VINCENT JAMES L

Check this box

if no longer

subject to

Form 4 June 17, 2010

FORM 4

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

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF

SECURITIES

OMB APPROVAL

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Section 16. Form 4 or Form 5 obligations may continue.

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 See Instruction

1(b).

(Print or Type Responses)

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

2. Issuer Name and Ticker or Trading

5. Relationship of Reporting Person(s) to

Issuer

Symbol **ALNYLAM**

PHARMACEUTICALS, INC.

(Check all applicable)

[ALNY]

(Middle)

(Zip)

(Last) (First) 3. Date of Earliest Transaction

X_ Director Officer (give title

10% Owner Other (specify

(Month/Day/Year) 06/15/2010

Filed(Month/Day/Year)

(Street)

(State)

4. If Amendment, Date Original

6. Individual or Joint/Group Filing(Check

Applicable Line)

X Form filed by One Reporting Person

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

Form filed by More than One Reporting Person

CAMBRIDGE, MA 02142

(City)

300 THIRD STREET

						-	•		•
1.Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transactic Code (Instr. 8)	4. Securit or Dispos (Instr. 3, 4	ed of (` '	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	06/15/2010		M	30,000	A	\$ 7.02	40,000	D	
Common Stock	06/15/2010		S	30,000	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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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. Transactic Code (Instr. 8)	5. Number of orderivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)	6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and An Underlying Se (Instr. 3 and 4)
				Code V	(A) (D)	Date Exercisable	Expiration Date	Title [
Non-Qualified Stock Option (right to buy)	\$ 7.02	06/15/2010		M	30,000	07/12/2006(1)	07/12/2015	Common Stock

Reporting Owners

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

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

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