

FORM 4

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

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| OMB APPROVAL | |
| OMB Number: | 3235-0287 |
| Estimated average burden hours per response... | 0.5 |

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 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

| | | | | | | | | |
|---|--|--|---|--|--|---|--|--|
| 1. Name and Address of Reporting Person * ENGELHARDT DEAN | | | 2. Issuer Name and Ticker or Trading Symbol ENZO BIOCHEM INC [ENZ] | | | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input type="checkbox"/> Director <input type="checkbox"/> 10% Owner <input checked="" type="checkbox"/> Officer (give title below) <input type="checkbox"/> Other (specify below) Executive Vice President | | |
| (Last) (First) (Middle) C/O ENZO BIOCHEM, INC., 527 MADISON AVENUE | | | 3. Date of Earliest Transaction (Month/Day/Year) 01/09/2007 | | | | | |
| (Street) NEW YORK, NY 10022 | | | 4. If Amendment, Date Original Filed(Month/Day/Year) | | | 6. Individual or Joint/Group Filing(Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person | | |
| (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) |
|--|--------------------------------------|--|--------------------------------|---|---|------------|-------|---|--|---|
| | | | Code | V | Amount | (A) or (D) | Price | | | |
| Common Stock, par value \$0.01 per share | 01/09/2007 | | M | | 11,247 (1) | A | (1) | 192,290 (2) | D | |

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

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 control number. SEC 1474 (9-02)

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 Underlying Securities (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 of Derivative Security: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) | |
|--|--|--------------------------------------|--|--------------------------------|---|---|-----|--|-----------------|---|--|--|--|--|-------|
| | | | | Code | V | (A) | (D) | Date Exercisable | Expiration Date | | | | | | Title |
| Employee Stock Option | (1) | 01/09/2007 | | M | | 24,021 | | (1) | (1) | Common Stock, par value \$0.01 per share | 24,021 | \$ 0 | 48,365 (2) | D | |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|---|---------------|-----------|--------------------------|-------|
| | Director | 10% Owner | Officer | Other |
| ENGELHARDT DEAN C/O ENZO BIOCHEM, INC. 527 MADISON AVENUE NEW YORK, NY 10022 | | | Executive Vice President | |

Signatures

| | |
|--|---------------------|
| /s/ Dean Engelhardt | 02/09/2007 |
| <small>**Signature of Reporting Person</small> | <small>Date</small> |

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).

The Reporting Person exercised a stock option to purchase 24,021 shares of Common Stock and paid the exercise price thereof by the surrender of 12,774 shares of Common Stock, for a net gain in outstanding shares of Common Stock of 11,247 shares. The stated exercise prices of the stock options ranged from \$5.45 per share to \$12.51 per share and were first exercisable upon the grants thereof, which took place from October 1, 1998 to March 22, 2001. Each of the stock options would have expired within ten years of grant.

(1) As of the date hereof, the Reporting Person directly beneficially owned 186,848 shares of Common Stock, 5,442 shares of Common Stock in Enzo Biochem's 401(K) Plan, and 48,365 options to purchase Common Stock, par value \$0.01 per share, which are exercisable within 60 days from the date hereof.

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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