

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

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

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

OMB APPROVAL

OMB Number: 3235-0287

Estimated average burden

hours per response: 0.5

|   |   |   |
|---|---|---|
| 1. Name and Address of Reporting Person*<br><u>Greenstreet Yvonne</u><br><br>(Last) (First) (Middle)<br><u>675 WEST KENDALL STREET</u><br><u>HENRI A. TERMEER SQUARE</u><br><br>(Street)<br><u>CAMBRIDGE MA 02142</u><br><br>(City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol<br><u>ALNYLAM PHARMACEUTICALS, INC.</u><br>[ <u>ALNY</u> ]<br><br>3. Date of Earliest Transaction (Month/Day/Year)<br><u>02/07/2020</u><br><br>4. If Amendment, Date of Original Filed (Month/Day/Year) | 5. Relationship of Reporting Person(s) to Issuer<br>(Check all applicable)<br>Director 10% Owner<br><input checked="" type="checkbox"/> Officer (give title below) Other (specify below)<br><u>Chief Operating Officer</u><br><br>6. Individual or Joint/Group Filing (Check Applicable Line)<br><input checked="" type="checkbox"/> Form filed by One Reporting Person<br>Form filed by More than One Reporting Person |
|---|---|---|

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                    | 02/07/2020                           |  | M <sup>(1)</sup>               |   | 6,250   | A          | \$42.22 | 12,458  | D  |   |
| Common Stock                    | 02/07/2020                           |  | S <sup>(1)</sup>               |   | 6,250   | D          | \$123.9 | 6,208   | D  |   |
| Common Stock                    | 02/10/2020                           |  | M <sup>(1)</sup>               |   | 5,600   | A          | \$42.22 | 11,808  | D  |   |
| Common Stock                    | 02/10/2020                           |  | S <sup>(1)</sup>               |   | 9,892   | D          | \$130   | 1,916   | D  |   |
| Common Stock                    |                                      |  |                                |   |   |            |         | 407   | I  | by Managed Account <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 |  |  |   |  |
| Performance Stock Option 2016 (right to buy) | \$42.22  | 02/07/2020                           |  | M <sup>(1)</sup>               |   |  | 6,250 | 08/06/2019   | 12/20/2026      | Common Stock  | 6,250                      | \$0.0                                      | 12,500   | D   |  |
| Performance Stock Option 2016 (right to buy) | \$42.22  | 02/10/2020                           |  | M <sup>(1)</sup>               |   |  | 5,600 | 08/06/2019 <sup>(3)</sup>                                | 12/20/2026      | Common Stock  | 5,600                      | \$0.0                                      | 6,900  | D   |  |

Explanation of Responses:

1. All sales reported on this Form 4 were made pursuant to a Rule 10b5-1 trading plan adopted by the reporting person on December 03, 2019.
2. 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.
3. The stock option vests 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: Yvonne 02/11/2020  
Greenstreet

\*\* 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.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.