

FORM 12b-25

COMMISSION FILE NUMBER 001-09974

NOTIFICATION OF LATE FILING

(Check One):

- Form 10-K & Form-10 KSB Form 11-K Form 20-F
 Form 10-Q & Form 10-QSB Form N-SAR

For the Period Ended: December 31, 2003

Nothing in this Form shall be construed to imply that the Commission has verified any information contained herein.

If the notification relates to a portion of the filing checked above, identify the Item(s) to which the notification relates:

PART I- REGISTRANT INFORMATION

Full Name of Registrant: Enzo Biochem, Inc.

Former Name if Applicable: -----

Address of Principal Executive Office (Street and Number): 60 Executive Boulevard

City, State and Zip Code: Farmingdale, New York 11735

PART II - RULE 12b-25(b) AND (c)

If the subject report could not be filed without unreasonable effort or expense and the registrant seeks relief pursuant to Rule 12b-25(b), the following should be completed. (Check appropriate box.)

- (a) The reasons described in reasonable detail in Part III of this form could not be eliminated without unreasonable effort or expense;
- (b) The subject annual report, semi-annual report, transition report on Form 10-K, Form 20-F, 11-K or Form N-SAR, or portion thereof will be filed on or before the 15th calendar day following the prescribed due date; or the subject quarterly report or transition report on Form 10-Q, or portion thereof will be filed on or before the fifth calendar day following the prescribed due date; and
- (c) The accountant's statement or other exhibit required by Rule 12b-25(c) has been attached if applicable.

PART III - NARRATIVE

State below in reasonable detail the reasons why the Form 10-K and Form 10-KSB, 11-K, 20-F, 10-Q and Form 10-QSB, N-SAR, or the transition report or portion thereof could not be filed within the prescribed time period.

THE COMPANY'S FORM 11-K FOR THE FISCAL YEAR ENDED DECEMBER 31, 2003 CANNOT BE FILED WITHIN THE PRESCRIBED TIME PERIOD BECAUSE THE FINANCIAL INFORMATION FOR THE YEAR ENDED DECEMBER 31, 2003 COULD NOT BE COMPLETED BY THE AUDITORS BY THE REQUIRED FILING DUE DATE. THE FORM 11-K WILL BE FILED AS SOON AS PRACTICABLE.

PART IV - OTHER INFORMATION

- (1) Name and telephone number of person to contact in regard to this notification:

Robert H. Cohen, (212) 801-6907

(Name) (Area Code) (Telephone Number)

- (2) Have all other periodic reports required under Section 13 or 15(d) of the Securities Exchange Act of 1934 or section 30 of the Investment Company Act of 1940 during the

preceding 12 months or for such shorter period that the registrant was required to file such report(s) been filed? If the answer is no, identify report(s):

Yes No

- (3) Is it anticipated that any significant change in results of operations from the corresponding period for the last fiscal year will be reflected by the earnings statements to be included in the subject report or portion thereof?

Yes No

If so: attach an explanation of the anticipated change, both narratively and quantitatively, and, if appropriate, state the reasons why a reasonable estimate of the results cannot be made.

ENZO BIOCHEM, INC.

(Name of Registrant as specified in charter)

has caused this notification to be signed on its behalf by the undersigned thereunto duly authorized.

Date: June 28, 2004

By: /s/ Barry W. Weiner

Barry W. Weiner
Chief Financial Officer