

VINCENT JAMES L  
 Form 4  
 June 17, 2010

**FORM 4**

**UNITED STATES SECURITIES AND EXCHANGE COMMISSION  
 Washington, D.C. 20549**

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).

**STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person \*  
 VINCENT JAMES L

2. Issuer Name and Ticker or Trading Symbol  
 ALNYLAM  
 PHARMACEUTICALS, INC.  
 [ALNY]

5. Relationship of Reporting Person(s) to Issuer  
 (Check all applicable)

Director  10% Owner  
 Officer (give title below)  Other (specify below)

(Last) (First) (Middle)

3. Date of Earliest Transaction (Month/Day/Year)  
 06/15/2010

300 THIRD STREET  
 (Street)

4. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)  
 Form filed by One Reporting Person  
 Form filed by More than One Reporting Person

CAMBRIDGE, MA 02142  
 (City) (State) (Zip)

**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)
				(A) or (D)	Price		
				Code	V	Amount	
Common Stock	06/15/2010		M	A	\$ 7.02	40,000	D
Common Stock	06/15/2010		S	D	\$ 16.003	10,000	D

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

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SEC 1474  
 (9-02)

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**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 Underlying Security (Instr. 3 and 4)
Non-Qualified Stock Option (right to buy)	\$ 7.02	06/15/2010		M	30,000	07/12/2006 <sup>(1)</sup> 07/12/2015	Common Stock

## Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
VINCENT JAMES L 300 THIRD STREET CAMBRIDGE, MA 02142		X		

## Signatures

By: /s/ Patricia L. Allen, Attorney-in-Fact For: James L. Vincent 06/17/2010

\*\*Signature of Reporting Person

Date

## Explanation of Responses:

\* 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).

(1) The stock option vested as to one third of the shares on each of the first, second and third anniversaries of the grant date.

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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