

# FORM 5

**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).
- Form 3 Holdings Reported
- Form 4 Transactions Reported

## ANNUAL 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

1. Name and Address of Reporting Person* <b>THALENFELD BARBARA E</b> <small>(Last) (First) (Middle)</small>		2. Issuer Name and Ticker or Trading Symbol <b>ENZO BIOCHEM INC [ENZ]</b>		5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <small>Director _____ 10% Owner _____ X Officer (give title below) _____ Other (specify below) _____</small> <b>Vice President, Corporate Devl</b>	
C/O ENZO BIOCHEM INC, 527 MADISON AVE <small>(Street)</small>		3. Statement for Issuer's Fiscal Year Ended (Month/Day/Year) <b>07/31/2005</b>		6. Individual or Joint/Group Reporting (check applicable line)  <small>X Form Filed by One Reporting Person Form Filed by More than One Reporting Person</small>	
NEW YORK, NY 10022 <small>(City) (State) (Zip)</small>		<b>Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned</b>			

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 at end of Issuer's Fiscal Year (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
				Amount	(A) or (D)	Price			
Common Stock, par value \$0.01 per share	12/10/2004		M	7,036	A	\$ 7.107	14,817 (U)	D	
Common Stock, par value \$0.01 per share	02/05/2005		S	2,697	D	\$ 18.51	14,817	D	
Common Stock, par value \$0.01 per share	07/11/2005		S	3,570	D	\$ 17.8	14,817	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 2270 (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 at End of Issuer's Fiscal Year (Instr. 4)	10. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)	
					(A)	(D)	Date Exercisable	Expiration Date						Title
Employee Stock Option	\$ 7.107	12/10/2004		M		7,036	12/20/1998	12/20/2004	Common Stock, par value \$0.01 per share	7,036	\$ 0	41,905 (U)	D	

### Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
THALENFELD BARBARA E C/O ENZO BIOCHEM INC 527 MADISON AVE NEW YORK, NY 10022			Vice President, Corporate Devl	

### Signatures

/s/ Barbara E. Thalenfeld

09/14/2005

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) As of the end of Issuer's Fiscal Year, 07/31/2005, the Reporting Person directly beneficially owned 14,817 shares of Common Stock, 381 shares of Common Stock in Enzo Biochem's 401(K) Plan, and 41,905 options to purchase Common Stock, par value \$0.01 per share, exercisable.

Note: File three copies of this Form, one of which must be manually signed. If space provided 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.