

Form 5500 Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Annual Return/Report of Employee Benefit Plan This form is required to be filed for employee benefit plans under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and sections 6057(b) and 6058(a) of the Internal Revenue Code (the Code). ▶ Complete all entries in accordance with the instructions to the Form 5500.	OMB Nos. 1210-0110 1210-0089 2022 This Form is Open to Public Inspection
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Part I	Annual Report Identification Information
For calendar plan year 2022 or fiscal plan year beginning 01/01/2022 and ending 12/31/2022	
A This return/report is for:	☐ a multiemployer plan ☐ a multiple-employer plan (Filers checking this box must attach a list of participating employer information in accordance with the form instructions.) ☒ a single-employer plan ☐ a DFE (specify) _____
B This return/report is:	☐ the first return/report ☐ the final return/report ☐ an amended return/report ☐ a short plan year return/report (less than 12 months)
C If the plan is a collectively-bargained plan, check here.	☐
D Check box if filing under:	☒ Form 5558 ☐ automatic extension ☐ the DFVC program ☐ special extension (enter description)
E If this is a retroactively adopted plan permitted by SECURE Act section 201, check here.	☐

Part II	Basic Plan Information —enter all requested information
1a Name of plan ALNYLAM PHARMACEUTICALS, INC. SAVINGS & INVESTMENT PLAN	1b Three-digit plan number (PN) ▶ 001
	1c Effective date of plan 01/01/2003
2a Plan sponsor's name (employer, if for a single-employer plan) Mailing address (include room, apt., suite no. and street, or P.O. Box) City or town, state or province, country, and ZIP or foreign postal code (if foreign, see instructions) ALNYLAM PHARMACEUTICALS, INC. 300 THIRD STREET 3RD FLOOR CAMBRIDGE, MA 02142	2b Employer Identification Number (EIN) 04-3696884
	2c Plan Sponsor's telephone number 617-551-8342
	2d Business code (see instructions) 541700

Caution: A penalty for the late or incomplete filing of this return/report will be assessed unless reasonable cause is established.

Under penalties of perjury and other penalties set forth in the instructions, I declare that I have examined this return/report, including accompanying schedules, statements and attachments, as well as the electronic version of this return/report, and to the best of my knowledge and belief, it is true, correct, and complete.

SIGN HERE	Filed with authorized/valid electronic signature.	10/02/2023	BRIAN WATERWORTH
	Signature of plan administrator	Date	Enter name of individual signing as plan administrator
SIGN HERE			
	Signature of employer/plan sponsor	Date	Enter name of individual signing as employer or plan sponsor
SIGN HERE			
	Signature of DFE	Date	Enter name of individual signing as DFE

For Paperwork Reduction Act Notice, see the Instructions for Form 5500.

Form 5500 (2022)
v. 220413

3a Plan administrator's name and address ☒ Same as Plan Sponsor		3b Administrator's EIN
		3c Administrator's telephone number
4 If the name and/or EIN of the plan sponsor or the plan name has changed since the last return/report filed for this plan, enter the plan sponsor's name, EIN, the plan name and the plan number from the last return/report: a Sponsor's name c Plan Name		4b EIN 4d PN
5 Total number of participants at the beginning of the plan year		5 1721
6 Number of participants as of the end of the plan year unless otherwise stated (welfare plans complete only lines 6a(1) , 6a(2) , 6b , 6c , and 6d).		
a(1) Total number of active participants at the beginning of the plan year		6a(1) 1314
a(2) Total number of active participants at the end of the plan year		6a(2) 1639
b Retired or separated participants receiving benefits		6b 0
c Other retired or separated participants entitled to future benefits.....		6c 450
d Subtotal. Add lines 6a(2) , 6b , and 6c		6d 2089
e Deceased participants whose beneficiaries are receiving or are entitled to receive benefits.		6e 1
f Total. Add lines 6d and 6e		6f 2090
g Number of participants with account balances as of the end of the plan year (only defined contribution plans complete this item).....		6g 2026
h Number of participants who terminated employment during the plan year with accrued benefits that were less than 100% vested.....		6h 0
7 Enter the total number of employers obligated to contribute to the plan (only multiemployer plans complete this item)		7
8a If the plan provides pension benefits, enter the applicable pension feature codes from the List of Plan Characteristics Codes in the instructions: 2G 2J 2K 2T 2F 3D		
b If the plan provides welfare benefits, enter the applicable welfare feature codes from the List of Plan Characteristics Codes in the instructions:		
9a Plan funding arrangement (check all that apply) (1) ☐ Insurance (2) ☐ Code section 412(e)(3) insurance contracts (3) ☒ Trust (4) ☐ General assets of the sponsor		9b Plan benefit arrangement (check all that apply) (1) ☐ Insurance (2) ☐ Code section 412(e)(3) insurance contracts (3) ☒ Trust (4) ☐ General assets of the sponsor
10 Check all applicable boxes in 10a and 10b to indicate which schedules are attached, and, where indicated, enter the number attached. (See instructions)		
a Pension Schedules (1) ☒ R (Retirement Plan Information) (2) ☐ MB (Multiemployer Defined Benefit Plan and Certain Money Purchase Plan Actuarial Information) - signed by the plan actuary (3) ☐ SB (Single-Employer Defined Benefit Plan Actuarial Information) - signed by the plan actuary		b General Schedules (1) ☒ H (Financial Information) (2) ☐ I (Financial Information – Small Plan) (3) ☐ 0 A (Insurance Information) (4) ☒ C (Service Provider Information) (5) ☒ D (DFE/Participating Plan Information) (6) ☐ G (Financial Transaction Schedules)

Part III Form M-1 Compliance Information (to be completed by welfare benefit plans)

11a If the plan provides welfare benefits, was the plan subject to the Form M-1 filing requirements during the plan year? (See instructions and 29 CFR 2520.101-2.) ☐ Yes ☐ No

If "Yes" is checked, complete lines 11b and 11c.

11b Is the plan currently in compliance with the Form M-1 filing requirements? (See instructions and 29 CFR 2520.101-2.) ☐ Yes ☐ No

11c Enter the Receipt Confirmation Code for the 2022 Form M-1 annual report. If the plan was not required to file the 2022 Form M-1 annual report, enter the Receipt Confirmation Code for the most recent Form M-1 that was required to be filed under the Form M-1 filing requirements. (Failure to enter a valid Receipt Confirmation Code will subject the Form 5500 filing to rejection as incomplete.)

Receipt Confirmation Code _____

SCHEDULE C (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Service Provider Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA). ▶ File as an attachment to Form 5500.	OMB No. 1210-0110
		2022
		This Form is Open to Public Inspection.

For calendar plan year 2022 or fiscal plan year beginning 01/01/2022 and ending 12/31/2022		
A Name of plan ALNYLAM PHARMACEUTICALS, INC. SAVINGS & INVESTMENT PLAN	B Three-digit plan number (PN) ▶	001
C Plan sponsor's name as shown on line 2a of Form 5500 ALNYLAM PHARMACEUTICALS, INC.	D Employer Identification Number (EIN) 04-3696884	

Part I	Service Provider Information (see instructions)
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You must complete this Part, in accordance with the instructions, to report the information required for **each person** who received, directly or indirectly, \$5,000 or more in total compensation (i.e., money or anything else of monetary value) in connection with services rendered to the plan or the person's position with the plan during the plan year. If a person received **only** eligible indirect compensation for which the plan received the required disclosures, you are required to answer line 1 but are not required to include that person when completing the remainder of this Part.

1 Information on Persons Receiving Only Eligible Indirect Compensation

- a Check "Yes" or "No" to indicate whether you are excluding a person from the remainder of this Part because they received only eligible indirect compensation for which the plan received the required disclosures (see instructions for definitions and conditions)..... ☒ Yes ☐ No
- b If you answered line 1a "Yes," enter the name and EIN or address of each person providing the required disclosures for the service providers who received only eligible indirect compensation. Complete as many entries as needed (see instructions).

(b) Enter name and EIN or address of person who provided you disclosures on eligible indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL
04-2647786

(b) Enter name and EIN or address of person who provided you disclosures on eligible indirect compensation
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2. Information on Other Service Providers Receiving Direct or Indirect Compensation. Except for those persons for whom you answered "Yes" to line 1a above, complete as many entries as needed to list each person receiving, directly or indirectly, \$5,000 or more in total compensation (i.e., money or anything else of value) in connection with services rendered to the plan or their position with the plan during the plan year. (See instructions).

(a) Enter name and EIN or address (see instructions)

MERRILL LYNCH PIERCE FENNER & SMIT

13-5674085

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
27	INVESTMENT ADVISOR	63750	Yes ☐ No ☒	Yes ☐ No ☐		Yes ☐ No ☐

(a) Enter name and EIN or address (see instructions)

RSM US LLP

42-0714325

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
10	ACCOUNTANT/AUDITOR	13760	Yes ☐ No ☒	Yes ☐ No ☐		Yes ☐ No ☐

(a) Enter name and EIN or address (see instructions)

FIDELITY INVESTMENTS INSTITUTIONAL

04-2647786

(b) Service Code(s)	(c) Relationship to employer, employee organization, or person known to be a party-in-interest	(d) Enter direct compensation paid by the plan. If none, enter -0-.	(e) Did service provider receive indirect compensation? (sources other than plan or plan sponsor)	(f) Did indirect compensation include eligible indirect compensation, for which the plan received the required disclosures?	(g) Enter total indirect compensation received by service provider excluding eligible indirect compensation for which you answered "Yes" to element (f). If none, enter -0-.	(h) Did the service provider give you a formula instead of an amount or estimated amount?
37 60 64 65 71	RECORDKEEPER	-136706	Yes ☒ No ☐	Yes ☒ No ☐	0	Yes ☒ No ☐

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received \$1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
AF TRGT DATE 2010 R4 - AMERICAN FU 95-2566717	0.35%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
AF TRGT DATE 2015 R4 - AMERICAN FU 95-2566717	0.35%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
AF TRGT DATE 2020 R4 - AMERICAN FU 95-2566717	0.35%	

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received \$1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0

(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
AF TRGT DATE 2025 R4 - AMERICAN FU 95-2566717	0.35%

(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0

(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
AF TRGT DATE 2030 R4 - AMERICAN FU 95-2566717	0.35%

(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0

(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.
AF TRGT DATE 2035 R4 - AMERICAN FU 95-2566717	0.35%

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received \$1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
AF TRGT DATE 2040 R4 - AMERICAN FU 95-2566717	0.35%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
AF TRGT DATE 2045 R4 - AMERICAN FU 95-2566717	0.35%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
AF TRGT DATE 2050 R4 - AMERICAN FU 95-2566717	0.35%	

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received \$1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
AF TRGT DATE 2055 R4 - AMERICAN FU 95-2566717	0.35%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
AF TRGT DATE 2060 R4 - AMERICAN FU 95-2566717	0.35%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
BLK RK HLTH SCI OPP I - BNY MELLON 301 BELLEVUE PARKWAY WILMINGTON, DE 19809	0.25%	

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received \$1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
C&S REAL ESTATE A - DST ASSET MANA 430 W 7TH STREET STE 219432 KANSAS CITY, MO 64105	0.45%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
CALV US LG CP CRI I - DST ASSET MA 430 W 7TH STREET STE 219432 KANSAS CITY, MO 64105	0.10%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
COLUMBIA BALANCED A - COLUMBIA MGT PO BOX 219104 KANSAS CITY, MO 64121-9104	0.50%	

Part I Service Provider Information (continued)

3. If you reported on line 2 receipt of indirect compensation, other than eligible indirect compensation, by a service provider, and the service provider is a fiduciary or provides contract administrator, consulting, custodial, investment advisory, investment management, broker, or recordkeeping services, answer the following questions for (a) each source from whom the service provider received \$1,000 or more in indirect compensation and (b) each source for whom the service provider gave you a formula used to determine the indirect compensation instead of an amount or estimated amount of the indirect compensation. Complete as many entries as needed to report the required information for each source.

(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
JHANCOCK BOND R4 - JOHN HANCOCK SI 01-0233346	0.25%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
LOOMIS STRAT INC A - DST ASSET MAN 430 W 7TH STREET STE 219432 KANSAS CITY, MO 64105	0.45%	
(a) Enter service provider name as it appears on line 2	(b) Service Codes (see instructions)	(c) Enter amount of indirect compensation
FIDELITY INVESTMENTS INSTITUTIONAL	60	0
(d) Enter name and EIN (address) of source of indirect compensation	(e) Describe the indirect compensation, including any formula used to determine the service provider's eligibility for or the amount of the indirect compensation.	
VICTORY S ESTB VAL A - FIS INVESTO FAITH INVESTOR SERVICES, LLC 14785 PRESTON ROAD, SUITE 1000 DALLAS, TX 75254	0.50%	

Part II Service Providers Who Fail or Refuse to Provide Information

4 Provide, to the extent possible, the following information for each service provider who failed or refused to provide the information necessary to complete this Schedule.

(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide
(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide
(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide
(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide
(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide
(a) Enter name and EIN or address of service provider (see instructions)	(b) Nature of Service Code(s)	(c) Describe the information that the service provider failed or refused to provide

Part III Termination Information on Accountants and Enrolled Actuaries (see instructions)
(complete as many entries as needed)

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

a Name:	b EIN:
c Position:	
d Address:	e Telephone:

Explanation:

SCHEDULE D (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration	DFE/Participating Plan Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA). ► File as an attachment to Form 5500.	OMB No. 1210-0110 2022 This Form is Open to Public Inspection.
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For calendar plan year 2022 or fiscal plan year beginning 01/01/2022 and ending 12/31/2022		
A Name of plan ALNYLAM PHARMACEUTICALS, INC. SAVINGS & INVESTMENT PLAN	B Three-digit plan number (PN) ►	001
C Plan or DFE sponsor's name as shown on line 2a of Form 5500 ALNYLAM PHARMACEUTICALS, INC.	D Employer Identification Number (EIN) 04-3696884	

Part I	Information on interests in MTIAs, CCTs, PSAs, and 103-12 IEs (to be completed by plans and DFEs) (Complete as many entries as needed to report all interests in DFEs)
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a Name of MTIA, CCT, PSA, or 103-12 IE: MIP CL 1		
b Name of sponsor of entity listed in (a): FIDELITY MANAGEMENT TRUST COMPANY		
c EIN-PN 04-3022712-024	d Entity code C	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions) 4074771
a Name of MTIA, CCT, PSA, or 103-12 IE:		
b Name of sponsor of entity listed in (a):		
c EIN-PN	d Entity code	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
a Name of MTIA, CCT, PSA, or 103-12 IE:		
b Name of sponsor of entity listed in (a):		
c EIN-PN	d Entity code	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
a Name of MTIA, CCT, PSA, or 103-12 IE:		
b Name of sponsor of entity listed in (a):		
c EIN-PN	d Entity code	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
a Name of MTIA, CCT, PSA, or 103-12 IE:		
b Name of sponsor of entity listed in (a):		
c EIN-PN	d Entity code	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
a Name of MTIA, CCT, PSA, or 103-12 IE:		
b Name of sponsor of entity listed in (a):		
c EIN-PN	d Entity code	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
a Name of MTIA, CCT, PSA, or 103-12 IE:		
b Name of sponsor of entity listed in (a):		
c EIN-PN	d Entity code	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)
a Name of MTIA, CCT, PSA, or 103-12 IE:		
b Name of sponsor of entity listed in (a):		
c EIN-PN	d Entity code	e Dollar value of interest in MTIA, CCT, PSA, or 103-12 IE at end of year (see instructions)

a Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)**a** Name of MTIA, CCT, PSA, or 103-12 IE:**b** Name of sponsor of entity listed in (a):**c** EIN-PN**d** Entity
code**e** Dollar value of interest in MTIA, CCT, PSA, or
103-12 IE at end of year (see instructions)

Part II **Information on Participating Plans (to be completed by DFEs)**

(Complete as many entries as needed to report all participating plans)

a Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN**a** Plan name**b** Name of
plan sponsor**c** EIN-PN

SCHEDULE H (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Financial Information This schedule is required to be filed under section 104 of the Employee Retirement Income Security Act of 1974 (ERISA), and section 6058(a) of the Internal Revenue Code (the Code). ► File as an attachment to Form 5500.	OMB No. 1210-0110 2022 This Form is Open to Public Inspection
For calendar plan year 2022 or fiscal plan year beginning <u>01/01/2022</u> and ending <u>12/31/2022</u>		
A Name of plan <u>ALNYLAM PHARMACEUTICALS, INC. SAVINGS & INVESTMENT PLAN</u>	B Three-digit plan number (PN) ►	<u>001</u>
C Plan sponsor's name as shown on line 2a of Form 5500 <u>ALNYLAM PHARMACEUTICALS, INC.</u>	D Employer Identification Number (EIN) <u>04-3696884</u>	

Part I	Asset and Liability Statement		
1 Current value of plan assets and liabilities at the beginning and end of the plan year. Combine the value of plan assets held in more than one trust. Report the value of the plan's interest in a commingled fund containing the assets of more than one plan on a line-by-line basis unless the value is reportable on lines 1c(9) through 1c(14). Do not enter the value of that portion of an insurance contract which guarantees, during this plan year, to pay a specific dollar benefit at a future date. Round off amounts to the nearest dollar. MTIAs, CCTs, PSAs, and 103-12 IEs do not complete lines 1b(1), 1b(2), 1c(8), 1g, 1h, and 1i. CCTs, PSAs, and 103-12 IEs also do not complete lines 1d and 1e. See instructions.			
Assets		(a) Beginning of Year	(b) End of Year
a Total noninterest-bearing cash.....	1a	0	0
b Receivables (less allowance for doubtful accounts):			
(1) Employer contributions.....	1b(1)	0	0
(2) Participant contributions.....	1b(2)	0	0
(3) Other.....	1b(3)	0	0
c General investments:			
(1) Interest-bearing cash (include money market accounts & certificates of deposit).....	1c(1)	0	0
(2) U.S. Government securities	1c(2)	0	0
(3) Corporate debt instruments (other than employer securities):			
(A) Preferred	1c(3)(A)	0	0
(B) All other	1c(3)(B)	0	0
(4) Corporate stocks (other than employer securities):			
(A) Preferred	1c(4)(A)	0	0
(B) Common.....	1c(4)(B)	0	0
(5) Partnership/joint venture interests	1c(5)	0	0
(6) Real estate (other than employer real property)	1c(6)	0	0
(7) Loans (other than to participants).....	1c(7)	0	0
(8) Participant loans.....	1c(8)	1153635	1301562
(9) Value of interest in common/collective trusts.....	1c(9)	2228127	4074771
(10) Value of interest in pooled separate accounts	1c(10)	0	0
(11) Value of interest in master trust investment accounts.....	1c(11)	0	0
(12) Value of interest in 103-12 investment entities	1c(12)	0	0
(13) Value of interest in registered investment companies (e.g., mutual funds).....	1c(13)	184779832	172771985
(14) Value of funds held in insurance company general account (unallocated contracts).....	1c(14)	0	0
(15) Other	1c(15)	0	0

1d Employer-related investments:

		(a) Beginning of Year	(b) End of Year
(1) Employer securities	1d(1)	25500855	32020025
(2) Employer real property	1d(2)	0	0
e Buildings and other property used in plan operation	1e	0	0
f Total assets (add all amounts in lines 1a through 1e)	1f	213662449	210168343

Liabilities

g Benefit claims payable	1g	0	0
h Operating payables	1h	0	0
i Acquisition indebtedness	1i	0	0
j Other liabilities	1j	0	0
k Total liabilities (add all amounts in lines 1g through 1j)	1k	0	0

Net Assets

l Net assets (subtract line 1k from line 1f)	1l	213662449	210168343
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Part II Income and Expense Statement

2 Plan income, expenses, and changes in net assets for the year. Include all income and expenses of the plan, including any trust(s) or separately maintained fund(s) and any payments/receipts to/from insurance carriers. Round off amounts to the nearest dollar. MTIAs, CCTs, PSAs, and 103-12 IEs do not complete lines 2a, 2b(1)(E), 2e, 2f, and 2g.

Income

		(a) Amount	(b) Total
a Contributions:			
(1) Received or receivable in cash from: (A) Employers	2a(1)(A)	9531365	
(B) Participants	2a(1)(B)	23302284	
(C) Others (including rollovers)	2a(1)(C)	6728353	
(2) Noncash contributions	2a(2)	0	
(3) Total contributions. Add lines 2a(1)(A) , (B) , (C) , and line 2a(2)	2a(3)		39562002
b Earnings on investments:			
(1) Interest:			
(A) Interest-bearing cash (including money market accounts and certificates of deposit)	2b(1)(A)	0	
(B) U.S. Government securities	2b(1)(B)	0	
(C) Corporate debt instruments	2b(1)(C)	0	
(D) Loans (other than to participants)	2b(1)(D)	0	
(E) Participant loans	2b(1)(E)	57210	
(F) Other	2b(1)(F)	0	
(G) Total interest. Add lines 2b(1)(A) through (F)	2b(1)(G)		57210
(2) Dividends: (A) Preferred stock	2b(2)(A)	0	
(B) Common stock	2b(2)(B)	0	
(C) Registered investment company shares (e.g. mutual funds)	2b(2)(C)	7091589	
(D) Total dividends. Add lines 2b(2)(A) , (B) , and (C)	2b(2)(D)		7091589
(3) Rents	2b(3)		0
(4) Net gain (loss) on sale of assets: (A) Aggregate proceeds	2b(4)(A)	2912382	
(B) Aggregate carrying amount (see instructions)	2b(4)(B)	2652105	
(C) Subtract line 2b(4)(B) from line 2b(4)(A) and enter result	2b(4)(C)		260277
(5) Unrealized appreciation (depreciation) of assets: (A) Real estate	2b(5)(A)	0	
(B) Other	2b(5)(B)	9171275	
(C) Total unrealized appreciation of assets. Add lines 2b(5)(A) and (B)	2b(5)(C)		9171275

		(a) Amount	(b) Total
(6) Net investment gain (loss) from common/collective trusts	2b(6)		-272095
(7) Net investment gain (loss) from pooled separate accounts	2b(7)		0
(8) Net investment gain (loss) from master trust investment accounts	2b(8)		0
(9) Net investment gain (loss) from 103-12 investment entities.....	2b(9)		0
(10) Net investment gain (loss) from registered investment companies (e.g., mutual funds)	2b(10)		-43524068
c Other income	2c		0
d Total income. Add all income amounts in column (b) and enter total	2d		12346190
Expenses			
e Benefit payment and payments to provide benefits:			
(1) Directly to participants or beneficiaries, including direct rollovers	2e(1)	15880324	
(2) To insurance carriers for the provision of benefits	2e(2)	0	
(3) Other	2e(3)	0	
(4) Total benefit payments. Add lines 2e(1) through (3)	2e(4)		15880324
f Corrective distributions (see instructions)	2f		19152
g Certain deemed distributions of participant loans (see instructions)	2g		0
h Interest expense	2h		0
i Administrative expenses: (1) Professional fees	2i(1)	0	
(2) Contract administrator fees	2i(2)	0	
(3) Investment advisory and management fees	2i(3)	0	
(4) Other	2i(4)	-59180	
(5) Total administrative expenses. Add lines 2i(1) through (4)	2i(5)		-59180
j Total expenses. Add all expense amounts in column (b) and enter total	2j		15840296
Net Income and Reconciliation			
k Net income (loss). Subtract line 2j from line 2d	2k		-3494106
l Transfers of assets:			
(1) To this plan	2l(1)		0
(2) From this plan	2l(2)		0

Part III Accountant's Opinion

3 Complete lines 3a through 3c if the opinion of an independent qualified public accountant is attached to this Form 5500. Complete line 3d if an opinion is not attached.

a The attached opinion of an independent qualified public accountant for this plan is (see instructions):

(1) ☒ Unmodified (2) ☐ Qualified (3) ☐ Disclaimer (4) ☐ Adverse

b Check the appropriate box(es) to indicate whether the IQPA performed an ERISA section 103(a)(3)(C) audit. Check both boxes (1) and (2) if the audit was performed pursuant to both 29 CFR 2520.103-8 and 29 CFR 2520.103-12(d). Check box (3) if pursuant to neither.

(1) ☒ DOL Regulation 2520.103-8 (2) ☐ DOL Regulation 2520.103-12(d) (3) ☐ neither DOL Regulation 2520.103-8 nor DOL Regulation 2520.103-12(d).

c Enter the name and EIN of the accountant (or accounting firm) below:

(1) Name: RSM US LLP

(2) EIN: 42-0714325

d The opinion of an independent qualified public accountant is **not attached** because:

(1) ☐ This form is filed for a CCT, PSA, or MTIA. (2) ☐ It will be attached to the next Form 5500 pursuant to 29 CFR 2520.104-50.

Part IV Compliance Questions

4 CCTs and PSAs do not complete Part IV. MTIAs, 103-12 IEs, and GIAs do not complete lines 4a, 4e, 4f, 4g, 4h, 4k, 4m, 4n, or 5. 103-12 IEs also do not complete lines 4j and 4l. MTIAs also do not complete line 4l.

During the plan year:

a Was there a failure to transmit to the plan any participant contributions within the time period described in 29 CFR 2510.3-102? Continue to answer "Yes" for any prior year failures until fully corrected. (See instructions and DOL's Voluntary Fiduciary Correction Program.)

	Yes	No	Amount
4a		X	

	Yes	No	Amount
b Were any loans by the plan or fixed income obligations due the plan in default as of the close of the plan year or classified during the year as uncollectible? Disregard participant loans secured by participant's account balance. (Attach Schedule G (Form 5500) Part I if "Yes" is checked.)		X	
4b		X	
c Were any leases to which the plan was a party in default or classified during the year as uncollectible? (Attach Schedule G (Form 5500) Part II if "Yes" is checked.)		X	
4c		X	
d Were there any nonexempt transactions with any party-in-interest? (Do not include transactions reported on line 4a. Attach Schedule G (Form 5500) Part III if "Yes" is checked.)		X	
4d		X	
e Was this plan covered by a fidelity bond?	X		2000000
4e	X		2000000
f Did the plan have a loss, whether or not reimbursed by the plan's fidelity bond, that was caused by fraud or dishonesty?		X	
4f		X	
g Did the plan hold any assets whose current value was neither readily determinable on an established market nor set by an independent third party appraiser?		X	
4g		X	
h Did the plan receive any noncash contributions whose value was neither readily determinable on an established market nor set by an independent third party appraiser?		X	
4h		X	
i Did the plan have assets held for investment? (Attach schedule(s) of assets if "Yes" is checked, and see instructions for format requirements.)	X		
4i	X		
j Were any plan transactions or series of transactions in excess of 5% of the current value of plan assets? (Attach schedule of transactions if "Yes" is checked and see instructions for format requirements.)		X	
4j		X	
k Were all the plan assets either distributed to participants or beneficiaries, transferred to another plan, or brought under the control of the PBGC?		X	
4k		X	
l Has the plan failed to provide any benefit when due under the plan?		X	
4l		X	
m If this is an individual account plan, was there a blackout period? (See instructions and 29 CFR 2520.101-3.)		X	
4m		X	
n If 4m was answered "Yes," check the "Yes" box if you either provided the required notice or one of the exceptions to providing the notice applied under 29 CFR 2520.101-3.		X	
4n		X	

5a Has a resolution to terminate the plan been adopted during the plan year or any prior plan year? ☐ Yes ☒ No
If "Yes," enter the amount of any plan assets that reverted to the employer this year _____.

5b If, during this plan year, any assets or liabilities were transferred from this plan to another plan(s), identify the plan(s) to which assets or liabilities were transferred. (See instructions.)

5b(1) Name of plan(s)	5b(2) EIN(s)	5b(3) PN(s)

5c Was the plan a defined benefit plan covered under the PBGC insurance program at any time during this plan year? (See ERISA section 4021 and instructions.) ☐ Yes ☐ No ☐ Not determined
If "Yes" is checked, enter the My PAA confirmation number from the PBGC premium filing for this plan year _____.

SCHEDULE R (Form 5500) Department of the Treasury Internal Revenue Service Department of Labor Employee Benefits Security Administration Pension Benefit Guaranty Corporation	Retirement Plan Information This schedule is required to be filed under sections 104 and 4065 of the Employee Retirement Income Security Act of 1974 (ERISA) and section 6058(a) of the Internal Revenue Code (the Code). ► File as an attachment to Form 5500.	OMB No. 1210-0110 2022 This Form is Open to Public Inspection.
For calendar plan year 2022 or fiscal plan year beginning 01/01/2022 and ending 12/31/2022		
A Name of plan ALNYLAM PHARMACEUTICALS, INC. SAVINGS & INVESTMENT PLAN		B Three-digit plan number (PN) ► 001
C Plan sponsor's name as shown on line 2a of Form 5500 ALNYLAM PHARMACEUTICALS, INC.		D Employer Identification Number (EIN) 04-3696884
Part I	Distributions	
All references to distributions relate only to payments of benefits during the plan year.		
1 Total value of distributions paid in property other than in cash or the forms of property specified in the instructions.....		1
2 Enter the EIN(s) of payor(s) who paid benefits on behalf of the plan to participants or beneficiaries during the year (if more than two, enter EINs of the two payors who paid the greatest dollar amounts of benefits): EIN(s): 04-6568107		
Profit-sharing plans, ESOPs, and stock bonus plans, skip line 3.		
3 Number of participants (living or deceased) whose benefits were distributed in a single sum, during the plan year.....		3
Part II	Funding Information (If the plan is not subject to the minimum funding requirements of section 412 of the Internal Revenue Code or ERISA section 302, skip this Part.)	
4 Is the plan administrator making an election under Code section 412(d)(2) or ERISA section 302(d)(2)? ☐ Yes ☐ No ☐ N/A If the plan is a defined benefit plan, go to line 8.		
5 If a waiver of the minimum funding standard for a prior year is being amortized in this plan year, see instructions and enter the date of the ruling letter granting the waiver. Date: Month _____ Day _____ Year _____ If you completed line 5, complete lines 3, 9, and 10 of Schedule MB and do not complete the remainder of this schedule.		
6 a Enter the minimum required contribution for this plan year (include any prior year accumulated funding deficiency not waived).....		6a
b Enter the amount contributed by the employer to the plan for this plan year.....		6b
c Subtract the amount in line 6b from the amount in line 6a. Enter the result (enter a minus sign to the left of a negative amount).....		6c
If you completed line 6c, skip lines 8 and 9.		
7 Will the minimum funding amount reported on line 6c be met by the funding deadline? ☐ Yes ☐ No ☐ N/A		
8 If a change in actuarial cost method was made for this plan year pursuant to a revenue procedure or other authority providing automatic approval for the change or a class ruling letter, does the plan sponsor or plan administrator agree with the change? ☐ Yes ☐ No ☐ N/A		
Part III	Amendments	
9 If this is a defined benefit pension plan, were any amendments adopted during this plan year that increased or decreased the value of benefits? If yes, check the appropriate box. If no, check the "No" box..... ☐ Increase ☐ Decrease ☐ Both ☐ No		
Part IV	ESOPs (see instructions). If this is not a plan described under section 409(a) or 4975(e)(7) of the Internal Revenue Code, skip this Part.	
10 Were unallocated employer securities or proceeds from the sale of unallocated securities used to repay any exempt loan?.....		☐ Yes ☐ No
11 a Does the ESOP hold any preferred stock?.....		☐ Yes ☐ No
b If the ESOP has an outstanding exempt loan with the employer as lender, is such loan part of a "back-to-back" loan? (See instructions for definition of "back-to-back" loan.).....		☐ Yes ☐ No
12 Does the ESOP hold any stock that is not readily tradable on an established securities market?.....		☐ Yes ☐ No
For Paperwork Reduction Act Notice, see the Instructions for Form 5500.		
Schedule R (Form 5500) 2022 v. 220413		

Part V Additional Information for Multiemployer Defined Benefit Pension Plans

13 Enter the following information for each employer that (1) contributed more than 5% of total contributions to the plan during the plan year or (2) was one of the top-ten highest contributors (measured in dollars). See instructions. *Complete as many entries as needed to report all applicable employers.*

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

a Name of contributing employer

b EIN

c Dollar amount contributed by employer

d Date collective bargaining agreement expires (If employer contributes under more than one collective bargaining agreement, check box ☐ and see instructions regarding required attachment. Otherwise, enter the applicable date.) Month _____ Day _____ Year _____

e Contribution rate information (If more than one rate applies, check this box ☐ and see instructions regarding required attachment. Otherwise, complete lines 13e(1) and 13e(2).)

(1) Contribution rate (in dollars and cents) _____

(2) Base unit measure: ☐ Hourly ☐ Weekly ☐ Unit of production ☐ Other (specify): _____

14	Enter the number of deferred vested and retired participants (inactive participants), as of the beginning of the plan year, whose contributing employer is no longer making contributions to the plan for:		
	a The current plan year. Check the box to indicate the counting method used to determine the number of inactive participants: ☐ last contributing employer ☐ alternative ☐ reasonable approximation (see instructions for required attachment).....	14a	
	b The plan year immediately preceding the current plan year. ☐ Check the box if the number reported is a change from what was previously reported (see instructions for required attachment)	14b	
	c The second preceding plan year. ☐ Check the box if the number reported is a change from what was previously reported (see instructions for required attachment)	14c	
15	Enter the ratio of the number of participants under the plan on whose behalf no employer had an obligation to make an employer contribution during the current plan year to:		
	a The corresponding number for the plan year immediately preceding the current plan year.....	15a	
	b The corresponding number for the second preceding plan year.....	15b	
16	Information with respect to any employers who withdrew from the plan during the preceding plan year:		
	a Enter the number of employers who withdrew during the preceding plan year	16a	
	b If line 16a is greater than 0, enter the aggregate amount of withdrawal liability assessed or estimated to be assessed against such withdrawn employers.....	16b	
17	If assets and liabilities from another plan have been transferred to or merged with this plan during the plan year, check box and see instructions regarding supplemental information to be included as an attachment ☐		

Part VI	Additional Information for Single-Employer and Multiemployer Defined Benefit Pension Plans
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18	If any liabilities to participants or their beneficiaries under the plan as of the end of the plan year consist (in whole or in part) of liabilities to such participants and beneficiaries under two or more pension plans as of immediately before such plan year, check box and see instructions regarding supplemental information to be included as an attachment ☐
19	If the total number of participants is 1,000 or more, complete lines (a) through (c) a Enter the percentage of plan assets held as: Stock: _____% Investment-Grade Debt: _____% High-Yield Debt: _____% Real Estate: _____% Other: _____% b Provide the average duration of the combined investment-grade and high-yield debt: ☐ 0-3 years ☐ 3-6 years ☐ 6-9 years ☐ 9-12 years ☐ 12-15 years ☐ 15-18 years ☐ 18-21 years ☐ 21 years or more c What duration measure was used to calculate line 19(b)? ☐ Effective duration ☐ Macaulay duration ☐ Modified duration ☐ Other (specify): _____
20	PBGC missed contribution reporting requirements. If this is a multiemployer plan or a single-employer plan that is not covered by PBGC, skip line 20. a Is the amount of unpaid minimum required contributions for all years from Schedule SB (Form 5500) line 40 greater than zero? ☐ Yes ☐ No b If line 20a is "Yes," has PBGC been notified as required by ERISA sections 4043(c)(5) and/or 303(k)(4)? Check the applicable box: ☐ Yes. ☐ No. Reporting was waived under 29 CFR 4043.25(c)(2) because contributions equal to or exceeding the unpaid minimum required contribution were made by the 30th day after the due date. ☐ No. The 30-day period referenced in 29 CFR 4043.25(c)(2) has not yet ended, and the sponsor intends to make a contribution equal to or exceeding the unpaid minimum required contribution by the 30th day after the due date. ☐ No. Other. Provide explanation _____



September 28, 2023

RSM US LLP
80 City Square
Boston, MA 02129

This representation letter is provided in connection with your audits of the financial statements of Alnylam Pharmaceuticals Inc. Savings and Investment Plan (the Plan), an employee benefit plan subject to the Employee Retirement Income Security Act of 1974 (ERISA) sponsored by Alnylam Pharmaceuticals, Inc. (the Plan Sponsor). The Plan's financial statements comprise the statements of net assets available for benefits as of December 31, 2022 and 2021; the related statement of changes in net assets available for benefits for the year ended December 31, 2022; and the related notes to the financial statements.

We elected to have the audit of the plan's financial statements performed in accordance with ERISA Section 103(a)(3)(C) pursuant to 29 CFR 2520.103-8 of the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA. We acknowledge that the audit did not extend to any statements or information related to assets held for investment of the plan (investment information) by a bank or similar institution or insurance carrier, that is regulated, supervised and subject to periodically examination by a state or federal agency, a qualified institution, that prepared and certified the investment information in accordance with 29 CFR 2520.103-5 of the Department of Labor's (DOL) Rules and Regulations for Reporting and Disclosure under ERISA. We have determined that an ERISA Section 103(a)(3)(C) audit is permissible under the circumstances. We have also determined that the investment information is prepared and certified by a qualified institution as described by 29 CFR 2520.103-8, that the certification meets the requirements in 29 CFR 2520.103-5 and that the certified investment information is appropriately measured, presented and disclosed in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP).

The purpose of an ERISA Section 103(a)(3)(C) audit is to express an opinion on whether the amounts and disclosures in the financial statements, other than those agreed to or derived from the certified investment information, are presented fairly, in all material respects, in accordance with U.S. GAAP and that the assets held by and certified to by a qualified institution agrees to, or is derived from, in all material respects, the certified investment information.

We confirm, to the best of our knowledge and belief, that as of September 28, 2023

Financial Statements

1. We have fulfilled our responsibilities, as set out in the terms of the audit engagement letter dated July 19, 2023, for the preparation and fair presentation of the financial statements referred to above in accordance with U.S. GAAP.
2. We acknowledge our responsibility for administering the plan and determining the plan's transaction that are presented and disclosed in the ERISA plan financial statements are in conformity with the plan's provisions, including maintaining sufficient records with respect to each of the participants to determine the benefits due or which may become due to such participants.
3. We acknowledge our responsibility for the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

4. We acknowledge our responsibility for the design, implementation and maintenance of controls to prevent and detect fraud.
5. The methods, data, and significant assumptions used by us in making accounting estimates and their related disclosures are appropriate to achieve recognition, measurement or disclosure that is reasonable in the context of U.S. GAAP, and reflect our judgment based on our knowledge and experience about past and current events, and our assumptions about conditions we expect to exist and courses of action we expect to take.
6. We are responsible for the estimation methods and assumptions used in measuring assets and liabilities reported or disclosed at fair value, including information obtained from brokers, pricing services or other third parties. Our valuation methodologies have been consistently applied from period to period. The fair value measurements reported or disclosed represented our best estimate of fair value as of the measurement date in accordance with the requirements of Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 820, *Fair Value Measurement*. In addition, our disclosures related to fair value measurements are consistent with the objectives outlined in FASB ASC 820.
7. Related-party relationships and transactions have been appropriately accounted for and disclosed in accordance with the requirements of U.S. GAAP.
8. Transactions with parties in interest, as defined in Section 3(14) of ERISA and regulations thereunder, including sales, purchases, loans, transfers, leasing arrangements and guarantees, and amounts receivable from or payable to related parties have been appropriately accounted for and disclosed.
9. All events subsequent to the date of the financial statements, and for which U.S. GAAP requires adjustment or disclosure, have been adjusted or disclosed.
10. The effects of all known actual or possible litigation and claims have been accounted for and disclosed in accordance with U.S. GAAP.
11. We have no intention to terminate the Plan.
12. The following have been properly recorded and/or disclosed in the financial statements or supplemental schedules, as appropriate:
 - a. Related-party transactions, including transaction with parties-in-interest, as defined in ERISA Section 3(14) and regulations thereunder, including sales, purchases, loans, transfers, leasing arrangements and guarantees, and amounts receivable from or payable to related parties. For this purposes we have concluded that the plan satisfies the requirement of an eligible individual account plan under ERISA Section 407(d)(3) permitting the plan to hold more than 10% of plan assets in qualifying employer securities.
13. We have properly reported and disclosed amendments to the Plan instrument, if any.
14. We have informed you of all uncorrected misstatements.

As of and for the year ended December 31, 2022, we believe that the effects of the uncorrected misstatements aggregated by you and summarized below are immaterial, both individually and in the aggregate, to the financial statements taken as a whole. For purposes of this representation, we consider items to be material, regardless of their size, if they involve the misstatement or omission of accounting information that, in light of surrounding circumstances, makes it probable that the

judgment of a reasonable person relying on the information would be changed or influenced by the omission or misstatement.

Description	Effect—Increase (Decrease)				
	Assets	Liabilities	Net Assets	Additions	Deductions
Current period misstatements					
Factual misstatements					
PAJE to record ER Match for Plan year 2021 remitted in 2022	-	-	(1,046,291)	1,046,291	-
	-	-	-	-	-
Totals					
Total uncorrected misstatements	\$ -	\$ -	(1,046,291)	\$ 1,046,291	\$ -
Decrease in net income			1,046,291		
Cumulative effect on equity			\$ -		

15. We have requested an unsecured electronic copy of the auditor's report and financial statements and agree that the auditor's report and financial statements will not be modified in any manner.

Supplementary Information

16. We acknowledge our responsibility for the presentation of the ERISA-required supplemental schedule in conformity with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA. In this regard:
- We believe such schedule, including its form and content, is presented in conformity with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.
 - The methods of measurement or presentation have not changed from those used in the prior period.
 - There are no underlying significant assumptions or interpretations regarding the measurement or presentation of such information.
 - We will only present the ERISA-required supplemental schedule together with the audited financial statements and auditor's report thereon and will not separate the ERISA-required supplemental schedule from the audited financial statements and auditor's report thereon in any document that contains such information.

Information Provided

17. We have provided you with:
- Access to all information of which we are aware that is relevant to the preparation and fair presentation of the financial statements such as records, documentation and other matters;
 - Additional information that you have requested from us for the purpose of the audits;

- c. Unrestricted access to persons within the Plan from whom you determined it necessary to obtain audit evidence;
 - d. The currently effective version of the Plan document, including the prototype plan document and adoption agreement, the trust agreement or insurance contracts, and all related amendments. The Plan was most recently amended on June 18, 2020;
 - e. A draft of the Form 5500 that is substantially complete;
 - f. All correspondence, filings, reports and determinations with the Internal Revenue Service (IRS) and the DOL relating to the Plan's compliance with ERISA and the maintenance of its tax-exempt status;
 - g. All Plan financial records and related data. In that regard, the payroll information we provided you covered all employees that were eligible to participate in the Plan; and
 - h. All minutes of the meetings of the Plan's Investment Committee or summaries of actions of recent meetings for which minutes have not yet been prepared.
18. All transactions have been recorded in the accounting records and are reflected in the financial statements. The Plan Sponsor's management designated an individual with sufficient skills, knowledge and experience to oversee the financial statement preparation process and take responsibility for the results of the financial statement preparation services. This individual performed a detailed review of the financial statements, consisting of the following procedures:
- Reconciliation of the trust activity and participant statements to the financial statements.
 - Review and approval of all journal entries proposed by you, including the review of supporting documentation and explanations.
 - Review of the adequacy of financial statement disclosures by review and approval of the disclosure checklist completed by you.
 - Review and approval of schedules and calculations supporting the amounts included in the notes to the financial statements.
 - Applying analytical procedures to financial statements.
19. We have disclosed to you the results of our assessment of risk that the financial statements may be materially misstated as a result of fraud.
20. We have no knowledge of any allegations of fraud or suspected fraud affecting the Plan involving:
- a. Management.
 - b. Employees who have significant roles in internal control.
 - c. Others where the fraud could have a material effect on the financial statements.

21. We have no knowledge of any allegations of fraud or suspected fraud affecting the Plan received in communications from employees, former employees, participants, regulators, beneficiaries, service providers, third-party administrators or others.
22. We are not aware of any pending or threatened litigation and claims whose effects should be considered when preparing the financial statements, and neither we nor the Plan Sponsor, or others acting on behalf of the Plan, have consulted a lawyer concerning litigation and claims or other matters affecting the Plan.
23. We have provided to you all documentation, including correspondence, with lawyers utilized by us for any Plan matters. There are no matters that our lawyer has advised us should be considered when preparing the financial statements.
24. We have disclosed to you the identity of all of the Plan's related parties and parties in interest and all the related-party and party-in-interest relationships and transactions of which we are aware.
25. We are aware of no deficiencies in internal control over financial reporting, including significant deficiencies or material weaknesses, in the design or operation of internal controls that could adversely affect the Plan's ability to record, process, summarize and report financial data.
26. We have no plans or intentions that may materially affect the carrying value or classification of assets or liabilities.
27. The Plan or trust has satisfactory title to all owned assets that are recorded at fair value, and all liens, encumbrances or security interests have been properly disclosed.
28. There have been no communications, whether written or oral, from regulatory agencies concerning noncompliance with, or deficiencies in the operation of the Plan.
29. We have complied with (a) all aspects of debt and other contractual agreements, including provisions of the Plan, that would have a material effect on the financial statements in the event of noncompliance, (b) the fidelity bonding requirements of ERISA, (c) all participant eligibility and coverage requirements of the Plan, ERISA and the Internal Revenue Code (IRC), and (d) the filing requirements of appropriate agencies.
30. We have complied with the DOL's regulations concerning the timely remittance of participants' contributions to trusts containing assets for the Plan.
31. We have disclosed to you all known instances of noncompliance or suspected noncompliance with laws and regulations.
32. The IRS has determined and informed the Plan Sponsor, by a letter dated June 30, 2020, that the Plan is qualified under the appropriate section(s) of the IRC. We have operated the Plan and trust in a manner that did not jeopardize this tax status.
33. We have reviewed the complementary user entity control considerations of the Service Organization Controls (SOC 1) Report for Fidelity Management Company dated December 5, 2022 for the period ending October 31, 2022, and we believe all applicable controls are properly designed and implemented and operating effectively.
34. We have reviewed the complementary user entity control considerations of the Service Organization Controls (SOC 1) Report for ADP, Inc. AutoPay Payroll Services System dated November 10, 2022

for the period ending September 30, 2022, and we believe all applicable controls are properly designed and implemented and operating effectively.

35. There are no:

- a. Non-exempt (prohibited) party-in-interest transactions that were not disclosed in the financial statements or supplemental schedule.
- b. Notes receivable from participants or other receivables or investments in default or considered to be uncollectible that were not disclosed in the financial statements or supplemental schedule.
- c. Reportable transactions that were not disclosed in the supplemental schedule.

36. During the course of your audits, you may have accumulated records containing data that should be reflected in our books and records. All such data have been so reflected. Accordingly, copies of such records in your possession are no longer needed by us.

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

DocuSigned by:



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Robert Filadoro,
Plan Administrator

DocuSigned by:



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Brian Waterworth,
Associate Director, Payroll and Equity

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Financial Report
December 31, 2022

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Independent Auditor's Report

Participants and 401(k) Investment Committee
Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Scope and Nature of the ERISA Section 103(a)(3)(C) Audit

We have performed audits of the financial statements of Alnylam Pharmaceuticals, Inc. Savings and Investment Plan (the Plan), an employee benefit plan subject to the Employee Retirement Income Security Act of 1974 (ERISA), as permitted by ERISA Section 103(a)(3)(C) (ERISA Section 103(a)(3)(C) audit). The financial statements comprise the statements of net assets available for benefits as of December 31, 2022 and 2021, the related statement of changes in net assets available for benefits for the year ended December 31, 2022, and the related notes to the financial statements.

Management, having determined it is permissible in the circumstances, has elected to have the audits of the Plan's financial statements performed in accordance with ERISA Section 103(a)(3)(C) pursuant to 29 CFR 2520.103-8 of the Department of Labor's (DOL) Rules and Regulations for Reporting and Disclosure under ERISA. As permitted by ERISA Section 103(a)(3)(C), our audits need not extend to any statements or information related to assets held for investment of the Plan (investment information) by a bank or similar institution or insurance carrier that is regulated, supervised, and subject to periodic examination by a state or federal agency, provided that the statements or information regarding assets so held are prepared and certified to by the bank or similar institution or insurance carrier in accordance with 29 CFR 2520.103-5 of the DOL's Rules and Regulations for Reporting and Disclosure under ERISA (qualified institution).

Management has obtained certifications from a qualified institution as of December 31, 2022 and 2021, and for the year ended December 31, 2022, stating that the certified investment information, as described in Note 5 to the financial statements, is complete and accurate.

Opinion

In our opinion, based on our audits and on the procedures performed as described in the Auditor's Responsibilities for the Audit of the Financial Statements section:

- The amounts and disclosures in the accompanying financial statements, other than those agreed to or derived from the certified investment information, are presented fairly, in all material respects, in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP).
- The information in the accompanying financial statements related to assets held by and certified to by a qualified institution agrees to, or is derived from, in all material respects, the information prepared and certified by an institution that management determined meets the requirements of ERISA Section 103(a)(3)(C).

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Plan and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our ERISA Section 103(a)(3)(C) audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with U.S. GAAP, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error. Management's election of the ERISA Section 103(a)(3)(C) audit does not affect management's responsibility for the financial statements.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Plan's ability to continue as a going concern within one year after the date that the financial statements are issued or available to be issued.

Management is also responsible for maintaining a current plan instrument, including all plan amendments, administering the Plan, and determining that the Plan's transactions that are presented and disclosed in the financial statements are in conformity with the Plan's provisions, including maintaining sufficient records with respect to each of the participants, to determine the benefits due or which may become due to such participants.

Auditor's Responsibilities for the Audit of the Financial Statements

Except as described in the Scope and Nature of the ERISA Section 103(a)(3)(C) Audit section of our report, our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if, there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.

- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Plan's ability to continue as a going concern for a reasonable period of time.

Our audits did not extend to the certified investment information, except for obtaining and reading the certification, comparing the certified investment information with the related information presented and disclosed in the financial statements, and reading the disclosures relating to the certified investment information to assess whether they are in accordance with the presentation and disclosure requirements of U.S. GAAP.

Accordingly, the objective of an ERISA Section 103(a)(3)(C) audit is not to express an opinion about whether the financial statements as a whole are presented fairly, in all material respects, in accordance with U.S. GAAP.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Other Matter—Supplemental Schedule Required by ERISA

The supplemental schedule of Schedule H, line 4i – schedule of assets (held at end of year) as of December 31, 2022, is presented for purposes of additional analysis and is not a required part of the financial statements but is supplementary information required by the DOL's Rules and Regulations for Reporting and Disclosure under ERISA. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information included in the supplemental schedule, other than that agreed to or derived from the certified investment information, has been subjected to auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with GAAS. For information included in the supplemental schedule that agreed to or is derived from the certified investment information, we compared such information to the related certified investment information.

In forming our opinion on the supplemental schedule, we evaluated whether the supplemental schedule, other than the information agreed to or derived from the certified investment information, including its form and content, is presented in conformity with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.

In our opinion:

- The form and content of the supplemental schedule, other than the information in the supplemental schedule that agreed to or is derived from the certified investment information, are presented, in all material respects, in conformity with the DOL's Rules and Regulations for Reporting and Disclosure under ERISA.
- The information in the supplemental schedule related to assets held by and certified to by a qualified institution agrees to, or is derived from, in all material respects, the information prepared and certified by an institution that management determined meets the requirements of ERISA Section 103(a)(3)(C).

RSM US LLP

Boston, Massachusetts
September 28, 2023

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

**Statements of Net Assets Available for Benefits
December 31, 2022 and 2021**

	2022	2021
Assets		
Investments, at fair value	\$ 209,161,761	\$ 212,489,159
Receivables:		
Employer contributions	1,184,129	-
Notes receivable from participants	1,301,562	1,153,635
	2,485,691	1,153,635
Net assets available for benefits	\$ 211,647,452	\$ 213,642,794

See notes to financial statements.

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

**Statement of Changes in Net Assets Available for Benefits
Year Ended December 31, 2022**

Investment (loss) income:	
Net depreciation in fair value of investments	\$ (34,093,403)
Interest and dividends	7,135,016
Other income	142,826
Total investment loss	<u>(26,815,561)</u>
Interest income on notes receivable from participants	<u>57,210</u>
Contributions:	
Employer	10,715,494
Participant	23,302,284
Rollover	6,728,353
Total contributions	<u>40,746,131</u>
	<u>13,987,780</u>
Deductions from net assets attributed to:	
Benefits paid to participants	15,899,476
Administrative expenses	83,646
Total deductions	<u>15,983,122</u>
Net decrease	(1,995,342)
Net assets available for benefits:	
Beginning of year	<u>213,642,794</u>
End of year	<u><u>\$ 211,647,452</u></u>

See notes to financial statements.

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Notes to Financial Statements

Note 1. Description of Plan

The following description of the Alnylam Pharmaceuticals, Inc. Savings and Investment Plan (the Plan) provides only general information. Participants should refer to the Plan agreement for a more complete description of the Plan's provisions.

General: The Plan is a defined contribution plan covering eligible employees sponsored by Alnylam Pharmaceuticals, Inc. (the Company). The Plan was established January 1, 2003 and subsequently amended and restated effective September 15, 2014. The Plan is subject to the provisions of the Internal Revenue Code (the Code) and the Employee Retirement Income Security Act of 1974 (ERISA). Fidelity Management Trust Company (Fidelity) serves as the trustee (Trustee) of the Plan and the Vice President of Finance and the President of the Company both serve as plan administrators.

Effective January 1, 2020, the Plan was most recently amended to change the employer matching contribution rate and the vesting formulas.

Eligibility: An employee is eligible to enter the Plan immediately upon employment, and there is no age requirement. The Plan is extended to Company employees who are US citizens, who are not residents of Puerto Rico. Leased employees, students, and special employees hired for a specified term or project whose employment terminates at the end of a specified task, are also not eligible for the Plan.

Participant contributions: Participants may contribute to the Plan on a pretax basis up to 60% of their plan compensation, as defined, not to exceed certain statutory limits.

Employer contributions: The Plan provides for a discretionary matching contribution of 100% of the first 2% and 50% of the next 4% of the eligible participant's compensation contributed to the Plan paid during the biweekly payroll.

Rollover contributions: The Plan may receive any amounts received by an employee as a distribution from another qualified plan, provided that the receipt of such amounts does not adversely affect the qualified tax status of the Plan. Participants are fully vested in these amounts.

Participant accounts: Each participant's account is credited with the participant's contributions, the employer's matching contributions, and an allocation of plan earnings. Each participant who receives a contribution has a separate individual investment account. Gains and losses of the account shall accrue to such account only. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested account balance.

Investment elections: Participants may invest their accounts in any combination of mutual fund and common/collective trust fund investment options offered under the Plan. Participants may elect to transfer all or part of their account balances among the investment options. Participants may transfer assets out of Company common stock, but cannot transfer assets into Company common stock.

Vesting: Each participant is vested in 100% in all accounts immediately upon meeting the eligibility requirements.

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Notes to Financial Statements

Note 1. Description of Plan (Continued)

Payment of benefits: Amounts allocated to participants are distributable to participants or beneficiaries in the event of participants attaining normal retirement age, death, or disability. Participants who cease to be employed prior to attaining normal retirement age for any reason other than death or disability can receive distribution of the vested portion of their accounts. At the option of the participants, benefit distributions may be made in installments or as a lump sum. Distributions are made in cash, except that distributions may be made in shares of marketable securities, other than shares of employer stock, pursuant to the qualifying rollover of such distribution to a Fidelity Investments individual retirement account. Participants may also withdraw funds upon certain hardship situations, as defined in the Plan.

The Coronavirus Aid, Relief, and Economic Security Act (CARES Act) allowed for qualifying participants, as defined within the CARES Act, to withdraw under a coronavirus related distribution (CRD) up to the lesser of 100% of their vested account balance or \$100,000 between January 1, 2020 and December 31, 2020. CRD's are also exempt from the 10% early distribution penalty and mandatory federal withholding but are still subject to federal income taxation, which may be paid ratably over a three-year period. Participants that do take a CRD can also repay the distribution to the Plan within the three-year period and would not be subject to federal income taxation.

Administrative expenses: Annual maintenance fees and loan origination fees are charged directly to the participant accounts. Administrative expenses are paid by the Plan (either by available forfeiture balances or by participant accounts) unless paid by the Company at its discretion.

Forfeitures: Forfeitures represent the non-vested portion of terminated participants' account balances. Forfeitures are first applied to pay for administrative expenses under the Plan. Any remaining amounts are used to reduce cash required to fund future employer matching contributions. During the year ended December 31, 2022, \$10,952 was forfeited. During 2022, the Plan used \$11,417 of forfeitures to reduce plan expenses and employer matching contributions. At December 31, 2022 and 2021, the amount of forfeitures available to reduce future administrative expenses or employer matching contributions was \$4 and \$469, respectively.

Other income: Recorded within other income, the Plan received \$142,826 for the year ended December 31, 2022, as approved through the Fidelity Revenue Credit Program (RCP), which maybe be used to play for plan expenses. Amounts unused for expenses may be allocated to participant accounts. During the year ended December 31, 2022, \$63,750 of the RCP funding received was used to pay plan expenses. Funds received through RCP generated earnings and dividends of \$2,026 during the year ended December 31, 2022. As of December 31, 2022 and 2021, the unallocated balance to be used totaled \$237,117 and \$156,014, respectively.

Notes receivable from participants: Participants may borrow from their fund accounts a minimum of \$1,000 up to a maximum of the lesser of \$50,000 or 50% of their vested account balance. Loans are for a period not to exceed five years unless the loan is used to purchase a principal residence, in which case the loan may not exceed ten years. The loans are secured by the balance in the participant's account and bear interest at a rate of 4.25%–8.00%, which are commensurate with local prevailing rates at issuance as determined by the plan administrator. Principal and interest are paid ratably through payroll deductions.

The CARES Act increased the loan limit for eligible participants to be the lesser of \$100,000 or 100% of their vested account balance for loans taken between March 27, 2020 and September 23, 2020. In addition, repayments of loans due from March 27, 2020 through December 31, 2020 can be delayed for up to one year for qualifying participants.

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Notes to Financial Statements

Note 2. Summary of Significant Accounting Policies

Basis of accounting: The financial statements have been prepared in accordance with accounting standards set by the Financial Accounting Standards Board (FASB). The FASB sets generally accepted accounting principles (GAAP) to ensure net assets available for benefits and changes in net assets available for benefits are consistently reported. References to GAAP issued by the FASB in these footnotes are to the FASB Accounting Standards Codification (ASC).

The financial statements of the Plan are prepared on the accrual basis of accounting.

Investment valuation and income recognition: The Plan's investments are stated at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded when earned. Dividends are recorded on the ex-dividend date. Net appreciation (depreciation) includes the Plan's gains and losses on investments bought and sold as well as held during the year.

Use of estimates: The preparation of financial statements in accordance with GAAP requires management to make estimates and assumptions that affect the reported amounts of net assets available for benefits and changes therein. Actual results could differ from those estimates.

Notes receivable from participants: Notes receivable from participants are measured at their unpaid principal balance plus any accrued but unpaid interest. Delinquent loans are treated as distributions based upon the terms of the Plan document.

Payment of benefits: Benefits are recorded when paid to the participants.

Income taxes: GAAP requires Plan management to evaluate tax positions taken by the Plan. Management evaluated the Plan's tax positions and concluded that the Plan had maintained its tax-exempt status and had taken no uncertain tax positions that require revenue recognition or disclosure in the financial statements. Therefore, no provision or liability for income taxes has been included in the financial statements. With few exceptions, the Plan is no longer subject to income tax examinations by the U.S. federal, state, or local tax authorities for years before 2019.

Note 3. Fair Value Measurements

The framework for measuring fair value provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). Valuation techniques maximize the use of relevant observable inputs and minimize the use of unobservable inputs. The three levels of the fair value hierarchy under Topic 820 are described as follows:

Level 1: Inputs to the valuation methodology are quoted prices (unadjusted) in active markets for identical assets or liabilities that the Plan can access at the measurement date.

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Notes to Financial Statements

Note 3. Fair Value Measurements (Continued)

Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly, such as:

- Quoted prices for similar assets or liabilities in active markets
- Quoted prices for identical or similar assets or liabilities in inactive markets
- Inputs other than quoted prices that are observable for the asset or liability
- Inputs that are derived principally from or corroborated by observable market data by correlation or other means

If the asset or liability has a specified (contractual) term, the Level 2 input must be observable for substantially the full term of the asset or liability.

Level 3: Inputs to the valuation methodology are unobservable for the asset or liability.

Following is a description of the valuation methodologies used for assets measured at fair value. There have been no changes in the methodologies used at December 31, 2022 and 2021:

Mutual funds and money market fund: Valued at the daily closing price as reported by the fund. Mutual funds and the money market fund are held by the Plan are open-end funds that are registered with the U.S. Securities and Exchange Commission. These funds are required to publish their daily net asset value (NAV) and to transact at that price. The mutual funds and money market fund held by the Plan are deemed to be actively traded and are classified as Level 1.

Company common stock: Common stock is valued at the closing price reported on the active market on which the individual security is traded, and classified as Level 1 as it is actively traded and no valuation adjustments have been applied.

Common/collective trust fund: A stable value fund that is composed primarily of fully benefit-responsive investment contracts that is valued at the NAV of units of the bank collective trust. The net asset value is used as a practical expedient to estimate fair value. This practical expedient would not be used if it is determined to be probable that the fund will sell the investment for an amount different from the reported net asset value. Participant transactions (purchases and sales) may occur daily. If the Plan initiates a full redemption of the collective trust, the issuer reserves the right to require 12 months' notification in order to ensure that securities liquidations will be carried out in an orderly business manner.

The following table sets forth by level, within the fair value hierarchy, the Plan's assets at fair value as of December 31, 2022 and 2021. Classification within the fair value hierarchy table is based on the lowest level of any input that is significant to the fair value measurement.

Assets at Fair Value as of December 31, 2022				
	Level 1	Level 2	Level 3	Total
Investments:				
Mutual funds	\$172,771,985	\$ -	\$ -	\$172,771,985
Common stock	32,020,025	-	-	32,020,025
Investments measured at fair value	\$204,792,010	\$ -	\$ -	204,792,010
Investments measured at NAV (a)				4,369,751
Total investments at fair value				<u>\$209,161,761</u>

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Notes to Financial Statements

Note 3. Fair Value Measurements (Continued)

	Assets at Fair Value as of December 31, 2021			
	Level 1	Level 2	Level 3	Total
Investments:				
Mutual funds	\$184,779,832	\$ -	\$ -	\$184,779,832
Common stock	25,500,855	-	-	25,500,855
Investments measured at fair value	\$210,280,687	\$ -	\$ -	210,280,687
Investments measured at NAV (a)				2,208,472
Total investments at fair value				\$212,489,159

(a) In accordance with Subtopic 810-10, certain investments that are measured at fair value using NAV per share practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the statements of net assets available for plan benefits.

The following tables set forth additional disclosures of Plan's investments whose fair value is estimated using NAV per share (or its equivalent) as of December 31, 2022 and 2021:

Investment	Fair Value Estimated Using NAV Per Share			
	December 31, 2022			
	Fair Value	Unfunded Commitment	Redemption Frequency	Redemption Notice Period
Common/collective trust:				
Fidelity Managed Income Portfolio	\$ 4,369,751	\$ -	Daily	12 months
	\$ 4,369,751	\$ -		

Investment	Fair Value Estimated Using NAV Per Share			
	December 31, 2021			
	Fair Value	Unfunded Commitment	Redemption Frequency	Redemption Notice Period
Common/collective trust:				
Fidelity Managed Income Portfolio	\$ 2,208,472	\$ -	Daily	12 months
	\$ 2,208,472	\$ -		

Note 4. Nonparticipant Directed Investments

Information about the net assets and the significant components of the changes in net assets relating to the nonparticipant-directed investments is as follows:

Balance at December 31, 2021	\$ 25,500,855
Changes in net assets:	
Additions:	
Net appreciation	9,431,552
Deductions:	
Benefits paid to participants	2,226,534
Exchange out	685,597
Administrative expenses	251
Balance at December 31, 2022	\$ 32,020,025

Alnylam Pharmaceuticals, Inc. common stock consists of 134,707 shares and 150,346 shares at December 31, 2022 and 2021, respectively.

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Notes to Financial Statements

Note 5. Information Prepared and Certified by Trustee

The following is a summary of the Plan's asset information as of December 31, 2022 and 2021, and for the year ended December 31, 2022, included throughout the Plan's financial statements and supplemental schedule, that was prepared by or derived from information provided by Fidelity, the trustee, and furnished to the plan administrator. The plan administrator has obtained certifications from the Trustee that information provided to the plan administrator by the Trustee related to the following assets is complete and accurate. Accordingly, as permitted by 29 CFR 2520.103-8 of the Department of Labor's Rules and Regulations for Reporting and Disclosure under ERISA, the plan administrator instructed the Plan's independent auditors not to perform any auditing procedures with respect to information related to the following assets:

	2022	2021
Investments, at fair value	\$209,161,761	\$212,489,159
Notes receivable from participants	\$ 1,301,562	\$ 1,153,635

Fidelity also certified to the completeness and accuracy of \$34,093,403 of net depreciation in fair value of investments, \$7,135,016 of interest and dividends related to the aforementioned investments \$142,826 of other income and \$57,210 of interest related to notes receivable from participants for the year ended December 31, 2022.

Note 6. Income Tax Status

The Plan uses a prototype plan document. The prototype plan received its latest determination letter on June 30, 2020, in which the Internal Revenue Service stated that the Plan, as then designed, was in compliance with the applicable requirements of the Internal Revenue Code. The Plan has been amended since receiving the determination letter. However, the plan administrator and the plan sponsor believe that the Plan is currently designed and being operated in compliance with the applicable requirements of the Internal Revenue Code.

Note 7. Plan Termination

Although it has not expressed any intent to do so, the Company has the right under the Plan to discontinue its contributions at any time and to terminate the Plan subject to the provisions of ERISA. In the event of Plan termination, participants will become 100% vested in their accounts.

Note 8. Reconciliation of Financial Statements to Form 5500

The following is a reconciliation of net assets available for plan benefits as of December 31, 2022 and 2021 per the financial statements to Form 5500:

	2022	2021
Net assets available for plan benefits per the financial statements	\$211,647,452	\$213,642,794
Differences in:		
Adjustment from contract value to fair value for fully benefit-responsive investment contracts	(294,980)	19,655
Employer contributions receivable	(1,184,129)	-
Net assets available for benefits per Form 5500	\$210,168,343	\$213,662,449

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Notes to Financial Statements

Note 8. Reconciliation of Financial Statements to Form 5500 (Continued)

The following is a reconciliation of the net decrease in net assets available for benefits per the financial statements to Form 5500 for the year ended December 31, 2022:

Net decrease per the financial statements:	\$ (1,995,342)
Change in:	
Adjustment from contract value to fair value for interest in common/collective trust relating to fully benefit-responsive investment contracts	(314,635)
Employer contributions receivable	<u>(1,184,129)</u>
Net decrease per Form 5500	<u>\$ (3,494,106)</u>

Note 9. Party-in Interest Transactions

Certain plan investments such as shares of registered investment companies in the Fidelity fund family and the Fidelity Advisor Stable Value Portfolio common/collective trust are managed by affiliates of the Trustee of the Plan. The Plan issues notes receivable to participants, which are secured by the balances in the participants' accounts. The non-elective employer contributions are made in the form of Company common stock. These transactions qualify as party-in-interest transactions.

Note 10. Risks and Uncertainties

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect the amounts reported in the statements of net assets available for plan benefits.

Note 11. Subsequent Events

The Plan has evaluated subsequent events through September 28, 2023, the date on which the financial statements were available to be issued.

Alnylam Pharmaceuticals, Inc. Savings and Investment Plan

Schedule H, Line 4i—Schedule of Assets (Held at End of Year)

December 31, 2022

Employer Identification Number 04-3696884

Plan Number 001

(a)	(b)	(c)					(d)	(e)
		Description of Investment						
	Identity of Issue, Borrower, Lessor or Similar Party	Type of Investment	Maturity Date	Rate of Interest	Collateral	Par or Maturity Value	Cost	Current Value
*	Fidelity 500 Index	Mutual Fund	n/a	n/a	n/a	n/a	n/a	\$ 25,302,189
	American Funds 2035 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	14,876,901
	American Funds 2045 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	14,830,204
	American Funds 2050 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	12,945,302
	American Funds 2040 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	12,832,710
	American Funds 2030 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	10,299,805
	American Funds 2055 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	8,621,378
	Franklin Dynatech Class R6	Mutual Fund	n/a	n/a	n/a	n/a	n/a	7,430,290
*	Fidelity Contrafund K6	Mutual Fund	n/a	n/a	n/a	n/a	n/a	6,696,120
*	Fidelity Mid Cap Index Fund	Mutual Fund	n/a	n/a	n/a	n/a	n/a	5,964,404
*	Fidelity Small Cap Index Fund	Mutual Fund	n/a	n/a	n/a	n/a	n/a	5,099,038
	American Funds 2025 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	4,639,148
*	Fidelity International Index Fund	Mutual Fund	n/a	n/a	n/a	n/a	n/a	4,323,757
	American Funds 2060 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	3,909,726
	Carillon Eagle Mid Cap Growth R6 Fund	Mutual Fund	n/a	n/a	n/a	n/a	n/a	3,745,867
*	Fidelity Small Cap Growth K6 Fund	Mutual Fund	n/a	n/a	n/a	n/a	n/a	3,632,825
	Victory Sycamore Established Value Fund	Mutual Fund	n/a	n/a	n/a	n/a	n/a	3,498,721
	BlackRock Health Sciences Opportunities Portfolio Fund	Mutual Fund	n/a	n/a	n/a	n/a	n/a	3,136,379
*	Fidelity US Bond Index	Mutual Fund	n/a	n/a	n/a	n/a	n/a	3,098,389
	T. Rowe Price Value Fund Advisor Class	Mutual Fund	n/a	n/a	n/a	n/a	n/a	2,846,910
	Invesco Developing Mkts R6	Mutual Fund	n/a	n/a	n/a	n/a	n/a	2,023,800
	Undiscovered Managers Behavioral Val R6	Mutual Fund	n/a	n/a	n/a	n/a	n/a	1,774,395
	John Hancock International Growth	Mutual Fund	n/a	n/a	n/a	n/a	n/a	1,758,422
	John Hancock Bond Fund Class R4	Mutual Fund	n/a	n/a	n/a	n/a	n/a	1,556,279
	Loomis Strategic Income Fund A	Mutual Fund	n/a	n/a	n/a	n/a	n/a	1,552,856
	Columbia Balanced A	Mutual Fund	n/a	n/a	n/a	n/a	n/a	1,371,815
	Calvert US Large Cap Core Responsible Index Fund	Mutual Fund	n/a	n/a	n/a	n/a	n/a	1,287,685
	PIMCO Real Return Fund Institutional Class	Mutual Fund	n/a	n/a	n/a	n/a	n/a	1,237,946
	C&S Real Estate A	Mutual Fund	n/a	n/a	n/a	n/a	n/a	1,154,341
	American Funds 2020 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	1,026,260
	American Funds 2010 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	271,575
	American Funds 2015 Target Date	Mutual Fund	n/a	n/a	n/a	n/a	n/a	26,548
*	Fidelity Managed Income Portfolio Class 1	Common/Collective Trust Fund	n/a	n/a	n/a	n/a	n/a	4,074,771
*	Alnylam Pharmaceuticals, Inc. Common Stock	Common Stock	n/a	n/a	n/a	n/a	\$ 8,581,417	32,020,025
*	Participant Loans	Loans to participants at interest rates of 4.25% - 8.00%	Maturing through 2032	varies	varies	n/a	-	1,301,562
								\$ 210,168,343

* Represents party-in-interest to the Plan.