

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

OMB APPROVAL	
OMB Number:	3235-0287
Estimated average burden hours per response:	0.5

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Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

1. Name and Address of Reporting Person* <u>Poulton Jeffrey V.</u> <hr/> (Last) (First) (Middle) 675 WEST KENDALL STREET HENRI A. TERMEER SQUARE <hr/> (Street) CAMBRIDGE MA 02142 <hr/> (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol <u>ALNYLAM PHARMACEUTICALS, INC. [ALNY]</u>	5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) Chief Financial Officer
	3. Date of Earliest Transaction (Month/Day/Year) 10/10/2019	
4. If Amendment, Date of Original Filed (Month/Day/Year)		

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	04/19/2021		A ⁽¹⁾		4,518	A	\$0.0	4,518	D	
Common Stock	04/20/2021		F ⁽²⁾		1,333	D	\$131.75	3,185	D	
Common Stock	04/20/2021		F ⁽²⁾		50	D	\$134.49	3,135	D	
Common Stock	10/10/2019		J ⁽³⁾		38	A	\$0.0 ⁽⁴⁾	38	I	by Managed Account ⁽⁴⁾

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)	5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)	6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)	8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
						Date Exercisable	Expiration Date					

Explanation of Responses:

- On February 26, 2020, the reporting person was granted performance-based restricted stock units (PSU) in connection with the 2019 year-end compensation review. One third of the PSU award vests upon the achievement of each of three specific clinical development, regulatory or commercial events. The People, Culture and Compensation Committee of the Board determined that the first performance criterion was met and one-third of the PSU award vested as of April 19, 2021.
- Represents shares automatically sold by the Company on behalf of the reporting person pursuant to a mandatory sell-to-cover provision in the PSU award agreement required to cover minimum statutory tax withholding obligations that became due upon the vesting event.
- Reflects shares of ALNY common stock acquired by the reporting person on October 10, 2019 under the ALNY 401(k) plan as a result of the ALNY 401(k) matching contribution program. This acquisition and indirect holding was inadvertently omitted from previously filed Form 4 reports.
- Reflects shares of ALNY common stock acquired by the reporting person under the ALNY 401(k) plan as a result of the ALNY 401(k) matching contribution program.

By: /s/ Mary Beth DeLena,
Attorney-in-Fact For: Jeffrey V. Poulton 04/21/2021

** Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

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