

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

FORM 11-K

FOR ANNUAL REPORTS OF
EMPLOYEE STOCK PURCHASE, SAVINGS AND SIMILAR PLANS
PURSUANT TO SECTION 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

(MARK ONE)

ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934

FOR THE FISCAL YEAR ENDED DECEMBER 31, 2008

OR
TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934

FOR THE TRANSITION PERIOD FROM _____ TO _____

COMMISSION FILE NUMBER 001-09974

Enzo Biochem, Inc.
Salary Reduction Profit Sharing Plan

(Full title of the plan and the address of the plan,
if different from that of the issuer named below:)

Enzo Biochem, Inc., 527 Madison Ave. New York, NY 10022

(Name of issuer of the securities held pursuant to the plan and
the address of its principal executive office)

**ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN**

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Trustees of
Enzo Biochem, Inc. Salary Reduction Profit Sharing Plan

We have audited the accompanying statements of net assets available for benefits of Enzo Biochem, Inc. Salary Reduction Profit Sharing Plan (the "Plan") as of December 31, 2008 and 2007, and the related statement of changes in net assets available for benefits for the year ended December 31, 2008. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2008 and 2007, and the changes in net assets available for benefits for the year ended December 31, 2008 in conformity with accounting principles generally accepted in the United States of America.

Our audits were performed for the purpose of forming an opinion on the basic financial statements taken as a whole. The accompanying Supplemental Schedule of Assets (Held at End of Year) as of and for the year ended December 31, 2008 is presented for the purpose of additional analysis and is not a required part of the basic financial statements but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. This supplemental schedule is the responsibility of the Plan's management. The supplemental schedule has been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

/s/ Marks Paneth & Shron LLP

Woodbury, New York
June 30, 2009

**ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN**

Statements of Net Assets Available for Benefits

December 31,

	<u>2008</u>	<u>2007</u>
ASSETS		
Investments (at fair value):		
Mutual funds	8,162,659	10,288,151
Common stock	825,489	2,003,849
Insurance contract	--	1,263,245
Loans receivable – participants	194,527	218,993
	<u>9,182,675</u>	<u>13,774,238</u>
Receivables:		
Employer's contributions	582,817	465,640
Participants' contributions	47,733	3,156
Due from Plan Sponsor	155,000	-
	<u>785,550</u>	<u>468,796</u>
Cash	<u>\$ --</u>	<u>\$ 57,832</u>
TOTAL ASSETS	<u>9,968,225</u>	<u>14,300,866</u>
NET ASSETS AVAILABLE FOR BENEFITS	<u>\$ 9,968,225</u>	<u>\$ 14,300,866</u>

See notes to financial statements.

**ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN**

Statement of Changes in Net Assets Available for Benefits

For the Year Ended December 31, 2008

Additions (deductions) to net assets attributed to:

Participants' contributions	\$ 1,575,549
Employer's contributions	582,817
Interest on loans to participants and interest bearing cash	16,675
Net depreciation in fair value of investments	<u>(4,639,787)</u>
Total (deductions)	<u>(2,464,746)</u>

Deductions from net assets attributed to:

Benefits paid to participants	1,828,729
Administrative expenses	<u>39,166</u>
Total deductions	<u>1,867,895</u>

Net decrease in net assets available for benefits (4,332,641)

Net assets available for plan benefits, beginning of year 14,300,866

Net assets available for plan benefits, end of year \$ 9,968,225

See notes to financial statements.

ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN
Notes to Financial Statements

NOTE 1: PLAN DESCRIPTION

The following description of the Enzo Biochem, Inc. Salary Reduction Profit Sharing Plan ("the Plan") provides only general information. Participants should refer to the Plan Agreement, as amended, for a more complete description of the Plan's provisions.

General

The Plan is a defined contribution plan covering all eligible United States based full-time employees who have completed three months of service and have attained age twenty-one of Enzo Biochem, Inc., (the "Plan Sponsor"), and its wholly owned subsidiaries, Enzo Clinical Labs, Inc., Enzo Therapeutics, Inc., and Enzo Life Sciences, Inc., (collectively, the "Company"), and the United States based employees of wholly owned subsidiaries of Enzo Life Sciences, Inc. (Axxora Life Sciences, Inc. and ELS International, Inc.). The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 ("ERISA").

Contributions

Eligible employee participants can elect to defer up to the maximum amount permitted by the Internal Revenue Code for each year (\$15,500 in 2008 and 2007). Effective January 1, 2002, catchup contributions are also permitted for participants who have attained age 50 by December 31st, in accordance with Section 414(v) of the Code, in an amount up to a maximum of \$5,000 in 2008 and 2007, bringing those participants' statutory limitation to \$20,500 in 2008 and 2007. In 2008 participant contributions totaled \$1,575,549. Included in participants' contributions is \$6,555 for withholdings for the pay date of December 31, 2008 that had not been remitted to the Plan as of December 31, 2008. The Plan Sponsor remitted these contributions on January 20, 2009.

The Company will contribute to the Plan a discretionary matching contribution equal to 50% of the participant's 401(k) contribution, not to exceed 50% of 10% of the participant's annual compensation. Participants who have completed a year of service during the plan year and are actively employed as of the last day of the plan year shall be deemed eligible to share in the matching contribution for the year. In 2008 and 2007, the total matching contributions were \$582,817 and \$465,640, respectively, in the form of Enzo Biochem Inc. common stock.

Effective June 1, 2006, the Company amended the Plan's participant's salary reduction election. The amendment requires participants to make an initial salary deferral election, or an election to receive cash in lieu of a salary deferral election, within 30 days after entering the Plan. A participant's compensation will automatically be reduced by 3%, which will be considered to be the Participant's salary reduction election if the Participant does not elect to defer a portion of compensation or elect to receive cash in lieu of making a salary deferral election.

Participant Accounts

Contributions are invested in a choice of mutual funds and the common stock of Enzo Biochem, Inc. Contribution selections are designated by the participants. Each participant's account is credited with the participant's contribution and allocations of (a) the Company's matching contribution and, (b) Plan earnings, and charged with an allocation of administrative expenses. Allocations are based on participant compensation or account balances, as defined. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested account.

ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN
Notes to Financial Statements

NOTE 1: PLAN DESCRIPTION (continued)

Effective April 15, 2006, the Company amended the Plan to allow a Plan participant to elect to classify all or part of his or her elective deferrals as a Roth 401(k) deferral.

Vesting

Participants' contributed funds arising from salary reductions and the earnings thereon, are fully vested at all times. Vesting in the Company's matching contribution and earnings thereon, is ratable over four years of service.

Forfeitures

Any forfeited nonvested amounts shall be applied to reduce the Company's future contributions. For the years ended December 31, 2008 and 2007, the Company's contributions were reduced by forfeitures of approximately \$0 and \$17,600, respectively.

Participant Loans

Participants may borrow from their accounts a minimum of \$1,000 up to a maximum of 50% of their vested account balance or \$50,000. Participants are entitled to borrow from their account for a maximum loan term of five years unless the proceeds are used to acquire a principal residence in which case it may exceed five years. The loans are secured by the participant's vested account balance and bear a reasonable rate of interest. Principal and interest is paid ratably through payroll deductions.

Payment of Benefits

On termination of service due to death, disability or retirement, participants may elect to receive an amount equal to the value of the vested interest in their account in either a lump sum amount or in various annuity options. For termination of service due to other reasons, a participant may receive the value of the vested interest in their account as a lump sum distribution. Benefits are payable in the form of cash or property.

NOTE 2: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

The Plan's financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America and under the accrual basis method of accounting. Benefits are recorded when paid. Certain operating expenses of the Plan are paid by the Plan Sponsor.

Use of Estimates

The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect reported amounts and disclosures in the financial statements. Actual results could differ from those estimates.

ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN
Notes to Financial Statements

NOTE 2: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (continued)

Investment Valuation and Income Recognition

The Plan's investments are stated at fair value. Interest income is recorded on the accrual basis. Investment earnings are reinvested in the respective funds. Investment earnings include the Plan's proportionate share of realized gains and losses on the disposal of investments, and appreciation or depreciation in the fair value of the underlying investments comprising the respective mutual funds. All purchases and sales are recorded on a trade date basis.

The Plan presents in the statement of changes in net asset available for benefits, the net appreciation (depreciation) in fair value of its investments, which consists of the realized gains or losses and the unrealized appreciation (depreciation) on those investments.

Note 3 FAIR VALUE MEASUREMENTS

FASB Statement No. 157, Fair Value Measurements, establishes a framework for measuring fair value. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurements) and the lowest priority to unobservable inputs (level 3 measurements). The three levels of the fair value hierarchy under FASB Statement No. 157 are described as follows:

Level 1 - Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that the plan has the ability to access.

Level 2 - Inputs to the valuation methodology include: quoted prices for similar assets or liabilities in active markets; quoted prices for identical or similar assets or liabilities in inactive markets; inputs other than quoted prices that are observable for the assets or liability; inputs that are derived principally from or corroborated by observable market data by correlation or other means.

If the asset or liability has a specified (contractual) term, the level 2 Input must be observable for substantially the full term of the asset or liability.

Level 3 - Inputs to the valuation methodology are unobservable and significant to the fair value measurements.

The asset or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs.

Following is a description of the valuation methodologies used for assets measured at fair value. There have been no changes in the methodologies used at December 31, 2008 and 2007. The methods described may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, although the plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Common stocks, corporate bonds and U.S. government securities:

Valued at the closing price reported on the active market on which the individual securities are traded.

ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN
Notes to Financial Statements

Note 3 FAIR VALUE MEASUREMENTS (continued)

Mutual funds:

Valued at the net asset value (NAV) of shares held by the plan at year end.

Participant loans:

Valued at amortized cost, which approximates fair value.

Guaranteed investment contract:

Valued at fair value by discounting the related cash flows based on current yields of similar instruments with comparable durations considering the credit-worthiness of the issuer.

The following tables sets forth by level, within the fair value hierarchy, the Plan's investments and participant loans at fair value as of December 31, 2008.

	<u>Assets at Fair Value as of December 31, 2008</u>			
	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Total</u>
Mutual funds	8,162,659			8,162,659
Common stock	825,489	-	-	825,489
Participant loans	-	-	194,527	194,527
	<u>\$ 8,988,148</u>	<u>\$ -</u>	<u>\$ 194,527</u>	<u>\$ 9,182,675</u>

Level 3 - Gains and Losses

The following table sets forth a summary of changes in the fair value of the Plan's level 3 assets for the year ended December 31, 2008.

	<u>Level 3 Assets</u>	
	<u>Guaranteed Investment Contract</u>	<u>Participant Loans</u>
Balance, beginning of year	\$ 1,263,245	\$ 218,993
Realized gains	38,255	
Purchases, sales, issuances, and settlements (net)	(1,301,500)	(24,466)
Balance, end of year	<u>\$ -</u>	<u>\$ 194,527</u>

ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN
Notes to Financial Statements

NOTE 4: INVESTMENTS

The following table presents the fair values, as determined by quoted market price, of the investments at December 31 except as noted:

	<u>2008</u>	<u>2007</u>
Enzo Biochem, Inc.* (168,812 shares at 2008, 157,288 shares at 2007)	\$ 825,489	\$ 2,003,849
Pimco Total Return	41,007	-
MSIFT Mid Cap Growth Portfolio	12,824	-
NB Genesis	150,266	-
John Hancock International	1,178	-
Allianz NFJ Dividend	5,664	-
Col/Acorn International	120,967	-
Allianz NFJ Small Cap Value	18,469	-
Royce Value Plus Fund	25,388	-
Fidelity Fund	52,632	-
Fidelity Contrafund	262,419	-
Fidelity Capital & Income	4,160	-
Fidelity Government Income	55,092	-
Fidelity Leveraged Company	12,212	-
Fidelity Int'l Discovery	23,542	-
Fidelity Emerging Markets	1,160	-
Fidelity Growth Disc	17,341	-
Fidelity Freedom Income	27,381	-
Fidelity Freedom 2000	1,775	-
Fidelity Freedom 2010	826,042	-
Fidelity Freedom 2020*	1,133,494	-
Fidelity Freedom 2030*	1,114,805	-
Spartan Ext Market Index	32,166	-
Spartan International Index	12,387	-
Fidelity Retire Money Market	48,475	-
Fidelity Ret Government Money Market	300,278	-
Spartan US Equity Index	24,058	-
Fidelity Freedom 2040	162,696	-
Fidelity Freedom 2005*	546,934	-
Fidelity Freedom 2015*	1,790,097	-
Fidelity Freedom 2025*	739,963	-
Fidelity Freedom 2035	406,104	-
Fidelity Freedom 2045	101,897	-
Fidelity Freedom 2050	88,775	-
Fidelity Cash Reserves	1,011	-
Loans receivable – participants	194,527	218,993
American Century Government Bond	-	288,250
American Funds AMCAP Fund CL A	-	710,006
American Funds American Balanced Fund CL A	-	1,339,162
American Funds Europacific Growth CL A	-	1,893,613
American Funds Washington Mutual Investors Fund CL A	-	2,589,711

ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN
Notes to Financial Statements

NOTE 4: INVESTMENTS (continued)

	<u>2008</u>	<u>2007</u>
Baron Growth Fund	-	223,969
Calamos Growth Fund CL A	-	559,349
Fidelity Contrafund	-	1,148,803
Fidelity Spartan US Equity Index Fund	-	284,363
Freemont Bond Fund	-	228,029
Hotchkis & Wiley Mid Cap Value CL 1	-	253,786
Neuberger & Berman Genesis Fund Trust	-	550,820
Metropolitan Life Stable Value Contract #	-	1,263,245
Royce Total Return	-	140,800
American Funds US Gov't Securities Fund CL A	-	1,499
Principal Investors High Yield	-	65,831
Frank Russell 2010 Strategy Fund	-	931
Frank Russell 2020 Strategy Fund	-	4,373
Frank Russell 2030 Strategy Fund	-	1,986
Frank Russell 2040 Strategy Fund	-	2,870

* Denotes investments representing 5% or more of net assets available for benefits at December 31, 2008.

Metropolitan Life Stable Contract presented at contract value, which approximated fair value.

During the year ended December 31, 2008, the Plan's investments (including gains and losses on investments bought and sold, as well as held during the year) depreciated in value by \$4,639,787 as follows:

Mutual funds	(\$3,226,671)
Common stock	(1,351,371)
Insurance contract	38,255
	<u>(\$4,639,787)</u>

NOTE 5: INVESTMENT CONTRACT WITH INSURANCE COMPANY

Through November 28, 2008, the date of the liquidation of the investment, the Plan had a benefit-responsive investment contract with MetLife Trust Company, National Association (MetLife). MetLife maintained the contributions in separate accounts. The accounts were credited with earnings on the underlying investments and charged for participant withdrawals and administrative expenses. The contract at December 31, 2007 is included in the financial statements at contract value as reported to the Plan by Counsel Trust Company. Contract value represented contributions made under the contract, plus earnings, less participant withdrawals and administrative expenses. Participants could ordinarily direct the withdrawal or transfer of all or a portion of their investment at contract value. The guaranteed investment contract issuer was contractually obligated to repay the principal and a specified interest rate that is guaranteed to the Plan.

At December 31, 2007 and through the liquidation date the guaranteed investment contract was fully benefit-responsive and the contract value was the relevant measurement attribute for that portion of the net assets available for benefits attributable to the guaranteed investment contract.

ENZO BIOCHEM, INC.
SALARY REDUCTION PROFIT SHARING PLAN
Notes to Financial Statements

NOTE 5: INVESTMENT CONTRACT WITH INSURANCE COMPANY (continued)

At December 31, 2007 and through November 28, 2008, there were no reserves against contract value for credit risk of the contract issuer or otherwise and contract value was estimated to approximate fair value. The contract value of the investment contract at December 31, 2007 was \$1,263,245. The crediting interest rate was based on a formula agreed upon with the issuer, but could not be less than 4%. Such interest rate was reviewed on a quarterly basis for resetting. The average yield and crediting interest rate was approximately 4.0% and 4.2% for 2008 and 2007, respectively.

The Plan had the right to end its participation in the MetLife investment contract at any time and would receive the lesser of the investment contract guaranteed value or market value. The difference between the investment contract's guaranteed value and the market value received by the Plan was approximately \$153,000. The Plan sponsor recorded this amount, plus interest earnings of \$2,000 for the period November 29, 2008 through December 31, 2008, as Due from Plan Sponsor in the financials statements as of December 31, 2008 (see Note 8). This amount will be allocated to the affected plan participants when funded.

NOTE 6: RIGHT TO TERMINATE PLAN

Although it has not expressed any intent to do so, the Company has the right under the Plan to discontinue its contributions at any time and to terminate the Plan subject to the provisions of ERISA.

NOTE 7: TAX STATUS

The Plan obtained its latest determination letter in February 2002 in which the Internal Revenue Service stated that the Plan was in compliance with the applicable requirements of the Internal Revenue Code. The Plan has been amended since receiving the determination letter. However, the plan administrator believes that the Plan is currently designed and being operated in compliance with the applicable requirements of the Internal Revenue Code.

NOTE 8: PARTY IN INTEREST TRANSACTIONS

During 2008, the Plan purchased shares of common stock in Enzo Biochem, Inc., the parent company of the Plan sponsor, at market prices totaling approximately \$136,000. Shares were sold at market prices totaling approximately \$369,000. At December 31, 2008 and 2007, the Plan held Enzo Biochem, Inc. common stock with a fair value of \$825,489 and \$2,003,849, respectively.

Effective November 28, 2008 Fidelity Management Trust Company ("FMTC") became the trustee of the Plan. Certain Plan investments are shares of mutual funds managed by affiliates of FMTC. Therefore, these transactions qualify as party-in-interest transactions.

The Plan is owed approximately \$155,000 from the Plan Sponsor (see Note 5).

Fees paid by the Plan to the third party Plan administrators amounted to \$39,166 for the year ended December 31, 2008.

As discussed in Note 1, contributions of withholdings of \$6,555 were not made in a timely manner and represent a reportable transaction for 2009.

NOTE 9: RISKS AND UNCERTAINTIES

The Plan invests in various investment securities. Investment securities are exposed to various risk such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect participants' account balances and the amounts reported in the statements of net assets available for benefits.

ENZO BIOCHEM, INC.
SALARY REDUCTION PLAN
Schedule H, Line 4i
Schedule of Assets (Held at End of Year)
E.I.N. # 13-2866202
Plan # 001
December 31, 2008

(a)	Identity of Issue, Borrower, Lessor or Similar Party (b)	Description of Investment Including Maturity Date, Rate of Interest, Collateral, Par or Maturity Value (c)	Cost** (d)	Current Value (e)
*	Enzo Biochem, Inc.	Common Stock		\$ 825,489
	Pimco Total Return	Mutual Fund		41,007
	MSIFT Mid Cap Growth Portfolio	Mutual Fund		12,824
	NB Genesis	Mutual Fund		150,266
	John Hancock International	Mutual Fund		1,178
	Allianz NFJ Dividend	Mutual Fund		5,664
	Col/Acorn International	Mutual Fund		120,967
	Allianz NFJ Small Cap Value	Mutual Fund		18,469
	Royce Value Plus Fund	Mutual Fund		25,388
*	Fidelity Fund	Mutual Fund		52,632
*	Fidelity Contrafund	Mutual Fund		262,419
*	Fidelity Capital & Income	Mutual Fund		4,160
*	Fidelity Government Income	Mutual Fund		55,092
*	Fidelity Leveraged Company	Mutual Fund		12,212
*	Fidelity Int'l Discovery	Mutual Fund		23,542
*	Fidelity Emerging Markets	Mutual Fund		1,160
*	Fidelity Growth Disc	Mutual Fund		17,341
*	Fidelity Freedom Income	Mutual Fund		27,381
*	Fidelity Freedom 2000	Mutual Fund		1,775
*	Fidelity Freedom 2010	Mutual Fund		826,042
*	Fidelity Freedom 2020	Mutual Fund		1,133,494
*	Fidelity Freedom 2030	Mutual Fund		1,114,805
*	Spartan Ext Market Index	Mutual Fund		32,166
*	Spartan International Index	Mutual Fund		12,387
*	Fidelity Retire Money Market	Mutual Fund		48,475
*	Fidelity Ret Government Money Market	Mutual Fund		300,278
*	Spartan US Equity Index	Mutual Fund		24,058
*	Fidelity Freedom 2040	Mutual Fund		162,696
*	Fidelity Freedom 2005	Mutual Fund		546,934
*	Fidelity Freedom 2015	Mutual Fund		1,790,097
*	Fidelity Freedom 2025	Mutual Fund		739,963
*	Fidelity Freedom 2035	Mutual Fund		406,104
*	Fidelity Freedom 2045	Mutual Fund		101,897
*	Fidelity Freedom 2050	Mutual Fund		88,775
*	Fidelity Cash Reserves	Mutual Fund		1,011
*	Participant Loans	6.00% - 9.25%, maturity February 2009 to July 2013	\$ 0	194,527

* Party-in-interest

**Cost information omitted with respect to participant or beneficiary directed transactions.

See Independent Auditors' Report.

SIGNATURES

THE PLAN. Pursuant to the requirements of the Securities Exchange Act of 1934, a trustee of the below named employee benefit plan has duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized.

Enzo Biochem, Inc. Salary Reduction Profit Sharing Plan

Date: June 30, 2009

/s/ Herbert Bass

By: Herbert Bass
Trustee

Consent of Independent Registered Public Accounting Firm

To the Trustees of
Enzo Biochem, Inc. Salary Reduction Profit Sharing Plan

We consent to the incorporation of our report dated June 30, 2009 relating to the statements of net assets available for plan benefits of the Enzo Biochem, Inc. Salary Reduction Profit Sharing Plan as of December 31, 2008 and 2007 and the related statement of changes in net assets available for plan benefits for the year ended December 31, 2008; in the December 31, 2008 annual report on Form 11-K of Enzo Biochem, Inc. Salary Reduction Profit Sharing Plan.

/s/ Marks Paneth & Shron LLP
Woodbury, NY
June 30, 2009
