

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

| OMB APPROVAL | |
|--|-----------|
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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

Check this box to indicate that a transaction was made pursuant to a contract, instruction or written plan for the purchase or sale of equity securities of the issuer that is intended to satisfy the affirmative defense conditions of Rule 10b5-1(c). See Instruction 10.

| | | |
|--|--|---|
| 1. Name and Address of Reporting Person* <u>PYOTT DAVID E I</u> (Last) (First) (Middle) <u>675 WEST KENDALL STREET</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>] | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director 10% Owner Officer (give title below) Other (specify below) |
| | 3. Date of Earliest Transaction (Month/Day/Year) <u>06/01/2026</u> | |
| 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 | 06/01/2026 | | M ⁽¹⁾ | | 3,830 | A | \$0 | 5,412 | D | |
| Common Stock | 06/01/2026 | | S ⁽¹⁾ | | 921 | D | \$297.71 ⁽²⁾ | 4,491 | D | |
| Common Stock | 06/01/2026 | | S ⁽¹⁾ | | 1,175 | D | \$298.91 ⁽³⁾ | 3,316 | D | |
| Common Stock | 06/01/2026 | | S ⁽¹⁾ | | 1,222 | D | \$299.87 ⁽⁴⁾ | 2,094 | D | |
| Common Stock | 06/01/2026 | | S ⁽¹⁾ | | 495 | D | \$300.72 ⁽⁵⁾ | 1,599 | D | |
| Common Stock | 06/01/2026 | | S ⁽¹⁾ | | 17 | D | \$302.65 | 1,582 | D | |
| Common Stock | | | | | | | | 27,900 | I | by Trust ⁽⁶⁾ |

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 | | | | | | Amount or Number of Shares |
| Stock Option (Right to Buy) | \$70.2 | 06/01/2026 | | M ⁽¹⁾ | | | 3,830 | 06/03/2017 ⁽⁷⁾ | 06/03/2026 | Common Stock | 3,830 | \$0 | 0 | D | |

Explanation of Responses:

- The transactions reported on this Form 4 were made pursuant to a Rule 10b5-1(c) trading plan adopted by the reporting person on November 12, 2025. The options exercised by the reporting person were due to expire on June 3, 2026.
- The price reported represents the weighted average sales price of shares sold in multiple transactions at prices ranging from \$297.31 to \$297.99. The reporting person will provide to the issuer, any security holder of the issuer or the SEC staff, upon request, information regarding the number of shares sold at each price within the range.
- The price reported represents the weighted average sales price of shares sold in multiple transactions at prices ranging from \$298.33 to \$299.33. The reporting person will provide to the issuer, any security holder of the issuer or the SEC staff, upon request, information regarding the number of shares sold at each price within the range.
- The price reported represents the weighted average sales price of shares sold in multiple transactions at prices ranging from \$299.36 to \$300.19. The reporting person will provide to the issuer, any security holder of the issuer or the SEC staff, upon request, information regarding the number of shares sold at each price within the range.
- The price reported represents the weighted average sales price of shares sold in multiple transactions at prices ranging from \$300.45 to \$301.15. The reporting person will provide to the issuer, any security holder of the issuer or the SEC staff, upon request, information regarding the number of shares sold at each price within the range.
- The shares of ALNY common stock were purchased by the David E I Pyott Trust, of which the reporting person is trustee.
- This stock option was fully vested and exercisable as of June 3, 2017.

Brett Budzinski, Attorney-in-Fact For: David E.I. Pyott 06/03/2026

** 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.

