

Check this box if no longer subject to  
Section 16. Form 4 or Form 5  
obligations may continue. See  
Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

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>Greene Barry E</u>  (Last) (First) (Middle) <u>675 WEST KENDALL STREET</u> <u>HENRI A. TERMEER SQUARE</u>  (Street) <u>CAMBRIDGE MA 02142</u>  (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol <u>ALNYLAM PHARMACEUTICALS, INC.</u> [ <u>ALNY</u> ]  3. Date of Earliest Transaction (Month/Day/Year) <u>08/10/2020</u>  4. If Amendment, Date of Original Filed (Month/Day/Year)	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)  <u>President</u>  6. Individual or Joint/Group Filing (Check Applicable Line)  <input checked="" type="checkbox"/> Form filed by One Reporting Person  Form filed by More than One Reporting Person
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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)
Common Stock	08/10/2020		M	1,587	A \$63	63,823	D
Common Stock	08/10/2020		M	1,036	A \$96.45	64,859	D
Common Stock	08/10/2020		M	1,124	A \$88.95	65,983	D
Common Stock	08/10/2020		M	1,184	A \$42.22	67,167	D
Common Stock						3,003	I by Managed Account <sup>(1)</sup>
Common Stock						3,486	I by Trust <sup>(2)</sup>

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)
				Code V	(A) (D)	Date Exercisable Expiration Date	Title Amount or Number of Shares				
Stock Option (right to buy)	\$42.22	08/10/2020		M	1,184	(3) 12/20/2026	Common Stock 1,184	\$0.0	23,816	D	
Stock Option (right to buy)	\$63	08/10/2020		M	1,587	(3) 12/18/2023	Common Stock 1,587	\$0.0	88,413	D	
Stock Option (right to buy)	\$88.95	08/10/2020		M	1,124	(3) 12/18/2025	Common Stock 1,124	\$0.0	38,876	D	
Stock Option (right to buy)	\$96.45	08/10/2020		M	1,036	(3) 12/17/2024	Common Stock 1,036	\$0.0	46,589	D	

Explanation of Responses:

1. 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.
2. Represents shares held by the "Barry E. Greene Qualified Annuity Interest Trust" (GRAT), of which Barry E. Greene is the sole Trustee
3. The stock option vested as to 25% of the shares on the 1st anniversary of the date of the stock option grant and as to an additional 6.25% of the shares each successive three month period thereafter.

By: /s/ Mary Beth DeLena,  
Attorney-in-Fact For: Barry E. 08/11/2020  
Greene

\*\* 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.

