics, such as profits and 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, Aon, 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, Aon 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. Aon discussed the detailed findings of this review with management in February 2021, 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 and our former CEO, who entered into an employment agreement, or the Maraganore Employment Agreement, with the Company on August 2, 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 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.

Pursuant to the terms of the Maraganore Employment Agreement, Dr. Maraganore was eligible to receive an award of \$3,000,000, payable in shares of the Company's common stock, subject to the board's assessment on the third anniversary of the effective date of his employment agreement, in its discretion, of specified individual performance criteria. In connection with his resignation from the Company, following nearly 19 years of service, we entered into a letter agreement with Mr. Maraganore dated October 26, 2021, which superseded the Maraganore

Employment Agreement. Under the letter agreement, Mr. Maraganore agreed to provide consulting services to us for up to 10 hours per month, or for such additional hours as may be mutually agreed, for a three-month period. During the three-month period, Dr. Maraganore received as full compensation for his consulting services (i) cash compensation equal to \$238,200, less lawful deductions, paid in monthly installments during the period of January 1, 2022 through March 31, 2022, and (ii) a cash bonus for 2021 of \$1,095,720 based on actual performance under the AIP, which was paid at the time 2021 bonuses were paid to our other executive officers. The letter agreement provides that Dr. Maraganore's departure will be treated as a resignation for "Good Reason" or a termination without "Cause" pursuant to the terms of the Maraganore Employment Agreement, and that, in accordance with the Maraganore Employment Agreement and as additional consideration for the letter agreement, his outstanding unvested equity awards will continue to vest and be exercisable until March 31, 2024, and his outstanding vested stock options shall remain exercisable until the earlier of March 31, 2024 and the original expiration dates of such options. The letter agreement with Dr. Maraganore included a release of claims and certain other standard terms and conditions.

Potential Payments Upon Termination or Change-in-Control

Certain executives, including our NEOs, may be entitled to certain 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 management board.

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 member of our management board, and all of our other current NEOs, with the exception of our CEO. The CIC agreements entitle each executive to certain benefits in the event of certain terminations of employment with us within 12 months following a CIC (as defined in the CIC agreement). Pursuant to each CIC agreement, if an executive is terminated by us without Cause (as defined in the CIC agreement) or if an executive terminates his or her employment for Good Reason (as defined in the CIC agreement), in either case, within 12 months following a CIC, such executive will be entitled to receive (i) a lump sum cash payment equal to one and a half 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 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, following a CIC and 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.

If any payment and benefits to be paid or provided to an executive, 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’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 the company.

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

Stock Ownership Guidelines

We have stock ownership guidelines for our directors and our executive officers. Under these guidelines, directors (other than our CEO) are subject to a standard of having to hold equity securities having a minimum value of three times the annual cash retainer (currently \$165,000), our CEO is subject to a standard of having to hold equity securities having a minimum value of six times her base salary and all of our other executive officers are subject to a standard of having to hold equity

securities having 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 annually, valuing stock at the higher of the fair market value on date of review or the trailing 90-day average. All of our directors (including our CEO) and our executive officers are currently in compliance with our ownership guidelines. Based on stockholder feedback received in 2021, our PC&C committee evaluated the multiple for our CEO, with assistance from Aon, and determined that it was reasonable and consistent with our peer group. Our PC&C committee is also evaluating the forms of equity that count towards the ownership guideline to determine if any changes are warranted at this time.

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 our chief executive officer and our principal financial officer, as well as all of our officers at the level of vice president and above. 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.

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 has exercised this authority to engage Aon’s Human Capital Solutions practice (formerly Radford), a division of Aon plc, or Aon, as an independent compensation consultant. Aon serves as an advisor to our PC&C committee on topics primarily related to our total compensation program, our equity compensation and our future equity compensation strategy, director and executive compensation, and peer group selection and evaluation. Aon reports directly to our PC&C committee chair on the matters on which it has been retained. For 2021, we paid Aon approximately \$265,000 for advice and services provided to the PC&C committee by Aon in its capacity as an independent compensation consultant.

Our PC&C committee regularly reviews the services provided by its outside consultant and believes that Aon is independent from the company in providing executive compensation consulting services. Our PC&C committee has assessed the independence of Aon consistent with Nasdaq Global Select Market listing standards and SEC rules and has concluded that the engagement of Aon 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 2021, 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 2021, we paid Aon approximately \$325,750 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 does annually review Aon's internal guidelines and practices designed to guard against conflicts and 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 2021 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, 2021, which was filed with the SEC on February 10, 2022.

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

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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,

Amy W. Schulman, Chair
Steven M. Paul, M.D.
Olivier Brandicourt, M.D.

Executive Compensation

The following table sets forth the total compensation paid or accrued for the years ended December 31, 2021, 2020 and 2019 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 (\$)
John M. Maraganore, Ph.D. (1) <i>Former Chief Executive Officer (principal executive officer)</i>	2021	948,500	—	— (8)	7,861,410	1,095,720	271,055	10,176,685
	2020	946,200	—	— (8)	5,746,295	1,110,000	15,669	7,818,164
	2019	845,000	—	1,204,195(8)	4,327,138	913,750	27,773	7,317,856
Yvonne L. Greenstreet, MBChB, MBA (2) <i>President and Chief Operating Officer</i>	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
	2019	571,423	—	460,360(8)	1,654,494	370,875	192,873	3,250,025
Akshay K. Vaishnav, M.D., Ph.D. (3) <i>President, Research and Development</i>	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
	2019	586,530	—	460,360(8)	1,654,494	378,680	20,888	3,100,952
Jeffrey V. Poulton <i>Executive Vice President, Chief Financial Officer (principal financial officer)</i>	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
	2019	254,808	—	— (8)	5,479,525	136,740	6,343	5,877,416
Tolga Tanguler (4) <i>Executive Vice President, Chief Commercial Officer</i>	2021	547,900	—	1,500,110(9)	4,501,220	316,250	11,710	6,877,190

- (1) Dr. Maraganore resigned from the company, effective December 31, 2021.
- (2) 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.
- (3) Dr. Vaishnav was appointed President effective January 1, 2022.
- (4) Mr. Tanguler joined Alnylam as our executive vice president, chief commercial officer in January 2021.
- (5) The amounts reported in the Option Awards column represent the aggregate grant date fair value for the fiscal years ended December 31, 2021, 2020, and 2019 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 14 of our audited consolidated financial statements for the year ended December 31, 2021 included in our Annual Report on Form 10-K, filed with the SEC on February 10, 2022. To see the value actually realized by the NEO from stock option exercises in 2021, see the 2021 Option Exercises and Stock Vested table appearing below.

Options granted in February 2019 for 2018 performance are reflected in the Summary Compensation Table above for 2019. 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 not reflected in the Summary Compensation Table above for 2021 and will be included as 2022 compensation in the 2023 proxy statement. The amount reported in the Option Awards column for Dr. Maraganore also include the modification date value of time-based stock options reflecting the incremental fair value recognized for stock options that will continue to vest through March 31, 2024 as a result of the modification in October 2021 pursuant to Dr. Maraganore's separation agreement.

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.

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- (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 in respect of such executive officer; and (iii) the incremental cost to us of all perquisites and other personal benefits. Specifically, the All Other Compensation column above includes:

Name	Year	Term Life Insurance Premiums Paid by Alnylam (\$)	Dollar Value of Contribution by Alnylam to the Executive's Account Under 401(k) Plan (\$ (a))	Incremental Cost to Alnylam of All Perquisites and Other Personal Benefits (\$)
John M. Maraganore, Ph.D.	2021	4,900	10,000	256,155(b)
	2020	5,669	10,000	—
	2019	19,773	8,000	—
Yvonne L. Greenstreet, MBChB, MBA	2021	4,900	5,000	176,100(c)
	2020	5,357	7,000	166,565(c)
	2019	11,701	8,000	173,173(c)
Akshay K. Vaishnav, M.D., Ph.D.	2021	4,900	10,000	—
	2020	5,386	11,000	111(d)
	2019	12,529	8,000	360(d)
Jeffrey V. Poulton	2021	2,620	11,600	—
	2020	2,713	11,400	—
	2019	1,083	5,260	—
Tolga Tanguler	2021	1,710	10,000	—

- (a) Prior to 2020, contributions by Alnylam to the executive's account under 401(k) plan was in the form of Alnylam common stock. Amounts shown in 2019 represent the dollar value of Alnylam common stock contributed by Alnylam.
- (b) The amount shown includes \$238,200 for consulting fees accrued as of December 31, 2021 and \$17,955 for legal fees reimbursed in 2021 pursuant to Dr. Maraganore's separation agreement.
- (c) 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 Alnylam, \$117,600 in reimbursement for relocation expenses and \$48,854 for a gross-up related to taxable relocation benefits. For 2019, amount represents \$222 for an employee fitness benefit, paid by Alnylam, \$122,103 in reimbursement for relocation expenses and \$50,848 for a gross-up related to taxable relocation benefits.
- (d) Represents amounts for an employee fitness benefit, paid by Alnylam.
- (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 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 \$6,500,030 for Dr. Maraganore, \$2,340,090 for Dr. Greenstreet, \$2,340,090 for Dr. Vaishnav, and \$1,885,020 for Mr. Poulton. 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 management board, 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 \$5,750,097 for Dr. Maraganore, \$2,403,873 for Dr. Greenstreet, \$2,416,668 for Dr. Vaishnav, and \$2,137,739 for Mr. Poulton. For PSUs granted during 2019 for 2018 performance, the amounts reported represent the grant date fair value of the portion of such awards for which the performance conditions were deemed probable as of the grant date. The grant date fair value of such awards, based upon maximum achievement, would be \$3,612,500 for Dr. Maraganore, \$1,381,250 for Dr. Greenstreet, and \$1,381,250 for Dr. Vaishnav. Mr. Poulton joined Alnylam in July 2019 and did not receive a PSU award for 2018 performance.

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- (9) Mr. Tangler received an RSU award upon commencement of his employment and a one-time strategic PSU award in February 2021 to align with the one-time award granted to other NEOs in October 2020 described above. The amounts reported represent the aggregate grant date fair value of such awards, calculated in accordance with the provisions of FASB ASC Topic 718. In accordance with SEC rules, for the PSU award, the amount is calculated based on the probable outcome of the performance conditions as of the grant date, for which we determined that, as of the date of grant, it was not probable, as defined under applicable accounting guidance, that the performance condition 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 condition would be achieved, we would have assigned a grant date fair value of \$550,120.
- (10) Includes stock option awards made to each of Dr. Greenstreet and Dr. Vaishnav 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, 2021 under any plan, contract, authorization or arrangement pursuant to which cash, securities, similar instruments or other property may be received:

2021 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 (#)			
John M. Maraganore, Ph.D.	— 2/24/2021(5) 2/24/2021(6) 10/26/2021(7)	476,400	952,800	1,429,200	—	42,879	42,879	79,998	151.59	6,496,822 — 1,364,592(7)
Yvonne L. Greenstreet, MBChB, MBA	— 2/24/2021(5) 2/24/2021(6) 12/31/2021(8)	186,575	373,150	559,730	—	15,437	15,437	28,800 55,949	151.59 169.58	2,338,914 — 5,002,087
Akshay K. Vaishnav, M.D., Ph.D.	— 2/24/2021(5) 2/24/2021(6) 12/31/2021(8)	190,500	381,000	571,500	—	15,437	15,437	28,800 22,380	151.59 169.58	2,338,914 — 2,000,870
Jeffrey V. Poulton	— 2/24/2021(5) 2/24/2021(6)	143,750	287,500	431,250	—	12,435	12,435	23,200	151.59	1,884,125 —
Tolga Tanguler	— 2/1/2021(9) 2/1/2021(10) 2/24/2021(11)	137,500	275,000	412,500	—	13,680	13,680	56,463 10,051	149.25 149.25	4,501,219 — 1,500,112 —(10)

- (1) As described in the "Compensation Discussion and Analysis" and under the Summary Compensation Table, the equity awards for each of 2019, 2020 and 2021 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—2021 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 reported in the Grant Date Fair Value of Stock and Option Awards column, computed in accordance with FASB ASC Topic 718, 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 2021 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

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stock option awards is calculated based on the assumptions included in Note 14 of our audited consolidated financial statements for the year ended December 31, 2021 included in our Annual Report on Form 10-K, filed with the SEC on February 10, 2022. 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 2021 performance in the form of time-based stock option awards granted during 2021. 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 2021 performance in the form of PSUs granted during 2021. The PSUs granted in February 2021 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) Amount represents the modification date value of time-based stock options reflecting the incremental fair value recognized for stock options that will continue to vest through March 31, 2024 as a result of the modification in October 2021 pursuant to Dr. Maraganore's separation agreement. Under the applicable accounting guidance, compensation cost to be recognized for equity awards that vest only as a result of a modification is based on the modification date value instead of the grant date fair value.
- (8) Represents a promotional grant to each of each of Dr. Greenstreet and Dr. Vaishnav of time-based stock option awards for promotions that took effect as of January 1, 2022.
- (9) Represents the time-based stock option award Mr. Tanguler received upon commencement of his 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 Mr. Tanguler continues to be employed with us through each vesting date.
- (10) Represents the RSU award Mr. Tanguler received upon commencement of his employment, as described in further detail in Note 9 to the Summary Compensation Table above.
- (11) Represents the one-time strategic PSU award Mr. Tanguler received in February 2021, which will vest upon the achievement of a pre-specified clinical development milestone. As of the grant date, the vesting condition was not considered probable, as defined under applicable accounting guidance.

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, 2021.

Outstanding Equity Awards at Fiscal Year-End for 2021

Name	Grant Date	Option Awards(1)					Stock Awards(2)	
		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Options (#)	Option Exercise Price (\$)	Option Expiration Date	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 (\$)
John M. Maraganore, Ph.D.(3)	12/20/2012	144,641	—	—	18.66	12/20/2022		
	9/11/2013	10,000(4)	—	—	55.96	9/11/2023		
	12/18/2013	148,413	—	—	63.00	12/18/2023		
	12/18/2013	75,000(5)	—	—	63.00	12/18/2023		
	5/1/2015	73,964(6)	—	—	96.45	12/17/2024		
	5/1/2015	75,000(7)	—	—	96.45	12/17/2024		
	12/18/2015	63,876	—	—	88.95	12/18/2025		
	12/18/2015	65,000(8)	—	—	88.95	12/18/2025		
	12/20/2016	22,632	—	—	42.22	12/20/2026		
	12/20/2016	25,000(9)	—	—	42.22	12/20/2026		
	3/1/2018	51,661(10)	—	—	119.13	3/1/2028		
	3/1/2018	52,500(11)	—	—	119.13	3/1/2028		
	2/28/2019	58,437	26,563	—	85.00	2/28/2029		
	2/26/2020	38,605	49,635	—	118.05	2/25/2030		
	2/26/2020						32,473(12)	5,506,771
2/24/2021	—	79,998	—	151.59	2/23/2031			
2/24/2021						42,879(13)	7,271,421	
Yvonne L. Greenstreet, MBChB, MBA	12/20/2016	650	—	—	42.22	12/20/2026		
	3/1/2018	25,000(10)	—	—	119.13	03/01/2028		
	3/1/2018	25,000(11)	—	—	119.13	03/01/2028		
	2/28/2019	22,343	10,157	—	85.00	02/28/2029		
	2/26/2020	12,085	15,538	—	118.05	02/25/2030		
	2/26/2020						10,165(12)	1,723,781
	10/7/2020						4,153(14)	704,266
	2/24/2021	—	28,800	—	151.59	02/23/2031		
	2/24/2021						15,437(13)	2,617,806
	12/31/2021	—	55,949	—	169.58	12/30/2031		
Akshay K. Vaishnav, M.D., Ph.D.	12/18/2013	32,500	—	—	63.00	12/18/2023		
	12/18/2013	10,832(5)	—	—	63.00	12/18/2023		
	5/1/2015	35,125(6)	—	—	96.45	12/17/2024		
	5/1/2015	35,125(7)	—	—	96.45	12/17/2024		
	12/18/2015	30,000	—	—	88.95	12/18/2025		
	12/18/2015	30,000(8)	—	—	88.95	12/18/2025		
	2/23/2016	10,000(4)	—	—	94.14	02/23/2026		
	12/20/2016	2,368	—	—	42.22	12/20/2026		
	3/1/2018	25,000(10)	—	—	119.13	03/01/2028		
	3/1/2018	25,000(11)	—	—	119.13	03/01/2028		
	2/28/2019	22,343	10,157	—	85.00	02/28/2029		
	02/26/2020	12,085	15,538	—	118.05	02/25/2030		
	02/26/2020						10,165(12)	1,723,781
	10/07/2020						4,241(14)	719,189
	02/24/2021	—	28,800	—	151.59	02/23/2031		
02/24/2021						15,437(13)	2,617,806	
12/31/2021	—	22,380	—	169.58	12/30/2031			

Name	Grant Date	Option Awards(1)				Stock Awards(2)		
		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price (\$)	Option Expiration Date	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 (\$)
Jeffrey V. Poulton	08/01/2019	70,312	54,688		75.36	08/01/2029		
	02/26/2020	10,742	13,812		118.05	02/25/2030		
	02/26/2020						9,036(12)	1,532,325
	10/07/2020						3,698(14)	627,107
	02/24/2021	—	23,200		151.59	02/23/2031		
Tolga Tanguler	02/24/2021	—					12,435(13)	2,108,727
	02/01/2021	—	56,463		149.25	01/31/2031		
	02/01/2021						10,051(15)	1,704,449
	02/24/2021						3,629(16)	615,406

- (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 the closing price of our common stock on the Nasdaq Global Select Market on December 31, 2021.
- (3) Dr. Maraganore resigned from Alnylam, effective December 31, 2021. In connection with his departure, we entered into a letter agreement with Dr. Maraganore which provided that, pursuant to the terms of the Maraganore Employment Agreement, Dr. Maraganore's outstanding unvested equity awards will continue to vest and be exercisable until March 31, 2024, and his outstanding vested stock options shall remain exercisable until the earlier of March 31, 2024 and the original expiration dates of such options.
- (4) These options were granted in recognition of ten years of service by the employee and were fully vested on the date of grant.
- (5) These options were granted on December 18, 2013 and 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 December 2014 based on the start of a second Phase 3 clinical trial of an "Alnylam 5x15" program, one-third of these options vested in September 2017 based on the positive topline results from our APOLLO Phase 3 study and one-third of these options vested in August 2018 based on FDA approval of ONPATTRO.
- (6) 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.
- (7) These options represent the half of the 2014 Contingent Option Award described in Note 6 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.
- (8) 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.

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- (9) These options were granted on December 20, 2016 and vested in four equal installments upon the achievement of each of four specific clinical development, regulatory or commercial events. One-fourth of these options vested in December 2017 based upon our filing of an NDA with the FDA for ONPATTRO, one-fourth of these options vested in September 2018 based on the positive Phase 3 clinical data in our second Phase 3 program, one-fourth of these options vested in June 2019 based upon our filing of an NDA with the FDA for GIVLAARI and one-fourth of these options vested in August 2019 based upon the achievement of the first \$100 million in cumulative gross product sales.
- (10) The time-based portion of the March 1, 2018 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-three months, assuming the NEO continues to be employed with us through each vesting date.
- (11) These options were granted on March 1, 2018 and 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.
- (12) These PSU awards were granted on February 26, 2020 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.
- (13) These PSU awards were granted on February 24, 2021 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.
- (14) These one-time strategic PSU awards were granted on October 7, 2020 and will vest upon the later of one year from the date of grant and the achievement of a key development milestone, assuming the NEO continues to be employed with us through the vesting date.
- (15) Represents the RSU award Mr. Tanguler received upon commencement of his employment, as described in further detail in Note 9 to the Summary Compensation Table above.
- (16) This one-time strategic one-time strategic PSU award was granted to Mr. Tanguler in February 2021 to align with the one-time strategic PSU awards granted on October 7, 2020 described in Note 14 above. This award will vest upon the later of one year from the date of grant and the achievement of a key development milestone, assuming Mr. Tanguler continues to be employed with us through the vesting date.

The following table sets forth information concerning the exercise of stock options and the vesting of PSUs during 2021 for each of our NEOs.

2021 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 (\$)
John M. Maraganore, Ph.D.	141,282	21,100,183	44,569	7,401,191
Yvonne L. Greenstreet, MBChB, MBA	56,189	6,699,054	15,916	2,675,281
Akshay K. Vaishnav, M.D., Ph.D.	22,638	2,826,463	15,916	2,675,281
Jeffrey V. Poulton	—	—	4,518	620,773
Tolga Tanguler	—	—	—	—

(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)

Former CEO

Dr. Maraganore resigned from Alnylam, effective December 31, 2021. In connection with his resignation from Alnylam, following nearly 19 years of service, we entered into a letter agreement with Dr. Maraganore dated October 26, 2021. Under the letter agreement, Dr. Maraganore agreed to provide consulting services to us for up to 10 hours per month, or for such additional hours as may be mutually agreed, for a three-month period ending March 31, 2022. During the three-month period, Dr. Maraganore received as full compensation for his consulting services (i) cash compensation equal to \$238,200, less lawful deductions, paid in monthly installments during the period of January 1, 2022 through March 31, 2022, and (ii) a cash bonus for 2021 of \$1,095,720 based on actual performance under the AIP, which was paid at the time 2021 bonuses were paid to our other executive officers. The letter agreement provides that Dr. Maraganore's departure will be treated as a resignation for "Good Reason" or a termination without "Cause" pursuant to the terms of the Maraganore Employment Agreement, and that, pursuant to the Employment Agreement and as additional consideration for the letter agreement, his outstanding unvested equity awards will continue to vest and be exercisable until March 31, 2024, and his outstanding vested stock options shall remain exercisable until the earlier of March 31, 2024 and the original expiration dates of such options. The letter agreement with Dr. Maraganore included a release of claims and certain other standard terms and conditions.

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 management board. 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.

Change in Control Arrangements

We have entered into an individual CIC agreement with each member of our management board, 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, 2021 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 (\$)
John M. Maraganore, Ph.D.	2,858,400	36,670	6,243,550	12,778,190	21,916,810
Yvonne L. Greenstreet, MBChB	1,492,600	36,930	2,177,860	5,045,850	8,753,240
Akshay K. Vaishnav, M.D., Ph.D.	1,524,000	36,750	2,177,860	5,060,780	8,799,390
Jeffrey V. Poulton	1,293,750	36,930	6,281,800	4,268,160	11,880,640
Tolga Tanguler	1,237,500	36,930	1,147,890	2,319,850	4,742,170

(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 2021 and (ii) target bonus for 2021.

(3) The amount is calculated as the monthly Alnylam 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 2022 multiplied by 18 months, or in the case of our CEO, 24 months, based on each NEO's participation status as of December 31, 2021.

- (4) The value is calculated based on the number of stock options unvested as of December 31, 2021, including performance-based stock options, multiplied by the result of \$169.58 per share (the closing price of our common stock on the Nasdaq Global Select Market on the last trading day of 2021) less the respective exercise price per share.
- (5) The value is calculated based on the number of unvested PSUs multiplied by \$169.58 per share (the closing price of our common stock on the Nasdaq Global Select Market on the last trading day of 2021).

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 2021, Dr. Maraganore), the annual compensation of Dr. Maraganore, and the ratio of these two amounts.

Based on a significant number of new hires in 2021, 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, 2021 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, 2021, target bonus opportunity for 2021 and the grant-date fair value for stock-based awards (calculated in accordance with requirements for the Summary Compensation Table). In 2021, 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 2021 under our field-based incentive plan.

Based on the CACM methodology described above, we identified the median employee. We calculated the 2021 compensation for our median employee of \$231,163 in the same manner we determine the annual total compensation of our NEOs for purposes of the Summary Compensation Table. Dr. Maraganore's 2021 compensation as disclosed in the Summary Compensation Table is \$10,176,685. As a result, our CEO to median employee pay ratio for 2021 is 44:1, representing an increase from the ratio for 2020 as a result of an increase in our CEO's equity incentive plan compensation year over year to more closely align with the market median and comparable executives in our peer group.

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.

APPROVAL OF THE ALNYLAM PHARMACEUTICALS, INC. AMENDED AND RESTATED 2018 STOCK INCENTIVE PLAN (PROPOSAL 2)

Proposal

Our board of directors believes that stock options and other stock-based incentive awards can play an important role in the success of Alnylam by encouraging and enabling the employees, officers, non-employee directors and other key persons of Alnylam and its global subsidiaries upon whose judgment, initiative and efforts we largely depend for the successful conduct of our business to acquire a proprietary interest in Alnylam. Our board of directors anticipates that providing these people with a direct stake in Alnylam will assure a closer identification of the interests of these individuals with those of Alnylam and its stockholders, thereby stimulating their efforts on our behalf for long-term value creation and strengthening their desire to remain with Alnylam. Our board of directors views equity incentive compensation as a critical component of our compensation strategy and therefore to date we have maintained a broad-based program for all employees to have an opportunity to participate as owners of the company.

On March 31, 2022, our board of directors approved, following the recommendation of our PC&C committee, the amendment and restatement of the Alnylam Pharmaceuticals, Inc. 2018 Stock Incentive Plan, as amended, or the 2018 Plan. We refer to the 2018 Plan, as amended and restated as the Amended Plan. The Amended Plan increases the aggregate number of shares authorized for issuance under the 2018 Plan by 6,000,000 shares and increases the aggregate number of shares that may be issued in the form of incentive stock options to 35,270,000 shares. Shares underlying any awards under the 2018 Plan or our Amended and Restated 2009 Equity Incentive Plan, or the 2009 Plan, that are forfeited, canceled or otherwise terminated (other than by exercise) shall be added to the shares available for issuance under the Amended Plan.

The Amended Plan is designed to enhance the flexibility to grant stock options and other equity awards to our officers, employees, non-employee directors and other key persons and to ensure that we can continue to grant stock options and other equity awards to eligible recipients at levels determined to be appropriate by our board of directors and/or our PC&C committee. We are committed to the advancement of our *Alnylam P5x25* strategy under which we expect to sustainably and organically create and commercialize transformative rare and prevalent disease medicines benefiting hundreds of thousands of patients around the world while delivering strong financial performance, resulting in a leading biotech profile by the end of 2025. We ended 2021 making meaningful progress towards these goals, with four marketed products and 13 clinical programs, including five in late-stage development. In order to continue to execute on our long-term strategic goals, we expect to continue to grow our company significantly over the next several years. During 2021, we enhanced our capabilities by adding 212 new full-time employees. The new employees were hired to support a variety of functions and key initiatives, including extending our research,

clinical and pre-clinical pipeline development, as well as our medical affairs, manufacturing and commercialization capabilities, with hires in commercial, compliance, legal, clinical development and operations, research, medical affairs, manufacturing, and general and administrative functions. In addition, we, together with our partners, advanced five other late-stage clinical development programs, and we continued to advance earlier stage candidates and optimize our product platform. We expect to continue to add additional employees in 2022 as we continue the global launches of our approved medicines, advance our late-stage clinical pipeline, and as we prepare for the launch of vutrisiran in the U.S., assuming successful review and approval from the FDA. As we focus on growing our company and continuing to enable our global commercial infrastructure, we expect to continue to hire a significant number of employees in 2022 and beyond.

In the opinion of our board of directors, our future success depends in large part on our ability to maintain a competitive position in attracting, retaining and motivating key employees with experience and ability. Our board of directors believes that approval of the Amended Plan, including the authorization of the additional shares for issuance thereunder, is appropriate and in the best interests of our stockholders given our current expectations on hiring, the highly competitive environment in which we recruit and retain employees, and our historical burn rate. Our management will carefully consider all proposed grants under the Amended Plan. If the proposed Amended Plan is not approved by our stockholders, we currently anticipate that we will exhaust all the shares available for issuance under the 2018 Plan by early 2023 and such shares may be exhausted sooner depending on the pace of our hiring to support our global growth. The inability to make competitive equity awards to attract and retain talented employees in a highly competitive market could have an adverse impact on our business.

A copy of the Amended Plan is attached as Appendix A to this proxy statement and is incorporated herein by reference.

As of February 28, 2022, there were stock options to acquire 11,098,598 shares of common stock outstanding under our equity compensation plans, including stock options to acquire 1,156,253 shares of common stock subject to performance vesting, as well as equity awards granted outside of our equity compensation plans to new hires as inducement grants made in accordance with Nasdaq Listing Rule 5635(c)(4). These stock options have a weighted-average exercise price of \$109.68 and a weighted-average remaining contractual term of 6.30 years. In addition, as of February 28, 2022, there were 1,918,815 unvested full-value awards, including 1,799,665 unvested full-value awards with performance-based vesting, outstanding under our equity compensation plans. Other than the foregoing, no other equity awards were outstanding as of February 28, 2022.

As of February 28, 2022, the number of remaining securities available for future issuance under equity compensation plans of 4,362,031 shares consists solely of shares of our common stock available for future issuance under our 2018 Plan. This amount does not reflect the additional 6,000,000 shares to be reserved under the Amended Plan, as set forth in this Proposal 2.

Proposal 2 seeks stockholder approval of the Amended Plan.

Summary of Material Features of the Amended Plan

The material features of the Amended Plan are:

- The maximum number of shares of common stock available for awards under the Amended Plan is 19,790,000 shares, plus 1,410,603 shares (representing the number of the shares that were reserved and available for issuance under the 2009 Plan as of the original effective date of the 2018 Plan) and any shares underlying any awards granted under the 2009 Plan that expire, or are terminated, surrendered or canceled without having been fully exercised or are forfeited in whole or in part after the effective date of the 2018 Plan.
- Grants of “full-value” awards are deemed for purposes of determining the number of shares available for future grants under the Amended Plan as an award for 1.5 shares for each share of common stock subject to the award. Grants of stock options or stock appreciation rights are deemed to be an award of one share for each share of common stock subject to the award.
- Shares tendered or held back for taxes will not be added back to the reserved pool under the Amended Plan. Upon the exercise of a stock appreciation right that is settled in shares of common stock, the full number of shares underlying the award will be charged to the reserved pool. Additionally, shares we reacquire on the open market or otherwise using cash proceeds of option exercises will not be added to the reserved pool.
- The maximum value of all compensation, including any awards granted under the Amended Plan, paid or granted to any individual (i) in connection with his or her initial appointment or election as a non-employee director shall be \$1,500,000 and (ii) in connection with such individual’s service on the board of directors (excluding the value of any awards or compensation granted or paid pursuant to clause (i) above) shall be \$1,000,000.
- Stock options and stock appreciation rights will not be repriced in any manner without stockholder approval.
- The award of stock options (both incentive and non-qualified options), stock appreciation rights, restricted stock, RSUs and other stock-based awards is permitted.
- Minimum vesting periods are required for awards granted under the Amended Plan, with certain exceptions described below.
- To the extent an award is eligible to receive dividends or dividend equivalents, in no event shall any such dividends or dividend equivalents be paid unless and until such award has vested.
- In no event shall any dividends or dividend equivalents be paid with respect to stock options or stock appreciation rights.
- Any material amendment to the Amended Plan is subject to approval by our stockholders.

Based solely on the closing price of our common stock as reported by the Nasdaq Global Select Market on February 28, 2022 and the maximum number of shares that would have been available for awards as of such date taking into account the proposed increase described herein, the maximum aggregate market value of the common stock that could potentially be issued under the Amended Plan is \$2,006,256,137. The shares we issue under the Amended Plan will be authorized but

unissued shares or treasury shares. The shares of common stock underlying any awards that are forfeited, canceled or otherwise terminated, other than by exercise, under the Amended Plan are added back to the shares of common stock available for issuance under the Amended Plan. Shares tendered or held back upon exercise of a stock option or settlement of an award under the Amended Plan to cover the exercise price or tax withholding, shares subject to a stock appreciation right that are not issued in connection with the stock settlement of the stock appreciation right upon exercise thereof and shares repurchased by us on the open market, are not added back to the shares of common stock available for issuance under Amended Plan.

Rationale for the Amended Plan

The 2018 Plan is a key component to our ongoing effort to build stockholder value. Equity incentive awards are a critical aspect of our executive and non-executive employees' compensation. Our PC&C committee and our board of directors believe that we must continue to offer a broad-based, competitive equity compensation program in order to attract, retain and motivate the talented and qualified employees necessary for our continued growth and success. Adopting the Amended Plan is designed to enhance the flexibility to grant stock options and other equity awards to our officers, employees, non-employee directors and other key persons and to ensure that we can continue to grant stock options and other equity awards to eligible recipients at levels determined to be appropriate by our board of directors and/or our PC&C committee. As noted above, we are committed to the advancement of our *Alnylam P5x25* strategy under which we expect to sustainably and organically create and commercialize transformative rare and prevalent disease medicines benefiting hundreds of thousands of patients around the world while delivering strong financial performance, resulting in a leading biotech profile by the end of 2025. We ended 2021 making meaningful progress towards these goals, with four marketed products and 13 clinical programs, including five in late-stage development. In addition, in 2021, we completed enrollment in our two key Phase 3 studies in ATTR cardiomyopathy, filed two NDAs or sNDAs, and advanced two programs to the clinic, including our first CNS program which is now in Phase 1 development. In order to achieve our goals for 2022, we expect to continue to grow our company significantly over the next several years as we continue the global launches of our approved medicines, and as we prepare for the launch of vutrisiran in the U.S., assuming successful review and approval from the FDA.

Our board of directors believes that approval of the Amended Plan is appropriate and in the best interests of our stockholders given our current expectations on hiring, the highly competitive environment in which we recruit and retain employees and our historical burn rate. Our management will carefully consider all proposed grants under the Amended Plan. If the proposed Amended Plan is not approved by our stockholders, we currently anticipate that we will exhaust all the shares available for issuance under the 2018 Plan by early 2023 and such shares may be exhausted sooner depending on the pace of our hiring to support our global growth. The inability to make competitive equity awards to attract and retain talented employees in a highly competitive market could have an adverse impact on our business.

We manage our long-term stockholder dilution by limiting the number of equity incentive awards granted annually. Our PC&C committee carefully reviews both our annual net burn rate and total dilution and our projected burn rate and dilution over the next several years based upon our expected growth and equity strategy in order to maximize stockholder value by granting only the number of equity incentive awards that it believes are necessary and appropriate to attract, reward and retain our employees. Our compensation philosophy reflects broad-based eligibility for equity incentive awards for all of our employees. By doing so, we link the interests of our employees with those of our stockholders and motivate our employees to act as owners of the business.

Burn Rate

The following table sets forth information regarding historical awards granted and earned for the 2019 through 2021 period, and the corresponding burn rate, which is defined as the number of shares subject to time-based equity awards granted and performance-based equity awards earned in a year divided by the weighted-average number of shares of common stock outstanding for that year, for each of the last three fiscal years:

Share Element	2021	Year 2020	2019
Time-Based Stock Options Granted	1,893,404	2,086,009	3,073,464
Performance-Based Stock Options Earned	197,102	—	889,896
Time-Based Full-Value Awards Granted	78,791	17,407	126,762
Performance-Based Full-Value Awards Earned	544,195	205,557	12,500
Total Time-Based Awards Granted and Performance-Based Awards Earned	2,713,492	2,308,973	4,102,622
Weighted-Average Common Shares Outstanding During the Fiscal Year	118,450,865	114,986,184	109,264,190
Annual Burn Rate	2.29%	2.01%	3.75%
Three Year Average Burn Rate(1)	2.68%		

(1) As illustrated in the table above, our three-year average burn rate for the 2019-2021 period was 2.68%, which is below the ISS industry category burn rate threshold of 7.65%.

If our request to adopt the Amended Plan is approved by stockholders, we will have approximately 10,362,031 shares available for grant after the 2022 annual meeting, based on the shares reserved for issuance under the Amended Plan. Our PC&C committee determined the number of shares available for issuance under the Amended Plan based on projected equity awards to anticipated new hires, projected annual equity awards to existing employees, non-employee directors and scientific advisory board members, and an assessment of the magnitude of increase that our institutional investors and the firms that advise them would likely find acceptable. We anticipate that if our request to increase the share reserve is approved by our stockholders, it will be sufficient to provide equity incentives to attract, retain and motivate employees until our 2024 annual meeting of stockholders.

Summary of the Amended Plan

The following description of certain features of the Amended Plan is intended to be a summary only. The summary is qualified in its entirety by the complete text of the Amended Plan, which is attached to this proxy statement as Appendix A.

Plan Administration. The Amended Plan is administered by our PC&C committee. The PC&C committee has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the Amended Plan. The PC&C committee may delegate to one or more officers of the company the authority to grant equity awards to employees who are not “executive officers” (as defined by Rule 3b-7 under the Exchange Act) and who are not “officers” (as defined by Rule 16a-1 under the Exchange Act), subject to certain limitations and guidelines.

Eligibility. Persons eligible to participate in the Amended Plan are employees, officers, directors, consultants and advisors of Alnylam as selected from time to time by the PC&C committee in its discretion. As of February 28, 2022, 1,401 individuals are currently eligible to participate in the Amended Plan, which includes six executive officers, 1,396 employees who are not executive officers, eight non-employee/director members of our scientific advisory board, nine non-employee directors and no consultants.

Plan Limits. The value of all compensation, including any awards granted under the Amended Plan, paid or granted to any individual (i) in connection with his or her initial appointment or election as a non-employee director shall be \$1,500,000 and (ii) in connection with such individual's service on the board of directors (excluding the value of any awards or compensation granted or paid pursuant to clause (i) above) shall be \$1,000,000.

Effect of Awards. For purposes of determining the number of shares of common stock available for issuance under the Amended Plan, the grant of any "full-value" award, such as a restricted stock, RSU or other stock-based award will be counted as 1.5 shares for each share of common stock actually subject to the award. The grant of any stock option or stock appreciation right will be counted for this purpose as one share from each share of common stock actually subject to the award.

Minimum Vesting. Awards granted under the Amended Plan shall not become exercisable and/or vested (as applicable) prior to the first anniversary of the date of grant provided that annual awards to non-employee directors that occur in connection with our annual meeting of stockholders may vest on the earlier of the first anniversary of the date of grant or the date of our next annual meeting of stockholders which is at least 50 weeks after the immediately preceding year's annual meeting. This minimum vesting restriction does not apply to awards granted for up to an aggregate of 5% of the maximum number of shares authorized for issuance under the Amended Plan. In addition, the PC&C committee retains discretion to accelerate the vesting schedule.

Stock Options. The Amended Plan permits the granting of (1) options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Code and (2) options that do not so qualify. Options granted under the Amended Plan will be non-qualified options if they fail to qualify as incentive options or exceed the annual limit on incentive stock options. Incentive stock options may only be granted to employees of Alnylam and its subsidiaries. Non-qualified options may be granted to any persons eligible to receive incentive options and to non-employee directors, consultants and advisors. The option exercise price of each option will be determined by the PC&C committee but may not be less than 100% of the fair market value of the common stock on the date of grant. Fair market value for this purpose will be the closing price of the shares of common stock on the Nasdaq Global Select Market on the grant date. The exercise price of an option may not be reduced after the date of the option grant, other than to appropriately reflect changes in our capital structure.

The term of each option will be fixed by the PC&C committee and may not exceed ten years from the date of grant. The PC&C committee will determine at what time or times each option may be exercised. Options may be made exercisable in installments and the exercisability of options may be accelerated by the PC&C committee.

Upon the exercise of an option, the option exercise price must be paid in full by (i) cash or check, (ii) by delivery of an irrevocable and unconditional undertaking by a creditworthy broker to deliver promptly to Alnylam sufficient funds to pay the exercise price and any required tax withholding or by delivery by the participant of a copy of irrevocable and unconditional instructions to a creditworthy broker to deliver promptly to Alnylam cash or check sufficient to pay the exercise price and any required tax withholding, (iii) by delivery (either by actual delivery or attestation) of shares of common stock owned by the participant valued at the fair market value, subject to certain restrictions and subject to the prior approval by the PC&C committee with respect to any executive officer, (iv) with respect to non-qualified options, by a “net exercise” arrangement, as a result of which the participant would receive the number of shares of common stock underlying the option reduced by the number of shares equal to the aggregate exercise price of the option divided by the fair market value on the date of exercise, subject to the prior approval by the PC&C committee with respect to any executive officer, (v) to the extent provided in the applicable option agreement or approved by the PC&C committee and subject to applicable law, by payment of such other lawful consideration as the PC&C committee may determine or (vi) a combination of the above permitted forms of payment.

To qualify as incentive options, options must meet additional federal tax requirements, including a \$100,000 limit on the value of shares subject to incentive options that first become exercisable by a participant in any one calendar year.

Stock Appreciation Rights. The PC&C committee may award stock appreciation rights subject to such conditions and restrictions as the PC&C committee may determine. Stock appreciation rights entitle the recipient to shares of common stock equal to the value of the appreciation in the stock price over the exercise price. The exercise price may not be less than the fair market value of the common stock on the date of grant. The maximum term of a stock appreciation right is ten years.

Restricted Stock and Restricted Stock Units. The PC&C committee may award shares of common stock and RSUs to participants subject to such conditions and restrictions as the PC&C committee may determine. These conditions and restrictions may include the achievement of certain performance goals (as summarized above) and/or continued employment with us through a specified restricted period. RSUs are ultimately payable in the form of shares of common stock. During the vesting period, restricted stock may be credited with dividends and RSU awards may be credited with dividend equivalent rights (but no dividends shall be paid unless and until such restricted stock or RSUs have vested).

Other Stock-Based Awards. The PC&C committee may award shares of common stock or other awards that are valued, in whole or in part, by reference to, or are otherwise based on, shares of our common stock or other property.

Change in Control Provisions. The Amended Plan provides that, in connection with a “reorganization event,” as defined in the Amended Plan, the PC&C committee may take any one or more of the following actions as to all or any outstanding awards other than restricted stock and RSUs: (i) provide that awards shall be assumed, or substantially equivalent awards shall be substituted, by the acquiring or succeeding corporation (or affiliate thereof), (ii) upon written notice to a participant, provide that the participant’s unexercised awards will terminate immediately prior to the consummation of such reorganization event unless exercised by the participant within a specified period of time following the date of such notice, (iii) provide that outstanding awards shall become

exercisable, realizable, or deliverable, or restrictions applicable to an award shall lapse, in whole or in part, prior to the reorganization event, (iv) in the event of a reorganization event in which holders of common stock will receive, upon the consummation thereof, a cash payment for each share surrendered in the reorganization event, make or provide for a cash payment to a participant, in exchange for the cancellation of such awards, equal to the excess, if any, of (a) the price paid to the holders of common stock in the reorganization event multiplied by the number of shares subject to the participant's awards over (b) the aggregate exercise price of all such outstanding awards and any applicable tax withholdings, (v) provide that, in connection with a liquidation or dissolution of Alnylam, awards shall convert into the right to receive liquidation proceeds (if applicable, net of the exercise price thereof and any applicable tax withholdings), and (vi) any combination of the foregoing.

Upon the occurrence of a reorganization event other than a liquidation or dissolution, our repurchase and other rights with respect to outstanding restricted stock and RSUs shall inure to the benefit of the successor entity and shall, unless the board of directors determines otherwise, apply to the cash, securities or other property into which the common stock was converted or exchanged for pursuant to such reorganization event in the same manner and to the same extent they applied to the common stock subject to the restricted stock or RSU. However, the PC&C committee may provide for termination or deemed satisfaction of such repurchase or other rights under the instrument evidencing the restricted stock or RSUs or other agreement between the participant and us. Upon the occurrence of a reorganization right involving the liquidation or dissolution of Alnylam, except to the extent specifically provided to the contrary in the instrument evidencing the award or any other agreement between the participant and us, all restrictions and conditions on all restricted stock and RSUs then outstanding shall automatically be deemed terminated or satisfied.

Adjustments for Stock Dividends, Stock Splits, Etc. The Amended Plan requires the PC&C committee to make appropriate adjustments to the number of shares of common stock that are subject to the Amended Plan, subject to certain limits in the Amended Plan, and to any outstanding awards to reflect stock dividends, stock splits, recapitalization and similar events.

Tax Withholding. Participants in the Amended Plan are responsible for the payment of any federal, state or local taxes that we are required by law to withhold upon the exercise of options or stock appreciation rights or vesting of other awards. Participants may elect to have the tax withholding obligations satisfied by delivery of shares of common stock, subject to the prior approval by the PC&C committee for any of our executive officers.

Clawback Policy. All awards made under the Amended Plan will be subject to our clawback policy.

Amendments and Termination. Our board of directors may at any time amend or discontinue the Amended Plan. However, no such action may materially adversely affect any rights under any outstanding award without the holder's consent. To the extent required under Nasdaq rules, any amendments that materially change the terms of the Amended Plan will be subject to approval by our stockholders. Amendments shall also be subject to approval by our stockholders if and to the extent determined to be required by the Code to preserve the qualified status of incentive options.

Effective Date of the Amended Plan. board of directors adopted the 2018 Plan on March 8, 2018, and it became effective on May 10, 2018 upon approval by our stockholders at our 2018 annual

meeting. Our board of directors adopted the Amended Plan on March 31, 2022, and it will become effective upon approval by our stockholders at our 2022 annual meeting. Awards of incentive options may be granted under the Amended Plan until March 31, 2032. No other awards may be granted under the Amended Plan after the date that is ten years from the date of stockholder approval.

New Plan Benefits

Because the grant of awards under the Amended Plan is within the discretion of our PC&C committee, we cannot determine the dollar value or number of shares of common stock that will in the future be received by or allocated to any participant in the Amended Plan. Accordingly, in lieu of providing information regarding benefits that will be received under the Amended Plan, the following table provides information concerning the benefits that were received by the following persons and groups during 2021 under the 2018 Plan: (a) each named executive officer; (b) all then current executive officers, as a group; (c) all current directors who are not executive officers, as a group; and (d) all current employees who are not executive officers, as a group.

Name and Position	Options Awards		Restricted Stock Awards	
	Weighted-Average Exercise Price (\$)	Number of Awards (#)	Dollar Value (\$)(1)	Number of Awards (#)
Yvonne L. Greenstreet, MBChB, MBA, <i>Chief Executive Officer</i> *	163.47	84,749	—	—
Akshay K. Vaishnav, M.D., Ph.D., <i>President</i> **	159.46	51,180	—	—
Jeffrey V. Poulton, <i>Executive Vice President, Chief Financial Officer</i>	151.59	23,200	—	—
Tolga Tanguer, <i>Executive Vice President, Chief Commercial Officer</i>	149.25	56,463	1,500,110	10,051
John M. Maraganore, Ph.D., <i>Former Chief Executive Officer</i> ***	151.59	79,998	—	—
All executive officers as of December 31, 2021, as a group	156.13	299,622	5,500,117	32,528
All current directors who are not executive officers, as a group	142.30	45,260	—	—
All current employees who are not executive officers, as a group	153.39	1,499,474	12,542,910	78,791

(1) The dollar value of restricted stock awards is based on the number of shares of RSUs granted, as applicable, multiplied by the closing price of our common stock on the Nasdaq Global Select Market on the applicable date of grant for such RSUs.

* Dr. Greenstreet has served as our Chief Executive Officer since January 1, 2022. She previously served as our President and Chief Operating Officer since October 2020.

** Dr. Vaishnav has served as our President since January 1, 2022. He previously served as our President, Research and Development since March 2018.

*** Dr. Maraganore resigned as our Chief Executive Officer, effective December 31, 2021.

Tax Aspects under the Code

The following is a summary of the principal U.S. federal income tax consequences of certain transactions under the Amended Plan. It does not describe all federal tax consequences under the Amended Plan, nor does it describe state or local tax consequences.

Incentive Options. No taxable income is generally realized by the optionee upon the grant or exercise of an incentive option. If shares of common stock issued to an optionee pursuant to the exercise of an incentive option are sold or transferred after two years from the date of grant and after one year from the date of exercise, then, (i) upon sale of such shares, any amount realized in excess of the option price (the amount paid for the shares) will be taxed to the optionee as a long-term capital gain, and any loss sustained will be a long-term capital loss, and (ii) we will not be entitled to any deduction for federal income tax purposes. The exercise of an incentive option will give rise to an item of tax preference that may result in alternative minimum tax liability for the optionee.

If shares of common stock acquired upon the exercise of an incentive option are disposed of prior to the expiration of the two-year and one-year holding periods described above, which is referred to as a “disqualifying disposition,” generally (i) the optionee will realize ordinary income in the year of disposition in an amount equal to the excess (if any) of the fair market value of the shares of common stock at exercise (or, if less, the amount realized on a sale of such shares of common stock) over the exercise price thereof, and (ii) we will be entitled to deduct such amount. Special rules will apply where all or a portion of the exercise price of the incentive option is paid by tendering shares of common stock.

If an incentive option is exercised at a time when it no longer qualifies for the tax treatment described above, the option is treated as a non-qualified option. Generally, an incentive option will not be eligible for the tax treatment described above if it is exercised more than three months following termination of employment (or one year in the case of termination of employment by reason of disability). In the case of termination of employment by reason of death, the three-month rule does not apply.

Non-Qualified Options. No income is realized by the optionee at the time the option is granted. Generally (i) at exercise, ordinary income is realized by the optionee in an amount equal to the difference between the exercise price and the fair market value of the shares of common stock on the date of exercise, and we receive a tax deduction for the same amount, and (ii) at disposition, appreciation or depreciation after the date of exercise is treated as either short-term or long-term capital gain or loss depending on how long the shares of common stock have been held. Special rules will apply where all or a portion of the exercise price of the non-qualified option is paid by tendering shares of common stock. Upon exercise, the optionee will also be subject to Social Security taxes on the excess of the fair market value over the exercise price of the option.

Other Awards. We will generally be entitled to a tax deduction in connection with an award under the Amended Plan in an amount equal to the ordinary income realized by the participant at the time the participant recognizes such income. Participants typically are subject to income tax and recognize that tax at the time that an award is exercised, vests or becomes non-forfeitable, unless the award provides for a further deferral.

Parachute Payments. The vesting of any portion of an option or other award that is accelerated due to the occurrence of a change in control (such as a reorganization event) may cause a portion of the payments with respect to such accelerated awards to be treated as “parachute payments” as defined in the Code. Any such parachute payments may be non-deductible by us, in whole or in part, and may subject the recipient to a non-deductible 20% federal excise tax on all or a portion of such payment (in addition to other taxes ordinarily payable).

Limitation on Deductions. Under Section 162(m) of the Code, our deduction for certain awards under the Amended Plan may be limited to the extent that any “covered employee” (generally, the chief executive officer, chief financial officer or other executive officer whose compensation is required to be reported in the Summary Compensation Table for any year following 2016) receives compensation in excess of \$1.0 million a year.

Vote Required

A majority of the votes cast is required for the approval of the Plan Amendment.

Securities Authorized for Issuance Under Equity Compensation Plans

The following table provides information as of December 31, 2021 about the securities authorized for issuance under our stockholder approved equity compensation plans, consisting of our Amended and Restated 2004 Equity Incentive Plan, our 2009 Plan, our 2018 Plan and our Amended and Restated Employee Stock Purchase Plan, as amended, or ESPP, as well as equity awards granted outside of such stockholder approved plans to new hires as inducement grants made in accordance with Nasdaq Listing Rule 5635(c)(4).

Equity Compensation Plan Information as of December 31, 2021

	Number of Securities to Be Issued Upon Exercise of Outstanding Options and Rights(#)	Weighted-Average Exercise Price of Outstanding Options and Rights\$(1)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans(#)
Equity compensation plans approved by stockholders	11,224,610(2)	102.51	7,638,523(3)
Equity compensation plans not approved by stockholders	—	—	—
Total	11,224,610	102.51	7,638,523

(1) Since RSUs do not have any exercise price, such units are not included in the weighted-average exercise price calculation.

(2) Includes 10,015,050 shares of common stock issuable upon the exercise of outstanding options and 1,209,560 shares of common stock issuable upon the vesting of outstanding RSUs.

(3) Consists of 6,802,466 shares of our common stock available for future issuance under our 2018 Plan and 836,057 shares of our common stock available for future issuance under our ESPP. Shares of our common stock available for issuance under our 2018 Plan include any shares underlying any awards granted under the 2009 Plan or the 2018 Plan that expire, or are terminated, surrendered or canceled without having been fully exercised or are forfeited in whole or in part after the effective date of the 2018 Plan.

The following table provides the information presented in the table above as of February 28, 2022.

Equity Compensation Plan Information as of February 28, 2022

	Number of Securities to Be Issued Upon Exercise of Outstanding Options and Rights(#)	Weighted-Average Exercise Price of Outstanding Options and Rights\$(1)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans(#)
Equity compensation plans approved by stockholders	13,017,413(2)	109.68	5,198,088(3)
Equity compensation plans not approved by stockholders	—	—	—
Total	13,017,413	109.68	5,198,088

(1) Since RSUs do not have any exercise price, such units are not included in the weighted-average exercise price calculation.

(2) Includes 11,098,598 shares of common stock issuable upon the exercise of outstanding options and 1,918,815 shares of common stock issuable upon the vesting of outstanding RSUs.

(3) Consists of 4,362,031 shares of our common stock available for future issuance under our 2018 Plan and 836,057 shares of our common stock available for future issuance under our ESPP. Shares of our common stock available for issuance under our 2018 Plan include any shares underlying any awards granted under the 2009 Plan or the 2018 Plan that expire, or are terminated, surrendered or canceled without having been fully exercised or are forfeited in whole or in part after the effective date of the 2018 Plan.

For additional information regarding our equity compensation plans, see Note 14, Stock-Based Compensation, to our consolidated financial statements included in Part II, Item 8 of our 2021 Form 10-K.

BOARD RECOMMENDATION

Our board of directors believes that our future success depends, in large part, upon our ability to maintain a competitive position in attracting, retaining and motivating key personnel. Accordingly, our board of directors believes approval of the Alnylam Pharmaceuticals, Inc. Amended and Restated 2018 Equity Incentive Plan is in the best interests of Alnylam and our stockholders and unanimously recommends that you vote to approve the Amended and Restated 2018 Equity Incentive Plan by voting “FOR” Proposal 2.

SAY-ON-PAY – ADVISORY VOTE ON EXECUTIVE COMPENSATION (PROPOSAL 3)

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 46, 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, 2021.

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 Aon, 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 3.

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, 2022. 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, 2022.

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, 2021, 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, 2021. 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, 2022.

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	2021(\$)	2020(\$)
Audit Fees(1)	2,385,544	2,274,275
Audit-Related Fees	—	—
Tax Fees(2)	70,000	70,000
All Other Fees(3)	2,756	2,756
Total Fees	2,458,300	2,347,031

- (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 2021, this amount also includes \$15,000 for fees in connection with the review of the consolidated financial statements incorporated by reference into our outstanding registration statements.
- (2) "Tax Fees" in 2021 and 2020 consist of fees for procedures completed in connection with a research and development tax credit study.
- (3) "All Other Fees" in 2021 and 2020 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 2022 annual meeting of stockholders to be held online on Wednesday, May 18, 2022 at 12:00 p.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 6, 2022, 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 2021 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 2021 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 28, 2022, the record date for our annual meeting. As of the record date, there were 120,718,462 shares of our common stock outstanding.

If you were a stockholder of record on March 28, 2022, 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/ALNY2022. 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, 2022.
- **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, 2022.
- **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, 2022 to be voted at the annual meeting.
- **During the Annual Meeting.** You may vote during the annual meeting by going to www.virtualshareholdermeeting.com/ALNY2022. 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, 2022.
- Sign a new proxy and submit it as instructed above. Only your latest dated proxy, received by no later than May 17, 2022, 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/ALNY2022.

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/ALNY2022 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 11:15 a.m. ET on May 18, 2022. The meeting will begin promptly at 12:00 a.m. ET on May 18, 2022.

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, 2022 and until 11:59 p.m. ET on May 17, 2022, 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/ALNY2022, 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 11:30 a.m. ET on May 18, 2022 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 each of the proposals being placed before our stockholders. 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 Three (3) Class III 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 either cast online or by proxy at the annual meeting. 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 – Approval of Amended and Restated 2018 Stock Incentive Plan

To approve Proposal 2, the amended and restated 2018 Stock Incentive Plan, 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.

Proposal 3 – 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 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, 2022 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, 2022.

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 three (3) Class III directors, the approval of the amended and restated 2018 Plan Stock Incentive Plan, the non-binding advisory vote on 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 13, 2022, 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

In April 2019, we hired Dr. Mark Keating as a full-time employee, to serve as a Senior Distinguished Fellow, supporting our development efforts in our CNS and ocular programs. During the fiscal year ended December 31, 2021, he earned compensation consisting of \$527,418 in base salary, bonus, matching contributions from us under our 401(k) plan and life insurance premiums, as well as option awards with an estimated grant date fair value of \$249,890. Dr. Keating is the spouse of Laurie Keating, our former Chief Legal Officer, who retired and resigned from her position, effective September 10, 2021, following seven years of service with the company. The offer for full-time employment to Dr. Keating was approved in advance by the chair of our audit committee and subsequently ratified by the full audit committee pursuant to our related person transaction policy. As of December 31, 2021, Dr. Keating was no longer an employee of the company.

Other than the employment relationship with Dr. Keating described above, we have not been 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 2023 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 1, 2022. 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 17, 2023 (90 days prior to the first anniversary of our 2022 annual meeting of stockholders) and not before January 18, 2023 (120 days prior to the first anniversary of our 2022 annual meeting of stockholders). However, if the 2023 annual meeting of stockholders is advanced by more than 20 days, or delayed by more than 60 days, from the first anniversary of the 2022 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 2023 annual meeting of stockholders.

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.
AMENDED AND RESTATED 2018 STOCK
INCENTIVE PLAN

1. Purpose

The purpose of this Amended and Restated 2018 Stock Incentive Plan (the “**Plan**”) of Alnylam Pharmaceuticals, Inc., a Delaware corporation (the “**Company**”), is to advance the interests of the Company’s stockholders by enhancing the Company’s ability to attract, retain and motivate persons who are expected to make important contributions to the Company by providing such persons with equity ownership opportunities and performance-based incentives that are intended to better align the interests of such persons with those of the Company’s stockholders. Except where the context otherwise requires, the term “**Company**” shall include any of the Company’s present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Internal Revenue Code of 1986, as amended, and any regulations promulgated thereunder (the “**Code**”) and any other business venture (including, without limitation, joint venture or limited liability company) in which the Company has a controlling interest, as determined by the Board of Directors of the Company (the “**Board**”).

2. Eligibility

All of the Company’s employees, officers and directors are eligible to be granted options, stock appreciation rights (“**SARs**”), restricted stock, restricted stock units (“**RSUs**”) and other stock-based awards (each, an “**Award**”) under the Plan. Consultants and advisors to the Company (as such terms are defined and interpreted for purposes of Form S-8 (or any successor form)) are also eligible to be granted Awards. Each person who is granted an Award under the Plan is deemed a “**Participant**.”

3. Administration and Delegation

(a) Administration by Board of Directors. The Plan will be administered by the Board. The Board shall have authority to grant Awards and to adopt, amend and repeal such administrative rules, guidelines and practices relating to the Plan as it shall deem advisable. The Board may construe and interpret the terms of the Plan and any Award agreements entered into under the Plan. The Board may correct any defect, supply any omission or reconcile any inconsistency in the Plan or any Award in the manner and to the extent it shall deem expedient to carry the Plan into effect and it shall be the sole and final judge of such expediency. All decisions by the Board shall be made in the Board’s sole discretion and shall be final and binding on all persons having or claiming any interest in the Plan or in any Award.

(b) Appointment of Committees. To the extent permitted by applicable law, the Board may delegate any or all of its powers under the Plan to one or more committees or subcommittees of the Board (a “**Committee**”). All references in the Plan to the “**Board**” shall mean the Board or a Committee of the Board or the officers referred to in Section 3(c) to the extent that the Board’s powers or authority under the Plan have been delegated to such Committee or officers.

(c) Delegation to Officers. To the extent permitted by applicable law, the Board may delegate to one or more officers of the Company the power to grant Options and other Awards that constitute rights under Delaware law (subject to any limitations under the Plan) to employees or officers of the Company or any of its present or future subsidiary corporations and to exercise such other powers

under the Plan as the Board may determine, provided that the Board shall fix the terms of the Awards to be granted by such officers (including the exercise price of the Awards, which may include a formula by which the exercise price will be determined) and the maximum number of shares subject to such Awards that the officers may grant; provided further, however, that no officer shall be authorized to grant Awards to any “executive officer” of the Company (as defined by Rule 3b-7 under the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”)) or to any “officer” of the Company (as defined by Rule 16a-1 under the Exchange Act, an “**Executive Officer**”). The Board may not delegate authority under this Section 3(c) to grant restricted stock, unless Delaware law then permits such delegation.

(d) Awards to Non-employee Directors. Discretionary Awards to directors who are not employees of the Company at the time of grant (“**Non-employee Directors**”) will only be granted and administered by a Committee, all of the members of which are independent as defined by the rules of the NASDAQ Stock Market (“NASDAQ”).

4. Stock Available for Awards

(a) Number of Shares; Share Counting.

(1) Authorized Number of Shares. Subject to adjustment under Section 10, Awards may be made under the Plan for up to the sum of (i) 19,790,000 shares of common stock, \$0.01 par value per share, of the Company (the “**Common Stock**”), (ii) 1,410,603 shares of Common Stock (representing the number of shares that remained available for grants under the Company’s Second Amended and Restated 2009 Stock Incentive Plan (the “**2009 Plan**”) immediately prior to the Original Effective Date) and (iii) shares of Common Stock underlying any awards granted under the 2009 Plan that expire, or are terminated, surrendered or canceled without having been fully exercised or are forfeited in whole or in part after the Original Effective Date and become available for issuance under the Plan in accordance with Section 4(a)(3). No more than 35,270,000 shares may be issued in the form of Incentive Stock Options (as hereinafter defined). Shares issued under the Plan may consist in whole or in part of authorized but unissued shares or treasury shares.

(2) Fungible Share Pool. Subject to adjustment under Section 10, any Award that is not a Full-Value Award shall be counted against the share limits specified in Sections 4(a)(1) and 4(b)(1) as one share for each share of Common Stock subject to such Award and any Award that is a Full-Value Award shall be counted against the share limits specified in Sections 4(a)(1) as 1.5 shares for each one share of Common Stock subject to such Full-Value Award. “**Full-Value Award**” means any Restricted Stock Award or Other Stock-Based Award (each as defined below). To the extent a share that was subject to an Award under the Plan or an award under the 2009 Plan that counted as one share is returned to the Plan pursuant to Section 4(a)(3), each applicable share reserve will be credited with one share. To the extent that a share that was subject to a Full-Value Award under the Plan or the 2009 Plan that counted as 1.5 shares is returned to the Plan pursuant to Section 4(a)(3), each applicable share reserve will be credited with 1.5 shares.

(3) Share Counting. For purposes of counting the number of shares available for the grant of Awards under the Plan, (i) all shares of Common Stock covered by independent SARs shall be counted against the number of shares available for the grant of Awards; *provided, however*, that independent SARs that may be settled only in cash shall not be so counted; (ii) if any Award under the Plan or any award outstanding under the 2009 Plan (A) expires or is terminated, surrendered or canceled without having been fully exercised or is forfeited in whole or in part (including as the result of shares of Common Stock subject to such Award or award being repurchased by the Company at

the original issuance price pursuant to a contractual repurchase right) or (B) results in any Common Stock not being issued (including as a result of an independent SAR that was settleable either in cash or in stock actually being settled in cash), the unused Common Stock covered by such Award or award shall again be available for the grant of Awards; *provided, however*, in the case of Incentive Stock Options (as hereinafter defined), the foregoing shall be subject to any limitations under the Code; and provided further, in the case of independent SARs, that the full number of shares subject to any stock-settled SAR shall be counted against the shares available under the Plan in proportion to the portion of the SAR actually exercised regardless of the number of shares actually used to settle such SAR upon exercise; (iii) shares of Common Stock delivered (by actual delivery, attestation, or net exercise) to the Company by a Participant to (A) purchase shares of Common Stock upon the exercise of an Award or (B) satisfy tax withholding obligations (including shares retained from the Award creating the tax obligation) shall not be added back to the number of shares available for the future grant of Awards; and (iv) shares of Common Stock repurchased by the Company on the open market using the proceeds from the exercise of an Award shall not increase the number of shares available for future grant of Awards.

(b) Limits on Awards to Non-Employee Directors. The maximum value of all compensation, including Awards hereunder, granted or paid to an individual in connection with such individual's initial appointment or election as a Non-employee Director shall be \$1,500,000. The maximum value of all compensation, including Awards hereunder, granted or paid to a Non-employee Director in any calendar year in connection with such individual's service on the Board (excluding for this purpose the value of any compensation, including Awards hereunder, granted under the preceding sentence) shall be \$1,000,000. For the purpose of these limitations, the value of any Award shall be its grant date fair value, as determined in accordance with ASC 718 or successor provision but excluding the impact of estimated forfeitures related to service-based vesting provisions.

(c) Substitute Awards. In connection with a merger or consolidation of an entity with the Company or the acquisition by the Company of property or stock of an entity, the Board may grant awards in substitution for any options, stock or stock-based awards granted by such entity or an affiliate thereof. Substitute Awards may be granted on such terms as the Board deems appropriate in the circumstances, notwithstanding any limitations on Awards contained in the Plan. Substitute Awards shall not count against the overall share limit set forth in Section 4(a)(1) or any sub-limits contained in the Plan, except as may be required by reason of Section 422 and related provisions of the Code.

(d) Minimum Vesting. Except as provided in the following sentence, and notwithstanding anything in the Plan to the contrary, Awards granted to Participants shall not become exercisable and/or vested (as applicable) prior to the first-year anniversary of the date of grant. Notwithstanding the foregoing, (i) the Board retains the discretion to accelerate the vesting of Awards pursuant to Section 11(h), (ii) annual Awards to Non-Employee Directors that occur in connection with the Company's annual meeting of stockholders may vest on the earlier of the one-year anniversary of the date of grant or the date of the Company's next annual meeting of stockholders which is at least 50 weeks after the immediately preceding year's annual meeting and (iii) the vesting schedule prescribed by the preceding sentence shall not apply to Awards granted, in the aggregate, for up to 5% of the maximum number of authorized shares under the Plan calculated pursuant to Section 4(a)(1).

5. Stock Options

(a) General. The Board may grant options to purchase Common Stock (each, an “**Option**”) and determine the number of shares of Common Stock to be covered by each Option, the exercise price of each Option and the conditions and limitations applicable to the exercise of each Option, including conditions relating to applicable federal or state securities laws, as it considers necessary or advisable. An Option that is not intended to be an Incentive Stock Option (as hereinafter defined) shall be designated a “**Nonstatutory Stock Option**”.

(b) Incentive Stock Options. An Option that the Board intends to be an “incentive stock option” as defined in Section 422 of the Code (an “**Incentive Stock Option**”) shall only be granted to employees of Alnylam Pharmaceuticals, Inc., any of Alnylam Pharmaceuticals, Inc.’s present or future parent or subsidiary corporations as defined in Sections 424(e) or (f) of the Code, and any other entities the employees of which are eligible to receive Incentive Stock Options under the Code, and shall be subject to and shall be construed consistently with the requirements of Section 422 of the Code. The Company shall have no liability to a Participant, or any other party, if an Option (or any part thereof) that is intended to be an Incentive Stock Option is not an Incentive Stock Option or if the Company converts an Incentive Stock Option to a Nonstatutory Stock Option.

(c) Exercise Price. The Board shall establish the exercise price of each Option and specify the exercise price in the applicable option agreement. The exercise price shall be not less than 100% of the Fair Market Value (as defined below) on the date the Option is granted; provided that if the Board approves the grant of an Option with an exercise price to be determined on a future date, the exercise price shall be not less than 100% of the Fair Market Value on such future date. “**Fair Market Value**” of a share of Common Stock for purposes of the Plan will be determined as follows:

(1) if the Common Stock trades on a national securities exchange, the closing sale price (for the primary trading session) on the date of grant;

(2) if the Common Stock does not trade on any such exchange, the average of the closing bid and asked prices as reported by an authorized OTCBB market data vendor as listed on the OTCBB website (otcbb.com) on the date of grant; or

(3) if the Common Stock is not publicly traded, the Board will determine the Fair Market Value for purposes of the Plan using any measure of value it determines to be appropriate (including, as it considers appropriate, relying on appraisals) in a manner consistent with the valuation principles under Section 409A of the Code, except as the Board or Committee may expressly determine otherwise.

For any date that is not a trading day, the Fair Market Value of a share of Common Stock for such date will be determined by using the closing sale price or average of the bid and asked prices, as appropriate, for the immediately preceding trading day and with the timing in the formulas above adjusted accordingly. The Board can substitute a particular time of day or other measure of “closing sale price” or “bid and asked prices” if appropriate because of exchange or market procedures or can, in its sole discretion, use weighted averages either on a daily basis or such longer period as complies with Section 409A of the Code. The Board has sole discretion to determine the Fair Market Value for purposes of this Plan, and all Awards are conditioned on the Participants’ agreement that the Board’s determination is conclusive and binding even though others might make a different determination.

(d) Duration of Options. Each Option shall be exercisable at such times and subject to such terms and conditions as the Board may specify in the applicable option agreement; *provided, however*, that no Option will be granted for a term in excess of 10 years.

(e) Exercise of Option. Options may be exercised by delivery to the Company of a written notice of exercise signed by the proper person or by any other form of notice (including electronic notice) approved by the Company, together with payment in full as specified in Section 5(f) for the number of shares for which the Option is exercised. Shares of Common Stock subject to the Option will be delivered by the Company as soon as practicable following exercise.

(f) Payment Upon Exercise. Common Stock purchased upon the exercise of an Option granted under the Plan shall be paid for as follows:

(1) in cash or by check, payable to the order of the Company;

(2) except as may otherwise be provided in the applicable option agreement, by (i) delivery of an irrevocable and unconditional undertaking by a creditworthy broker to deliver promptly to the Company sufficient funds to pay the exercise price and any required tax withholding or (ii) delivery by the Participant to the Company of a copy of irrevocable and unconditional instructions to a creditworthy broker to deliver promptly to the Company cash or a check sufficient to pay the exercise price and any required tax withholding;

(3) except as may otherwise be provided in the applicable option agreement, by delivery (either by actual delivery or attestation) of shares of Common Stock owned by the Participant valued at their Fair Market Value, provided (i) such method of payment is then permitted under applicable law, (ii) such Common Stock, if acquired directly from the Company, was owned by the Participant for such minimum period of time, if any, as may be established by the Board in its discretion; (iii) such Common Stock is not subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements and (iv) if the Participant is an Executive Officer, prior approval is obtained from the Board;

(4) with respect to Nonstatutory Options, and except as may otherwise be provided in the applicable option agreement, by delivery of a notice of "net exercise" to the Company, as a result of which the Participant would receive the number of shares of Common Stock underlying the Option so exercised reduced by the number of shares of Common Stock equal to the aggregate exercise price of the Option divided by the Fair Market Value on the date of exercise; provided, if the Participant is an Executive Officer, prior approval is obtained from the Board;

(5) to the extent permitted by applicable law and provided for in the applicable Option agreement or approved by the Board, in its sole discretion, by payment of such other lawful consideration as the Board may determine; or

(6) by any combination of the above permitted forms of payment.

(g) Limitation on Repricing. Unless such action is approved by the Company's stockholders: (1) no outstanding Option granted under the Plan may be amended to provide an exercise price per share that is lower than the then-current exercise price per share of such outstanding Option (other than adjustments pursuant to Section 10) and (2) the Board may not cancel any outstanding option (whether or not granted under the Plan) and grant in substitution therefor new Awards under the Plan covering the same or a different number of shares of Common Stock and having an exercise price per share lower than the then-current exercise price per share of the cancelled option or effect repricing by cancellation in exchange for cash.

6. Director Options

(a) Board Discretion. The Board retains the specific authority to, from time to time, determine the number of shares subject to Options granted to Non-employee Directors under this Section 6,

subject to the limitations contained in Section 4(b). All Options granted to Non-employee Directors shall be Nonstatutory Stock Options. The Board also retains the specific authority to issue SARs, Restricted Stock Awards or Other Stock-Based Awards in lieu of Options, subject to the limitations contained in Section 4(b).

(b) Terms of Director Options. Options granted under this Section 6 shall (i) have an exercise price equal to the Fair Market Value on the date of grant, (ii) expire on the earlier of 10 years from the date of grant or three months following cessation of service on the Board, provided that such three month period shall be extended to five years following cessation of service on the Board for any director with five or more years of continuous service on the Board, and (iii) contain such other terms and conditions as the Board shall determine.

7. Stock Appreciation Rights

(a) General. The Board may grant Awards consisting of SARs entitling the holder, upon exercise, to receive an amount of Common Stock or cash or a combination thereof (such form to be determined by the Board) determined by reference to appreciation, from and after the date of grant, in the Fair Market Value of a share of Common Stock over the measurement price established pursuant to Section 7(c). The date as of which such appreciation is determined shall be the exercise date.

(b) Grants. SARs may be granted in tandem with, or independently of, Options granted under the Plan.

(1) Tandem Awards. When SARs are expressly granted in tandem with Options, (i) the SAR will be exercisable only at such time or times, and to the extent, that the related Option is exercisable (except to the extent designated by the Board in connection with a Reorganization Event and will be exercisable in accordance with the procedure required for exercise of the related Option; (ii) the SAR will terminate and no longer be exercisable upon the termination or exercise of the related Option, except to the extent designated by the Board in connection with a Reorganization Event and except that a SAR granted with respect to less than the full number of shares covered by an Option will not be reduced until the number of shares as to which the related Option has been exercised or has terminated exceeds the number of shares not covered by the SAR; (iii) the Option will terminate and no longer be exercisable upon the exercise of the related SAR; and (iv) the SAR will be transferable only with the related Option.

(2) Independent SARs. A SAR not expressly granted in tandem with an Option will become exercisable at such time or times, and on such conditions, as the Board may specify in the SAR Award.

(c) Measurement Price. The Board shall establish the measurement price of each SAR and specify it in the applicable SAR agreement. The measurement price shall not be less than 100% of the Fair Market Value on the date the SAR is granted; provided that if the Board approves the grant of a SAR with a measurement price to be determined on a future date, the measurement price shall be not less than 100% of the Fair Market Value on such future date.

(d) Duration of SARs. Each SAR shall be exercisable at such times and subject to such terms and conditions as the Board may specify in the applicable SAR agreement; *provided, however*, that no SAR will be granted with a term in excess of 10 years.

(e) Exercise of SARs. SARs may be exercised by delivery to the Company of a written notice of exercise signed by the proper person or by any other form of notice (including electronic notice) approved by the Company, together with any other documents required by the Board.

(f) Limitation on Repricing. Unless such action is approved by the Company's stockholders: (1) no outstanding SAR granted under the Plan may be amended to provide an exercise price per share that is lower than the then-current exercise price per share of such outstanding SAR (other than adjustments pursuant to Section 10) and (2) the Board may not cancel any outstanding SAR (whether or not granted under the Plan) and grant in substitution therefor new Awards under the Plan covering the same or a different number of shares of Common Stock and having an exercise price per share lower than the then-current exercise price per share of the cancelled SAR or effect repricing by cancellation in exchange for cash.

8. Restricted Stock; Restricted Stock Units

(a) General. The Board may grant Awards entitling recipients to acquire shares of Common Stock ("**Restricted Stock**"), subject to the right of the Company to repurchase all or part of such shares at their issue price or other stated or formula price (or to require forfeiture of such shares if issued at no cost) from the recipient in the event that conditions specified by the Board in the applicable Award are not satisfied prior to the end of the applicable restriction period or periods established by the Board for such Award. Instead of granting Awards for Restricted Stock, the Board may grant Awards entitling the recipient to receive shares of Common Stock or cash to be delivered at the time such Award vests ("**Restricted Stock Units**") (Restricted Stock and Restricted Stock Units are each referred to herein as a "**Restricted Stock Award**").

(b) Terms and Conditions for All Restricted Stock Awards. Subject to the provisions of the Plan (including, without limitation, Section 4(d)), the Board shall determine the terms and conditions of a Restricted Stock Award, including the conditions for vesting and repurchase (or forfeiture) and the issue price, if any.

(c) Additional Provisions Relating to Restricted Stock.

(1) Dividends. Participants holding shares of Restricted Stock will be entitled to dividends paid with respect to such shares; provided, however, with respect to any unvested share of Restricted Stock, dividends shall accrue during the vesting period but shall not be paid unless and until such share of Restricted Stock has vested. Any such accrued dividends that are attributable to a share of Restricted Stock shall be paid to the Participant in cash or, in the sole discretion of the Board, in shares of Common Stock having a Fair Market Value (on the date of distribution) equal to the amount of such dividends, upon the vesting of such share and, if such share is forfeited, the Participant shall have no right to such dividends.

(2) Stock Certificates. The Company may require that any stock certificates issued in respect of shares of Restricted Stock shall be deposited in escrow by the Participant, together with a stock power endorsed in blank, with the Company (or its designee). At the expiration of the applicable restriction periods, the Company (or such designee) shall deliver the certificates no longer subject to such restrictions to the Participant or if the Participant has died, to the beneficiary designated, in a manner determined by the Board, by a Participant to receive amounts due or exercise rights of the Participant in the event of the Participant's death (the "**Designated Beneficiary**"). In the absence of an effective designation by a Participant, "**Designated Beneficiary**" shall mean the Participant's estate.

(d) Additional Provisions Relating to Restricted Stock Units.

(1) Settlement. Upon the vesting of and/or lapsing of any other restrictions (i.e., settlement) with respect to each Restricted Stock Unit, the Participant shall be entitled to receive

from the Company one share of Common Stock or an amount of cash equal to the Fair Market Value of one share of Common Stock, as provided in the applicable Award agreement. The Board may, in its discretion, provide that settlement of Restricted Stock Units shall be deferred, on a mandatory basis or at the election of the Participant in a manner that complies with Section 409A of the Code.

(2) Voting Rights. A Participant shall have no voting rights with respect to any Restricted Stock Units.

(3) Dividend Equivalents. To the extent provided by the Board, in its sole discretion, a grant of Restricted Stock Units may provide Participants with the right to receive an amount equal to any dividends or other distributions declared and paid on an equal number of outstanding shares of Common Stock ("**Dividend Equivalents**"). Dividend Equivalents shall be credited to an account for the Participants, shall be settled in cash and/or shares of Common Stock and may be subject to the same restrictions on transfer and forfeitability as the Restricted Stock Units with respect to which paid, as determined by the Board in its sole discretion, subject in each case to such terms and conditions as the Board shall establish, in each case to be set forth in the applicable Award agreement. Notwithstanding the foregoing, with respect to any unvested Restricted Stock Unit, Dividend Equivalents shall accrue during the vesting period but shall not be paid unless and until such Restricted Stock Unit has vested. Any such Dividend Equivalents that have accrued and are attributable to a Restricted Stock Unit shall be paid to the Participant in cash or, in the sole discretion of the Board, in shares of Common Stock having a Fair Market Value (on the date of distribution) equal to the amount of such Dividend Equivalents, upon the vesting of such Restricted Stock Unit and, if such Restricted Stock Unit is forfeited, the Participant shall have no right to such Dividend Equivalents.

9. Other Stock-Based Awards

(a) General. Other Awards of shares of Common Stock, and other Awards that are valued in whole or in part by reference to, or are otherwise based on, shares of Common Stock or other property, may be granted hereunder to Participants ("**Other Stock-Based-Awards**"), including without limitation Awards entitling recipients to receive shares of Common Stock to be delivered in the future. Such Other Stock-Based Awards shall also be available as a form of payment in the settlement of other Awards granted under the Plan or as payment in lieu of compensation to which a Participant is otherwise entitled. Other Stock-Based Awards may be paid in shares of Common Stock or cash, as the Board shall determine.

(b) Terms and Conditions. Subject to the provisions of the Plan (including, without limitation, Section 4(d)), the Board shall determine the terms and conditions of each Other Stock-Based Award, including any purchase price applicable thereto.

10. Adjustments for Changes in Common Stock and Certain Other Events

(a) Changes in Capitalization. In the event of any stock split, reverse stock split, stock dividend, recapitalization, combination of shares, reclassification of shares, spin-off or other similar change in capitalization or event, or any dividend or distribution to holders of Common Stock other than an ordinary cash dividend, (i) the number and class of securities available under the Plan, (ii) the sub-limits, fungible pool and share counting rules set forth in Sections 4(a), (iii) the minimum vesting provisions set forth in Section 4(d), (iv) the number and class of securities and exercise price per share of each outstanding Option and each Option issuable under Section 6, (v) the share- and per-share provisions and the measurement price of each SAR, (vi) the number of shares subject to

and the repurchase price per share subject to each outstanding Restricted Stock Award and (vii) the share- and per-share-related provisions and the purchase price, if any, of each outstanding Other Stock-Based Award, shall be equitably adjusted by the Company (or substituted Awards may be made, if applicable) in the manner determined by the Board. Without limiting the generality of the foregoing, in the event the Company effects a split of the Common Stock by means of a stock dividend and the exercise price of and the number of shares subject to an outstanding Option are adjusted as of the date of the distribution of the dividend (rather than as of the record date for such dividend), then an optionee who exercises an Option between the record date and the distribution date for such stock dividend shall be entitled to receive, on the distribution date, the stock dividend with respect to the shares of Common Stock acquired upon such Option exercise, notwithstanding the fact that such shares were not outstanding as of the close of business on the record date for such stock dividend.

(b) Reorganization Events.

(1) Definition. A “**Reorganization Event**” shall mean: (a) any merger or consolidation of the Company with or into another entity where the stockholders of the Company immediately before the merger or consolidation would not, immediately after the merger or consolidation, beneficially own, directly or indirectly, shares representing a majority of the outstanding voting shares of the resulting or successor entity (or its ultimate parent, if applicable), (b) any transfer or disposition of all of the Common Stock of the Company for cash, securities or other property pursuant to a share exchange or other transaction or (c) any liquidation or dissolution of the Company.

(2) Consequences of a Reorganization Event on Awards Other than Restricted Stock Awards. In connection with a Reorganization Event, the Board may take any one or more of the following actions as to all or any (or any portion of) outstanding Awards other than Restricted Stock Awards on such terms as the Board determines: (i) provide that Awards shall be assumed, or substantially equivalent Awards shall be substituted, by the acquiring or succeeding corporation (or an affiliate thereof), (ii) upon written notice to a Participant, provide that the Participant’s unexercised Awards will terminate immediately prior to the consummation of such Reorganization Event unless exercised by the Participant within a specified period following the date of such notice, (iii) provide that outstanding Awards shall become exercisable, realizable, or deliverable, or restrictions applicable to an Award shall lapse, in whole or in part prior to or upon such Reorganization Event, (iv) in the event of a Reorganization Event under the terms of which holders of Common Stock will receive upon consummation thereof a cash payment for each share surrendered in the Reorganization Event (the “**Acquisition Price**”), make or provide for a cash payment to a Participant equal to the excess, if any, of (A) the Acquisition Price times the number of shares of Common Stock subject to the Participant’s Awards (to the extent the exercise price does not exceed the Acquisition Price) over (B) the aggregate exercise price of all such outstanding Awards and any applicable tax withholdings, in exchange for the termination of such Awards, (v) provide that, in connection with a liquidation or dissolution of the Company, Awards shall convert into the right to receive liquidation proceeds (if applicable, net of the exercise price thereof and any applicable tax withholdings) and (vi) any combination of the foregoing. In taking any of the actions permitted under this Section 10(b), the Board shall not be obligated by the Plan to treat all Awards, all Awards held by a Participant, or all Awards of the same type, identically.

For purposes of clause (i) above, an Option shall be considered assumed if, following consummation of the Reorganization Event, the Option confers the right to purchase, for each share of Common Stock subject to the Option immediately prior to the consummation of the Reorganization Event, the consideration (whether cash, securities or other property) received as a

result of the Reorganization Event by holders of Common Stock for each share of Common Stock held immediately prior to the consummation of the Reorganization Event (and if holders were offered a choice of consideration, the type of consideration chosen by the holders of a majority of the outstanding shares of Common Stock); provided, however, that if the consideration received as a result of the Reorganization Event is not solely common stock of the acquiring or succeeding corporation (or an affiliate thereof), the Company may, with the consent of the acquiring or succeeding corporation, provide for the consideration to be received upon the exercise of Options to consist solely of common stock of the acquiring or succeeding corporation (or an affiliate thereof) equivalent in value (as determined by the Board) to the per share consideration received by holders of outstanding shares of Common Stock as a result of the Reorganization Event.

(3) Consequences of a Reorganization Event on Restricted Stock Awards. Upon the occurrence of a Reorganization Event other than a liquidation or dissolution of the Company, the repurchase and other rights of the Company under each outstanding Restricted Stock Award shall inure to the benefit of the Company's successor and shall, unless the Board determines otherwise, apply to the cash, securities or other property which the Common Stock was converted into or exchanged for pursuant to such Reorganization Event in the same manner and to the same extent as they applied to the Common Stock subject to such Restricted Stock Award; *provided, however*, that the Board may provide for termination or deemed satisfaction of such repurchase or other rights under the instrument evidencing any Restricted Stock Award or any other agreement between a Participant and the Company, either initially or by amendment. Upon the occurrence of a Reorganization Event involving the liquidation or dissolution of the Company, except to the extent specifically provided to the contrary in the instrument evidencing any Restricted Stock Award or any other agreement between a Participant and the Company, all restrictions and conditions on all Restricted Stock Awards then outstanding shall automatically be deemed terminated or satisfied.

11. General Provisions Applicable to Awards

(a) Transferability of Awards. Awards shall not be sold, assigned, transferred, pledged or otherwise encumbered by the person to whom they are granted, either voluntarily or by operation of law, except by will or the laws of descent and distribution or, other than in the case of an Incentive Stock Option, pursuant to a qualified domestic relations order, and, during the life of the Participant, shall be exercisable only by the Participant; *provided, however*, that the Board may permit or provide in an Award for the gratuitous transfer of the Award by the Participant to or for the benefit of any immediate family member, family trust or other entity established for the benefit of the Participant and/or an immediate family member thereof if, with respect to such proposed transferee, the Company would be eligible to use a Form S-8 for the registration of the sale of the Common Stock subject to such Award under the Securities Act of 1933, as amended; provided, further, that the Company shall not be required to recognize any such transfer until such time as the Participant and such permitted transferee shall, as a condition to such transfer, deliver to the Company a written instrument in form and substance satisfactory to the Company confirming that such transferee shall be bound by all of the terms and conditions of the Award. References to a Participant, to the extent relevant in the context, shall include references to authorized transferees.

(b) Documentation. Each Award shall be evidenced in such form (written, electronic or otherwise) as the Board shall determine. Each Award may contain terms and conditions in addition to those set forth in the Plan.

(c) Board Discretion. Except as otherwise provided by the Plan, each Award may be made alone or in addition or in relation to any other Award. The terms of each Award need not be identical, and the Board need not treat Participants uniformly.

(d) Termination of Status. The Board shall determine the effect on an Award of the disability, death, termination or other cessation of employment, authorized leave of absence or other change in the employment or other status of a Participant and the extent to which, and the period during which, the Participant, or the Participant's legal representative, conservator, guardian or Designated Beneficiary, may exercise rights under the Award.

(e) Withholding. The Participant must satisfy all applicable federal, state, and local or other income and employment tax withholding obligations before the Company will deliver stock certificates or otherwise recognize ownership of Common Stock under an Award. The Company may decide to satisfy the withholding obligations through additional withholding on salary or wages. If the Company elects not to or cannot withhold from other compensation, the Participant must pay the Company the full amount, if any, required for withholding or have a broker tender to the Company cash equal to the withholding obligations. Payment of withholding obligations is due before the Company will issue any shares on exercise or release from forfeiture of an Award or, if the Company so requires, at the same time as is payment of the exercise price unless the Company determines otherwise. A Participant may satisfy such tax obligations in whole or in part by delivery (either by actual delivery or attestation) of shares of Common Stock, including shares retained from the Award creating the tax obligation, valued at their Fair Market Value; *provided, however*, that if the Participant is an Executive Officer, prior approval is obtained from the Board; *provided further*, that where stock is being used to satisfy such tax obligations, the total tax withholding does not exceed the maximum statutory tax rate or such lesser amount as is necessary to avoid liability accounting treatment. Shares used to satisfy tax withholding requirements cannot be subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements.

(f) Amendment of Award. Except as otherwise provided in Section 4(d) with respect to the vesting of Awards or Section 12(d) with respect to actions requiring shareholder approval, the Board may amend, modify or terminate any outstanding Award, including but not limited to, substituting therefor another Award of the same or a different type, changing the date of exercise or realization, and converting an Incentive Stock Option to a Nonstatutory Stock Option. The Participant's consent to such action shall be required unless (i) the Board determines that the action, taking into account any related action, would not materially and adversely affect the Participant's rights under the Plan or (ii) the change is permitted under Section 10 hereof.

(g) Conditions on Delivery of Stock. The Company will not be obligated to deliver any shares of Common Stock pursuant to the Plan or to remove restrictions from shares previously delivered under the Plan until (i) all conditions of the Award have been met or removed to the satisfaction of the Company, (ii) in the opinion of the Company's counsel, all other legal matters in connection with the issuance and delivery of such shares have been satisfied, including any applicable securities laws and any applicable stock exchange or stock market rules and regulations, and (iii) the Participant has executed and delivered to the Company such representations or agreements as the Company may consider appropriate to satisfy the requirements of any applicable laws, rules or regulations.

(h) Acceleration. The Board may at any time provide that any Award shall become immediately exercisable in full or in part, free of some or all restrictions or conditions, or otherwise realizable in full or in part, as the case may be.

(i) No Dividends on Unvested Awards; No Dividends on Options or SARs. Notwithstanding anything herein to the contrary, to the extent any Participant is entitled to receive dividends or dividend equivalents with respect to any Award, no such dividends or dividend equivalents shall be paid unless and until the underlying Award has vested. In addition, in no event shall any dividend or dividend equivalents be paid with respect to any Options or SARs.

12. Miscellaneous

(a) No Right To Employment or Other Status. No person shall have any claim or right to be granted an Award, and the grant of an Award shall not be construed as giving a Participant the right to continued employment or any other relationship with the Company. The Company expressly reserves the right at any time to dismiss or otherwise terminate its relationship with a Participant free from any liability or claim under the Plan, except as expressly provided in the applicable Award.

(b) No Rights As Stockholder. Subject to the provisions of the applicable Award, no Participant or Designated Beneficiary shall have any rights as a stockholder with respect to any shares of Common Stock to be distributed with respect to an Award until becoming the record holder of such shares.

(c) Effective Date and Term of Plan. The 2018 Stock Incentive Plan became effective on May 10, 2018 (the “**Original Effective Date**”) and this Amended and Restated 2018 Stock Incentive Plan shall become effective upon the date it is approved by the Company’s stockholders (the “**Effective Date**”). No Awards shall be granted under the Plan after the expiration of 10 years from the Effective Date, but Awards previously granted may extend beyond that date.

(d) Amendment of Plan. The Board may amend, suspend or terminate the Plan or any portion thereof at any time provided that no amendment that would require stockholder approval under the NASDAQ rules may be made effective unless and until the Company’s stockholders approve such amendment (including, for the avoidance of doubt, any amendment of the provisions of Sections 5(g) and 7(f) that require stockholder approval to effect certain actions that constitute a repricing under NASDAQ). In addition, if at any time the approval of the Company’s stockholders is required as to any other modification or amendment under Section 422 of the Code or any successor provision with respect to Incentive Stock Options, the Board may not effect such modification or amendment without such approval. Unless otherwise specified in the amendment, any amendment to the Plan adopted in accordance with this Section 12(d) shall apply to, and be binding on the holders of, all Awards outstanding under the Plan at the time the amendment is adopted, provided the Board determines that such amendment does not materially and adversely affect the rights of Participants under the Plan. Options may be granted that are conditioned upon stockholder approval of any amendment adding shares of Common Stock to the Plan, but no such conditioned Options may be exercised until stockholder approval is obtained. If stockholder approval is not obtained, all such conditioned Option grants shall be cancelled and be of no further force or effect.

(e) Authorization of Sub-Plans. The Board may from time to time establish one or more sub-plans under the Plan for purposes of satisfying applicable securities or tax laws of various jurisdictions. The Board shall establish such sub-plans by adopting supplements to the Plan containing (i) such limitations on the Board’s discretion under the Plan as the Board deems necessary or desirable or (ii) such additional terms and conditions not otherwise inconsistent with the Plan as the Board shall deem necessary or desirable. All supplements adopted by the Board shall be deemed to be part of the Plan, but each supplement shall apply only to Participants within the affected jurisdiction and the Company shall not be required to provide copies of any supplement to Participants in any jurisdiction which is not the subject of such supplement.

(f) **Non-U.S. Participants.** Awards may be granted to Participants who are non-U.S. citizens or residents employed outside the United States, or both, on such terms and conditions different from those applicable to Awards to Participants employed in the United States as may, in the judgment of the Board, be necessary or desirable in order to recognize differences in local law or tax policy. The Board also may impose conditions on the exercise or vesting of Awards in order to minimize the Board's obligation with respect to tax equalization for Participants on assignments outside their home country. The Board may approve such supplements to or amendments, restatements or alternative versions of the Plan as it may consider necessary or appropriate for such purposes, without thereby affecting the terms of this Plan as in effect for any other purpose, and the Secretary or other appropriate officer of the Company may certify any such document as having been approved and adopted in the same manner as this Plan.

(g) **Compliance with Section 409A of the Code.** Except as provided in individual Award agreements initially or by amendment, if and to the extent any portion of any payment, compensation or other benefit provided to a Participant in connection with his or her employment termination is determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A of the Code and the Participant is a specified employee as defined in Section 409A(a)(2)(B)(i) of the Code, as determined by the Company in accordance with its procedures, by which determination the Participant (through accepting the Award) agrees that he or she is bound, such portion of the payment, compensation or other benefit shall not be paid before the day that is six months plus one day after the date of "separation from service" (as determined under Section 409A of the Code) (the "**New Payment Date**"), except as Section 409A of the Code may then permit. The aggregate of any payments that otherwise would have been paid to the Participant during the period between the date of separation from service and the New Payment Date shall be paid to the Participant in a lump sum on such New Payment Date, and any remaining payments will be paid on their original schedule.

The Company makes no representations or warranty and shall have no liability to the Participant or any other person if any provisions of or payments, compensation or other benefits under the Plan are determined to constitute nonqualified deferred compensation subject to Section 409A of the Code but do not to satisfy the conditions of that section. The Company intends that any Award determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A of the Code complies with Section 409A of the Code. To the extent that any provision of the Plan or of any Award agreement is ambiguous as to its compliance with Section 409A of the Code, the provision shall be read in such a manner so that the Plan and such Award complies with Section 409A of the Code. Accordingly, to the extent that any Award is determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A of the Code, the Award shall be subject to such additional rules and requirements as specified by the Board from time to time in order to comply with Section 409A of the Code.

(h) **Limitations on Liability.** Notwithstanding any other provisions of the Plan, no individual acting as a director, officer, other employee, or agent of the Company will be liable to any Participant, former Participant, spouse, beneficiary, or any other person for any claim, loss, liability, or expense incurred in connection with the Plan, nor will such individual be personally liable with respect to the Plan because of any contract or other instrument he or she executes in his or her capacity as a director, officer, other employee, or agent of the Company. The Company will indemnify and hold harmless each director, officer, other employee, or agent of the Company to whom any duty or power relating to the administration or interpretation of the Plan has been or will be delegated, against any cost or expense (including attorneys' fees) or liability (including any sum paid in

settlement of a claim with the Board's approval) arising out of any act or omission to act concerning this Plan unless arising out of such person's own fraud or bad faith.

(i) Governing Law. The provisions of the Plan and all Awards made hereunder shall be governed by and interpreted in accordance with the laws of the State of Delaware, excluding choice-of-law principles of the law of such state that would require the application of the laws of a jurisdiction other than such state.

(j) Clawback. Grants made under this Plan shall be subject to the Company's clawback policies in effect from time to time.

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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, 2022 for shares held directly and by 11:59 p.m. Eastern Time on May 13, 2022 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/ALNY2022

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, 2022 for shares held directly and by 11:59 p.m. Eastern Time on May 13, 2022 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 2025 and FOR Proposals 2, 3 and 4.

	For	Against	Abstain	For	Against	Abstain
1. To elect the following nominees as Class III directors of Alnylam:						
1a. Margaret A. Hamburg, M.D.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
1b. Colleen F. Reitan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
1c. Amy W. Schulman	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2. To approve the amended and restated 2018 Stock Incentive Plan.				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. To approve, in a non-binding advisory vote, the compensation of Alnylam's named executive officers.				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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, 2022.				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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, 2022:

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, 2022 at 12:00 p.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 12:00 p.m., Eastern Time, on Wednesday, May 18, 2022, 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**