

Registration No. 333-_____

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM S-8

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

ENZO BIOCHEM, INC.

(Exact name of Registrant as specified in its charter)

NEW YORK

(State or other jurisdiction of incorporation or organization)

13-2866202

(I.R.S. Employer Identification No.)

60 EXECUTIVE BOULEVARD, FARMINGDALE, NEW YORK 11735

(Address of Principal Executive Offices) (Zip Code)

ENZO BIOCHEM, INC. 1999 STOCK OPTION PLAN
(Full Title of the Plan)

Barry W. Weiner
Enzo Biochem, Inc.
60 Executive Boulevard
FARMINGDALE, NEW YORK 11735

(Name and Address of Agent For Service)

(516) 755-5500

(Telephone Number, Including Area Code, of Agent For Service)

Copies to: Robert H. Cohen, Esq.
Morrison Cohen Singer & Weinstein, LLP
750 Lexington Avenue
New York, New York 10022
(212) 735-8600

CALCULATION OF REGISTRATION FEE

<TABLE>
<CAPTION>

Title of Securities to be Registered	Amount to be Registered	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
<S>	<C>	<C>	<C>	<C>
Common Stock, par value \$0.01 per share	335,500 (1) (2)	\$9.74 (3)	\$3,267,770	\$908.44 (6)
Common Stock, par value \$0.01 per share	614,500 (2) (4)	\$26.9375 (5)	\$16,553,094	\$4,601.76 (6)
Total Registration Fee				\$5,510.20 (6)

</TABLE>

(1) Shares of common stock of Enzo Biochem, Inc. issuable upon stock options which have been granted under the Enzo Biochem, Inc. 1999 Stock Option Plan.

(2) In addition, pursuant to Rule 416(c) under the Securities Act of 1933,

this registration statement also covers an indeterminate amount of interests to be offered or sold pursuant to the employee benefit plan described herein.

- (3) Calculated solely for the purpose of determining the registration fee pursuant to Rule 457(h)(1) promulgated under the Securities Act of 1933 upon the average exercise price.
- (4) Shares of common stock of Enzo Biochem, Inc. issuable upon the grant of stock options available for grant under the Enzo Biochem, Inc. 1999 Stock Option Plan.
- (5) Calculated solely for the purpose of determining the registration fee pursuant to Rule 457(c) under the Securities Act of 1933 based upon the average of the high and low prices for the common stock on The American Stock Exchange September 8, 1999.
- (6) Calculated pursuant to Section 6 under the Securities Act of 1933.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

ITEM 3. INCORPORATION OF DOCUMENTS BY REFERENCE.

Enzo Biochem, Inc., a New York corporation, incorporates by reference the documents listed below into this Registration Statement on Form S-8. All documents subsequently filed by Enzo Biochem, Inc. pursuant to Section 13(a), 13(c), 14 and 15(d) of the Securities Exchange Act of 1934, prior to the filing of a post-effective amendment which indicates that all securities offered have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference in this Registration Statement and to be part thereof from the date of filing of such documents:

1. Annual Report on Form 10-K for the fiscal year ended July 31, 1998;
2. Quarterly Report on Form 10-Q for the fiscal quarter ended October 31, 1998;
3. Quarterly Report on Form 10-Q for the fiscal quarter ended January 31, 1999;
4. Quarterly Report on Form 10-Q for the fiscal quarter ended April 30, 1999;
5. Definitive proxy statement filed with the SEC on November 25, 1998 pursuant to Regulation 14A under the Securities Exchange Act of 1934; and
6. The description of our common stock set forth in our Registration Statement filed under Section 12 of the Securities Exchange Act of 1934 on Form 8-A on, and any amendment or report filed for the purpose of updating any such description.

ITEM 4. DESCRIPTION OF SECURITIES.

Not applicable.

ITEM 5. INTERESTS OF NAMED EXPERTS AND COUNSEL.

Not Applicable.

ITEM 6. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

The Company's Certificate of Incorporation states the following:

"Article 8. The Corporation shall, to the fullest extent permitted by the Business Corporation Law of the States of New York, indemnify any and all persons whom it shall have power to indemnify from and against any and all of the expenses, liabilities or other matters as provided under Articles of Seven of the Business Corporation Law of the State of New York.

"Article 12. No director of the Corporation shall be liable to the Corporation or its shareholders for damage for any breach of duty in such capacity, provided that nothing contained in this Article shall eliminate or limit the liability of a director (i) if a judgment or other final adjudication adverse to him

establishes that his acts or omissions were in bad faith or involved acts or omissions were in bad faith or involved

intentional misconduct or a knowing violation of law or that he personally gained in fact a financial profit or other advantage to which he was not legally entitled or that his acts violated Section 719 of the New York Business Corporation Law or (ii) for any act or omission prior to July 8, 1988."

ARTICLE V of the Registrant's By-Laws provides as follows:

"Section 1. INDEMNIFICATION-THIRD PARTY AND DERIVATIVE ACTIONS.

"(a) The Corporation shall indemnify any person made, or threatened to be made, a party to an action or proceeding (other than one by or in the right of the Corporation to procure a judgment in its favor), whether civil or criminal, including an action by or in the right of any other corporation of any type or kind, domestic or foreign, or any partnership, joint venture, trust, employee benefit plan or other enterprise, which any director or officer of the Corporation served in any capacity at the request of the Corporation, by reason of the fact that he, his testator or intestate, is or was a director or officer of the Corporation, by reason of the fact that he, his corporation, partnership, joint venture, trust, employee benefit plan or other enterprise in any capacity, against judgments, fines, amounts paid in settlement and expenses (including attorneys' fees) incurred in connection with any such action or proceeding, or any appeal therein, provided that no indemnification may be made to or on behalf of such person if (i) his acts were committed in bad faith or were the result of his active and deliberate dishonesty and were material to such action or proceeding or (ii) he personally gained in fact a financial profit or other advantage to which he was not legally entitled.

"(b) The Corporation shall indemnify any person made, or threatened to be made, a party to an action by or in the right of the Corporation to procure a judgment in its favor by reason of the fact that he, his testator or intestate, is or was a director or officer of the Corporation, or is or was serving at the request of the Corporation as a director or officer of any other corporation of any type or kind, domestic or foreign, or of any partnership, joint venture, trust, employee benefit plan or other enterprise, against judgments, fines, amounts paid in settlement and expenses (including attorneys' fees) incurred in connection with such action, or any appeal therein, provided that no indemnification may be made to or on behalf of such person if (i) his acts were committed in bad faith or were the result of his active and deliberate dishonesty and were material to such action or (ii) he personally gained in fact a financial profit or other advantage to which he was not legally entitled.

"(c) The termination of any civil or criminal action or proceeding by judgment, settlement, conviction or upon a plea of nolo contendere, or its equivalent, shall not in itself create a presumption that any such person has not met the standard of conduct set forth in this Section 1. (d) For the purpose of this Section 1: (i) the Corporation shall be deemed to have requested a person to serve an employee benefit plan where the performance by such person of his duties to the Corporation also imposes duties on, or otherwise involve services by, such person to the plan or participants or beneficiaries of the plan; and (ii) excise taxes assessed on a person with respect to an employee benefit plan pursuant to applicable law shall be considered fines.

"Section 2. PAYMENT OF INDEMNIFICATION; REPAYMENT

"(a) A person who has been successful, on the merits or otherwise, in the defense of a civil or criminal action or proceeding of the character described in Section I of this Article V shall be entitled to indemnification as authorized in such Section.

"(b) Except as provided in paragraph (a) of this Section 2, any indemnification under Section 1 of this Article V, unless ordered by a court, shall be made by the Corporation only if authorized in the specific case: (i) by the Board of Directors acting by a quorum consisting of directors who are not parties to the action or proceeding giving rise to the indemnity claim upon a finding that the director or officer has met the standard of conduct set forth in Section I of this Article V; or (ii) if a quorum under the foregoing clause (i) is not obtainable or, even if obtainable, a quorum of disinterested directors so directs: (A) by the Board of Directors upon the opinion in writing of independent legal

counsel that indemnification is proper in the circumstances because the standard of conduct set forth in Section I of this Article V has been met by such director or officer, or (B) by the shareholders of the Corporation upon a finding that the director or officer has met such standard of conduct.

"(c) Expenses Incurred by a director or officer in defending a civil or criminal action or proceeding shall be paid by the Corporation in advance of the final disposition of such action or proceeding upon receipt of an

undertaking by or on behalf of such director or officer to repay such amount in case he is ultimately found, in accordance with this Article V, not to be entitled to indemnification or, where indemnity is granted, to the extent the expenses so paid exceed the indemnification to which he is entitled.

"(d) Any indemnification of a director or officer of the Corporation under Section I of this Article V, or advancement of expenses under paragraph(c) of this Section 2, shall be made promptly, and in any event within 60 days, upon the written request of the director or officer.

"Section 3. ENFORCEMENT; DEFENSES.

"The right to indemnification or advancement of expenses granted by this Article V shall be enforceable by the director or officer in any court of competent jurisdiction if the Corporation denies such request, in whole or in part, or if no disposition thereof is made within 60 days after written request by the director or officer. Such person's expenses incurred in connection with successfully establishing his right to indemnification, in whole or in part, in any such action shall also be indemnified by the Corporation. It shall be a defense to any such action (other than an action brought to enforce a claim for the advancement of expenses under Section 2 of this Article V where the required undertaking has been received by the Corporation) that the claimant has not met the standard of conduct set forth in Section I of this Article V, but the burden of providing such defense shall be on the Corporation. Neither the failure of the Corporation (including its Board of Directors, its independent legal counsel, and its shareholders) to have made a determination that indemnification of the claimant is proper in the circumstances, nor the fact that there has been an actual determination by the Corporation (including its Board of Directors, its independent legal counsel, and its shareholders) that indemnification of the claimant is not proper in the circumstances, shall be a defense to the action or create a presumption that the claimant is not entitled to indemnification.

"Section 4. SURVIVAL, SAVINGS CLAUSE; PRESERVATION OF OTHER RIGHTS.

"(a) The foregoing indemnification provisions shall be deemed to be a contract between the Corporation and each director and officer who serves in such capacity at any time while these provisions, as well as the relevant provisions of the New York Business Corporation Law, are in effect and any repeal or modification thereof shall not affect any right or obligation then existing with respect to any state of facts then or previously existing or any action or proceeding previously or thereafter brought or threatened based in whole or in part upon any such state of facts. Such a contract may not be modified retroactively without the consent of such director or officer.

"(b) If this Article V or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the Corporation shall nevertheless indemnify each director or officer of the Corporation against judgments, fines, amounts paid in settlement and expenses (including attorneys' fees) incurred in connection with any actual or threatened action or proceeding, whether civil or criminal, including any actual or threatened action by or in the right of the Corporation, or any appeal therein, to the full extent permitted by any applicable portion of this Article V that shall not have been invalidated and to the full extent permitted by applicable law.

"(c) The indemnification provided by this Article V shall not be deemed exclusive of any other rights to which those indemnified may be entitled under any by-law, agreement, vote of shareholders or directors or otherwise, both as to action in his official capacity and as to action in another capacity while holding such office, and shall continue as to a person who has ceased to be a director or officer and shall inure to the benefit of the heirs, executors and

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administrators of such a person. The Corporation is hereby authorized to provide further indemnification if it deems advisable by resolution of shareholders or directors, by amendment of these by-laws or by agreement.

"Section 5. INSURANCE.

"The Corporation may purchase and maintain insurance:

"(a) to indemnify the Corporation for any obligation which it incurs as a result of the indemnification of directors and officers under the provisions of this Article V,

"(b) to indemnify directors and officers in instances in which they may be indemnified by the Corporation under the provisions of this Article V, and

"(c) to indemnify directors and officers in instances in which they may not otherwise be indemnified by the Corporation under the provisions of

this Article V, provided that the contract of insurance covering such directors and officers pursuant to the foregoing paragraph (c) of Section 4 of this Article V shall provide, in a manner acceptable to the superintendent of insurance, for retention amount and for co-insurance, and provided, further, that no insurance under this Article V may provide for any payment, other than the cost of defense, to or on behalf of any director or officer if a judgment or other final adjudication adverse to the insured director or officer establishes (i) that his acts of active and deliberate dishonesty were material to the cause of action so adjudicated or (ii) that the director or officer personally gained in fact a financial profit or other advantage to which he was not legally entitled.

"Section 6. INDEMNIFICATION OF PERSONS NOT DIRECTORS OR OFFICERS OF THE CORPORATION.

"The Corporation may, by resolution adopted by the Board of directors of the Corporation, indemnify any person not a director or officer of the Corporation, who is made, or threatened to be made, a party to an action or proceeding, whether civil or criminal, by reason of the fact that he, his testator or intestate, is or was an employee or other agent of the Corporation, against judgments, fines, amounts paid in settlement and expenses (including attorneys' fees) incurred in connection with such action or proceeding, or any appeal therein, provided that no indemnification may be made to or on behalf of such person if (i) his acts were committed in bad faith or were the result of active and deliberate dishonesty, and such acts were material to such action or proceeding, or (ii) he personally gained in fact a financial profit or other advantage to which he was not legally entitled.

"Section 7. RETROACTIVITY.

"The right to indemnification conferred by this Article V shall be retroactive to events occurring prior to the adoption of this Article V to the fullest extent permitted by law.

ITEM 7. EXEMPTION FROM REGISTRATION CLAIMED.

Not Applicable.

ITEM 8. EXHIBITS.

- 4.1 Enzo Biochem, Inc. 1999 Stock Option Plan.
- 5.1 Opinion of Morrison Cohen Singer & Weinstein, LLP

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- 23.1 Consent of Morrison Cohen Singer & Weinstein, LLP (included in its Opinion filed as Exhibit 5 hereto)
- 23.2 Consent of Ernst & Young LLP, independent auditors
- 24.1 Powers of Attorney (included on the signature page of this Registration Statement)

ITEM 9. UNDERTAKINGS.

The undersigned registrant hereby undertakes:

(a) Rule 415 Offering.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be in the initial bona fide offering thereof.

(h) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and

Exchange Commission, such indemnification is against public policy as expressed in the Act, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Farmingdale, State of New York, on this 14th day of September 1999.

ENZO BIOCHEM, INC.

/s/ ELAZAR RABBANI

 Elazar Rabbani, Ph.D.
 Chairman of the Board

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Elazar Rabbani, with the power of substitution, his or her attorney-in-fact, to sign any amendments to this Registration Statement and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that said attorney-in-fact, or his or her substitute, may do or choose to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed below by the following persons in the capacities and on the dates indicated:

<TABLE>		
<CAPTION>		
Signature -----	Title -----	Date ----
<S>	<C>	<C>
/s/ ELAZAR RABBANI, PH.D. ----- Elazar Rabbani	Chairman of the Board and Chief Executive Officer (principal executive officer)	September 14, 1999
/s/ SHAHRAM K. RABBANI ----- Shahram K. Rabbani	Chief Operating Officer, Treasurer, Secretary and Director (principal financial and accounting officer)	September 14, 1999
/s/ BARRY W. WEINER ----- Barry W. Weiner	President and Director	September 14, 1999
/s/ JOHN J. DELUCCA ----- John J. Delucca	Director	September 14, 1999
/s/ JOHN B. SIAS ----- John B. Sias	Director	September 14, 1999

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No. Description
- - - - -

- 4.1 Enzo Biochem, Inc. 1999 Stock Option Plan.
- 5.1 Opinion of Morrison Cohen Singer & Weinstein, LLP.
- 23.1 Consent of Morrison Cohen Singer & Weinstein, LLP (included in its Opinion filed as Exhibit 5 hereto).
- 23.2 Consent of Ernst & Young, LLP
- 24.1 Powers of Attorney (included on the signature page of this Registration Statement).

ENZO BIOCHEM, INC.

1999 STOCK OPTION PLAN

1. PURPOSE.

The purpose of this plan (the "Plan") is to secure for Enzo Biochem, Inc. (the "Company") and its shareholders the benefits arising from capital stock ownership by employees, officers and directors of, and consultants or advisors to, the Company and its subsidiary corporations who are expected to contribute to the Company's future growth and success. Those provisions of the Plan which make express reference to Section 422 shall apply only to Incentive Stock Options (as that term is defined in the Plan).

2. TYPE OF OPTIONS AND ADMINISTRATION.

(a) TYPES OF OPTIONS. Options granted pursuant to the Plan shall be authorized by action of the Board of Directors of the Company (or a Committee designated by the Board of Directors) and may be either incentive stock options ("Incentive Stock Options") meeting the requirements of Section 422 of the Internal Revenue Code of 1986, as amended or replaced from time to time (the "Code") or non-statutory options which are not intended to meet the requirements of Section 422 of the Code.

(b) ADMINISTRATION. The Plan will be administered by a committee (the "Committee") appointed by the Board of Directors of the Company, whose construction and interpretation of the terms and provisions of the Plan shall be final and conclusive. The Committee shall consist solely of two or more persons, each of whom shall qualify as (i) a "Non-Employee Director," as that term is defined in subparagraph (b)(3)(i) of Rule 16b-3 ("Rule 16b-3") promulgated under the Securities Exchange Act of 1934 (the "Exchange Act"), and (ii) an "outside director," within the meaning of Section 162(m) of the Code. The delegation of powers to the Committee shall be consistent with applicable laws or regulations (including, without limitation, applicable state law and Rule 16b-3). The Committee may in its sole discretion grant options to purchase shares of the Company's Common Stock, \$.01 par value per share ("Common Stock") and issue shares upon exercise of such options as provided in the Plan. The Committee shall have authority, subject to the express provisions of the Plan, to construe the respective option agreements and the Plan, to prescribe, amend and rescind rules and regulations relating to the Plan, to determine the terms and provisions of the respective option agreements, which need not be identical, and to make all other determinations in the judgment of the Committee necessary or desirable for the administration of the Plan. The Committee may correct any defect or supply any omission or reconcile any inconsistency in the Plan or in any option agreement in the manner and to the extent it shall deem expedient to carry the Plan into effect and it shall be the sole and final judge of such expediency. No director or person acting pursuant to authority delegated by the Board of Directors shall be liable for any action or determination under the Plan made in good faith. Subject to adjustment as provided in Article 15 below, the aggregate number of shares of Common Stock that may be subject to options granted to any person in a calendar year shall not exceed 20% of the maximum number of shares which may be issued and sold under the Plan, as set forth in Article 4 hereof, as such Article may be amended from time to time.

(c) APPLICABILITY OF RULE 16B-3. Those provisions of the Plan which make express reference to Rule 16b-3 shall apply to the Company only at such time as the Company's Common Stock is registered under the Exchange Act, subject to the last sentence of Section 3(b), and then only to such persons as are required to file reports under Section 16(a) of the Exchange Act (a "Reporting Person").

3. ELIGIBILITY.

(a) GENERAL. Options may be granted to persons who are, at the time of grant, employees, officers or directors of, or consultants or advisors to, the Company or any subsidiaries of the Company as defined in Sections 424(e) and 424(f) of the Code ("Participants") PROVIDED, that Incentive Stock Options may only be granted to individuals who are employees of the Company (within the meaning of Section 3401(c) of the Code). A person who has been

granted an option may, if he or she is otherwise eligible, be granted additional options if the Committee shall so determine.

(b) GRANT OF OPTIONS TO REPORTING PERSONS. The selection of a director or an officer who is a Reporting Person (as the terms "director" and "officer" are defined for purposes of Rule 16b-3) as a recipient of an option, the timing of the option grant, the exercise price of the option and the number of shares subject to the option shall be determined either (i) by the Board of Directors, (ii) by the Committee or (iii) pursuant to provisions for automatic grants set forth in Article 3(c) below.

(c) DIRECTORS OPTIONS. Persons, who are not otherwise employees or executive officers of the Company ("Eligible Directors"), are first elected or appointed to serve as directors on the Company's Board of Directors, such persons shall receive options to purchase 15,000 shares of the Company's Common Stock on the date such persons are first elected or appointed, and will automatically receive options ("Automatic Director Options" and together with the Initial Director Options, the "Director Options") to purchase 7,500 shares of the Company's Common Stock immediately following the date of each annual meeting of the Company's shareholders, PROVIDED, HOWEVER, that such persons did not receive Initial Director Options since the most recent grant of Automatic Director Options and continue to serve as directors of the Company's Board of Directors. The exercise price for each share subject to a Director Option shall be equal to the fair market value of the Company's Common Stock on the date of grant. Each Director Option granted under the Plan shall be exercisable either in full or in installments at such time or times and during such period as shall be set forth in the option agreement evidencing such Director Option, subject to the provisions of the Plan. No Director Option granted to a Reporting Person for purposes of the Exchange Act, however, shall be exercisable during the first six (6) months after the date of grant. Director Options shall expire the earlier of ten (10) years after the date of grant or ninety (90) days after the termination of the director's service on the Board of Directors unless such Director Options are Incentive Stock Options in which case such Director Options shall be subject to the additional terms and conditions set forth in Articles 6 and 11 hereof.

4. STOCK SUBJECT TO PLAN.

The stock subject to options granted under the Plan shall be shares of authorized but unissued or reacquired Common Stock. Subject to adjustment as provided in Article 15 below, the maximum number of shares of Common Stock of the Company which may be issued and sold under the Plan is 950,000 shares of Common Stock. If an option granted under the Plan shall expire, terminate or is canceled for any reason without having been exercised in full, the unpurchased shares subject to such option shall again be available for subsequent option grants under the Plan.

5. FORMS OF OPTION AGREEMENTS.

As a condition to the grant of an option under the Plan, each recipient of an option shall execute an option agreement in such form not inconsistent with the Plan as may be approved by the Board of Directors. Such option agreements may differ among recipients.

6. PURCHASE PRICE.

(a) GENERAL. The purchase price per share of stock deliverable upon the exercise of an option shall be determined by the Board of Directors at the time of grant of such option; PROVIDED, HOWEVER, that in the case of an Incentive Stock Option, the exercise price shall not be less than 100% of the Fair Market Value (as hereinafter defined) of such stock, at the time of grant of such option, or less than 110 % of such Fair Market Value in the case of options described in Article 11 (b). "Fair Market Value" of a share of Common Stock of the Company as of a specified date for the purposes of the Plan shall mean the closing price of a share of the Common Stock on the principal securities exchange (including the Nasdaq National Market) on which such shares are traded on the day immediately preceding the date as of which Fair Market Value is being determined, or on the next preceding date on which such shares are traded if no shares were traded on such immediately preceding day, or if the shares are not traded on a securities exchange, Fair Market Value shall be deemed to be the average of the high bid and low asked prices of the shares in the over-the-counter market on the day immediately preceding the date as of which Fair Market Value is being determined or on the next preceding date on which such high bid and low asked prices were recorded. If the shares are not publicly traded, Fair Market Value of a share of Common Stock (including, in the case of any repurchase of shares,

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any distributions with respect thereto which would be repurchased with the shares) shall be determined in good faith by the Board of Directors. In no case shall Fair Market Value be determined with regard to restrictions other than restrictions which, by their terms, will never lapse.

(b) PAYMENT OF PURCHASE PRICE. Options granted under the Plan may provide for the payment of the exercise price by delivery of cash or a check to the order of the Company in an amount equal to the exercise price of such options, or by any other means which the Board of Directors determines are consistent with the purpose of the Plan and with applicable laws and regulations (including, without limitation, the provisions of Rule 16b-3 and Regulation T promulgated by the Federal Reserve Board).

7. OPTION PERIOD.

Subject to earlier termination as provided in the Plan, each option and all rights thereunder shall expire on such date as determined by the Board of

Directors and set forth in the applicable option agreement, provided, that such date shall not be later than (10) ten years after the date on which the option is granted.

8. EXERCISE OF OPTIONS.

Each option granted under the Plan shall be exercisable either in full or in installments at such time or times and during such period as shall be set forth in the option agreement evidencing such option, subject to the provisions of the Plan. No option granted to a Reporting Person for purposes of the Exchange Act, however, shall be exercisable during the first six months after the date of grant. Subject to the requirements in the immediately preceding sentence, if an option is not at the time of grant immediately exercisable, the Board of Directors may (i) in the agreement evidencing such option, provide for the acceleration of the exercise date or dates of the subject option upon the occurrence of specified events, and/or (ii) at any time prior to the complete termination of an option, accelerate the exercise date or dates of such option.

9. NONTRANSFERRABILITY OF OPTIONS.

No option granted under this Plan shall be assignable or otherwise transferable by the optionee except by will or by the laws of descent and distribution or pursuant to a qualified domestic relations order as defined in the Code or Title I of the Employee Retirement Income Security Act, or the rules thereunder. An option may be exercised during the lifetime of the optionee only by the optionee. In the event an optionee dies during his employment by the Company or any of its subsidiaries, or during the three-month period following the date of termination of such employment, his option shall thereafter be exercisable, during the period specified in the option agreement, by his executors or administrators to the full extent to which such option was exercisable by the optionee at the time of his death during the periods set forth in Article 10 or 11(d).

10. EFFECT OF TERMINATION OF EMPLOYMENT OR OTHER RELATIONSHIP.

Except as provided in Article 11(d) with respect to Incentive Stock Options and except as otherwise determined by the Committee at the date of grant of an option, and subject to the provisions of the Plan, an optionee may exercise an option at any time within three (3) months following the termination of the optionee's employment or other relationship with the Company or within three (3) months if such termination was due to the death or disability of the optionee or within one (1) year if such termination was due to the disability of the optionee but, except in the case of the optionee's death, in no event later than the expiration date of the option. If the termination of the optionee's employment is for cause or is otherwise attributable to a breach by the optionee of an employment or confidentiality or non-disclosure agreement, the option shall expire immediately upon such termination. The Board of Directors shall have the power to determine what constitutes a termination for cause or a breach of an employment or confidentiality or non-disclosure agreement, whether an optionee has been terminated for cause or has breached such an agreement, and the date upon which such termination for cause or breach occurs. Any such determinations shall be final and conclusive and binding upon the optionee.

11. INCENTIVE STOCK OPTIONS.

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Options granted under the Plan which are intended to be Incentive Stock Options shall be subject to the following additional terms and conditions:

(a) EXPRESS DESIGNATION. All Incentive Stock Options granted under the Plan shall, at the time of grant, be specifically designated as such in the option agreement covering such Incentive Stock Options.

(b) 10% SHAREHOLDER. If any employee to whom an Incentive Stock Option is to be granted under the Plan is, at the time of the grant of such option, the owner of stock possessing more than 10% of the total combined voting power of all classes of stock of the Company (after taking into account the attribution of stock ownership rules of Section 424(d) of the Code), then the following special provisions shall be applicable to the Incentive Stock Option granted to such individual:

(i) The purchase price per share of the Common Stock subject to such Incentive Stock Option shall not be less than 110 % of the Fair Market Value of one share of Common Stock at the time of grant; and

(ii) the option exercise period shall not exceed five years from the date of grant.

(c) DOLLAR LIMITATION. For so long as the Code shall so provide, options granted to any employee under the Plan (and any other incentive stock option plans of the Company) which are intended to constitute Incentive Stock Options shall not constitute Incentive Stock Options to the extent that such options, in the aggregate, become exercisable for the first time in any one

calendar year for shares of Common Stock with an aggregate Fair Market Value, as of the respective date or dates of grant, of more than \$100,000.

(d) TERMINATION OF EMPLOYMENT, DEATH OR DISABILITY. No Incentive Stock Option may be exercised unless, at the time of such exercise, the optionee is, and has been continuously since the date of grant of his or her option, employed by the Company, except that:

(i) an Incentive Stock Option may be exercised within the period of ninety (90) days after the date the optionee ceases to be an employee of the Company (or within such lesser period as may be specified in the applicable option agreement), PROVIDED, that the agreement with respect to such option may designate a longer exercise period and that the exercise after such ninety (90) day period shall be treated as the exercise of a non-statutory option under the Plan;

(ii) if the optionee dies while in the employ of the Company, or within three months after the optionee ceases to be such an employee, the Incentive Stock Option may be exercised by the person to whom it is transferred by will or the laws of descent and distribution within the period of three (3) months after the date of death (or within such lesser period as may be specified in the applicable option agreement); and

(iii) if the optionee becomes disabled (within the meaning of Section 22(e)(3) of the Code or any successor provisions thereto) while in the employ of the Company, the Incentive Stock Option may be exercised within the period of one (1) year after the date the optionee ceases to be such an employee because of such disability (or within such lesser period as may be specified in the applicable option agreement).

For all purposes of the Plan and any option granted hereunder, "employment" shall be defined in accordance with the provisions of Section 1.421-7(h) of the Income Tax Regulations (or any successor regulations). Notwithstanding the foregoing provisions, no incentive Stock Option may be exercised after its expiration date.

12. ADDITIONAL PROVISIONS.

(a) ADDITIONAL OPTION PROVISIONS. The Board of Directors may, in its sole discretion, include additional provisions in option agreements covering options granted under the Plan, including without limitation restrictions on transfer, repurchase rights, rights of first refusal, commitments to pay cash bonuses, to make, arrange for or guaranty loans or to transfer other property to optionees upon exercise of options, or such other provisions as shall be determined by the Board of Directors; provided, that such additional provisions shall not be inconsistent with any other term or condition of the Plan and such additional provisions shall not cause any Incentive Stock Option granted under the Plan to fail to qualify as an Incentive Stock Option within the meaning of Section 422 of the Code.

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(b) ACCELERATION, EXTENSION, ETC. The Board of Directors may, in its sole discretion, (i) accelerate the date or dates on which all or any particular option or options granted under the Plan may be exercised or (ii) extend the dates during which all, or any particular, option or options granted under the Plan may be exercised; provided, however, that no such extension shall be permitted if it would cause the Plan to fail to comply with Section 422 of the Code or with Rule 16b-3 (if applicable).

13. GENERAL RESTRICTIONS.

(a) INVESTMENT REPRESENTATIONS. The Company may require any person to whom an option is granted, as a condition of exercising such option, to give written assurances in substance and form satisfactory to the Company to the effect that such person is acquiring the Common Stock subject to the option, for his or her own account for investment and not with any present intention of selling or otherwise distributing the same, and to such other effects as the Company deems necessary or appropriate in order to comply with federal and applicable state securities laws, or with covenants or representations made by the Company in connection with any public offering of its Common Stock, including any "lock-up" or other restriction on transferability.

(b) COMPLIANCE WITH SECURITIES LAW. Each option shall be subject to the requirement that if, at any time, counsel to the Company shall determine that the listing, registration or qualification of the shares subject to such option upon any securities exchange or automated quotation system or under any state or federal law, or the consent or approval of any governmental or regulatory body, or that the disclosure of non-public information or the satisfaction of any other condition is necessary as a condition of, or in connection with the issuance or purchase of shares thereunder, such option may not be exercised, in whole or in part, unless such listing, registration, qualification, consent or

approval, or satisfaction of such condition shall have been effected or obtained on conditions acceptable to the Board of Directors. Nothing herein shall be deemed to require the Company to apply for or to obtain such listing, registration or qualification, or to satisfy such condition.

14. RIGHTS AS A SHAREHOLDER.

The holder of an option shall have no rights as a shareholder with respect to any shares covered by the option (including, without limitation, any rights to receive dividends or non-cash distributions with respect to such shares) until the date of issue of a stock certificate to him or her for such shares. No adjustment shall be made for dividends or other rights for which the record date is prior to the date such stock certificate is issued.

15. ADJUSTMENT PROVISIONS FOR RECAPITALIZATIONS, REORGANIZATIONS AND RELATED TRANSACTIONS.

(a) RECAPITALIZATIONS AND RELATED TRANSACTIONS. If, through or as a result of any recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar transaction, (i) the outstanding shares of Common Stock are increased, decreased or exchanged for a different number or kind of shares or other securities of the Company, or (ii) additional shares or new or different shares or other non-cash assets are distributed with respect to such shares of Common Stock or other securities, an appropriate and proportionate adjustment shall be made in (x) the maximum number and kind of shares reserved for issuance under or otherwise referred to in the Plan, (y) the number and kind of shares or other securities subject to any then outstanding options under the Plan, and (z) the price for each share subject to any then outstanding options under the Plan, without changing the aggregate purchase price as to which such options remain exercisable. Notwithstanding the foregoing, no adjustment shall be made pursuant to this Article 15 if such adjustment (i) would cause the Plan to fail to comply with Section 422 of the Code or with Rule 16b-3 or (ii) would be considered as the adoption of a new plan requiring stockholder approval.

(b) REORGANIZATION, MERGER AND RELATED TRANSACTIONS. All outstanding options under the Plan shall become fully exercisable for a period of sixty (60) days following the occurrence of any Trigger Event, whether or not such options are then exercisable under the provisions of the applicable agreements relating thereto. For purposes of the Plan, a "Trigger Event" is any one of the following events:

(i) the date on which shares of Common Stock are first purchased pursuant to a tender offer or exchange offer (other than such an offer by the Company, any Subsidiary, any employee benefit plan of the Company or of any Subsidiary or any entity holding shares or other securities of the Company for or pursuant

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to the terms of such plan), whether or not such offer is approved or opposed by the Company and regardless of the number of shares purchased pursuant to such offer;

(ii) the date the Company acquires knowledge that any person or group deemed a person under Section 13(d)-3 of the Exchange Act (other than the Company, any Subsidiary, any employee benefit plan of the Company or of any Subsidiary or any entity holding shares of Common Stock or other securities of the Company for or pursuant to the terms of any such plan or any individual or entity or group or affiliate thereof which acquired its beneficial ownership interest prior to the date the Plan was adopted by the Board), in a transaction or series of transactions, has become the beneficial owner, directly or indirectly (with beneficial ownership determined as provided in Rule 13d-3, or any successor rule, under the Exchange Act), of securities of the Company entitling the person or group to 30% or more of all votes (without consideration of the rights of any class or stock to elect directors by a separate class vote) to which all shareholders of the Company would be entitled in the election of the Board of Directors were an election held on such date;

(iii) the date, during any period of two consecutive years, when individuals who at the beginning of such period constitute the Board of Directors of the Company cease for any reason to constitute at least a majority thereof, unless the election, or the nomination for election by the shareholders of the Company, of each new director was approved by a vote of at least two-thirds of the directors then still in office who were directors at the beginning of such period; and

(iv) the date of approval by the shareholders of the Company of an agreement (a "reorganization agreement") providing for:

(A) The merger or consolidation of the Company with another corporation where the shareholders of the

Company, immediately prior to the merger or consolidation, do not beneficially own, immediately after the merger or consolidation, shares of the corporation issuing cash or securities in the merger or consolidation entitling such shareholders to 80% or more of all votes (without consideration of the rights of any class of stock to elect directors by a separate class vote) to which all shareholders of such corporation would be entitled in the election of directors or where the members of the Board of Directors of the Company, immediately prior to the merger or consolidation, do not, immediately after the merger or consolidation, constitute a majority of the Board of Directors of the corporation issuing cash or securities in the merger or consolidation; or

(B) The sale or other disposition of all or substantially all the assets of the Company.

(c) BOARD AUTHORITY TO MAKE ADJUSTMENTS. Any adjustments under this Article 15 will be made by the Board of Directors, whose determination as to what adjustments, if any, will be made and the extent thereof will be final, binding and conclusive. No fractional shares will be issued under the Plan on account of any such adjustments.

16. MERGER, CONSOLIDATION, ASSET SALE, LIQUIDATION, ETC.

(a) GENERAL. In the event of any sale, merger, transfer or acquisition of the Company or substantially all of the assets of the Company in which the Company is not the surviving corporation, and provided that after the Company shall have requested the acquiring or succeeding corporation (or an affiliate thereof), that equivalent options shall be substituted and such successor corporation shall have refused or failed to assume all options outstanding under the Plan or issue substantially equivalent options, then any or all outstanding options under the Plan shall accelerate and become exercisable in full immediately prior to such event. The Committee will notify holders of options under the Plan that any such options shall be fully exercisable for a period of fifteen (15) days from the date of such notice, and the options will terminate upon expiration of such notice.

(b) SUBSTITUTE OPTIONS. The Company may grant options under the Plan in substitution for options held by employees of another corporation who become employees of the Company, or a subsidiary of the Company, as the result of a merger or consolidation of the employing corporation with the Company or a subsidiary of the Company, or as a result of the acquisition by the Company, or one of its subsidiaries, of property or stock of the employing corporation. The Company may direct that substitute options be granted on such terms and conditions as the Board of Directors considers appropriate in the circumstances.

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17. NO SPECIAL EMPLOYMENT RIGHTS.

Nothing contained in the Plan or in any option shall confer upon any optionee any right with respect to the continuation of his or her employment by the Company or interfere in any way with the right of the Company at any time to terminate such employment or to increase or decrease the compensation of the optionee.

18. OTHER EMPLOYEE BENEFITS.

Except as to plans which by their terms include such amounts as compensation, the amount of any compensation deemed to be received by an employee as a result of the exercise of an option or the sale of shares received upon such exercise will not constitute compensation with respect to which any other employee benefits of such employee are determined, including, without limitation, benefits under any bonus, pension, profit-sharing, life insurance or salary continuation plan, except as otherwise specifically determined by the Board of Directors.

19. AMENDMENT OF THE PLAN.

(a) The Board of Directors may at any time, and from time to time, modify or amend the Plan in any respect; PROVIDED, HOWEVER, that if at any time the approval of the shareholders of the Company is required under Section 422 of the Code or any successor provision with respect to Incentive Stock Options, or under Rule 16b-3, the Board of Directors may not effect such modification or amendment without such approval; and provided, further, that the provisions of Article 3(c) hereof shall not be amended more than once every six months, other than to comport with changes in the Code, the Employer Retirement Income Security Act of 1974, as amended, or the rules thereunder.

(b) The modification or amendment of the Plan shall not, without the consent of an optionee, affect his or her rights under an option previously granted to him or her. With the consent of the optionee affected, the Board of

Directors may amend outstanding option agreements in a manner not inconsistent with the Plan. The Board of Directors shall have the right to amend or modify (i) the terms and provisions of the Plan and of any outstanding Incentive Stock Options granted under the Plan to the extent necessary to qualify any or all such options for such favorable federal income tax treatment (including deferral of taxation upon exercise) as may be afforded incentive stock options under Section 422 of the Code and (ii) the terms and provisions of the Plan and of any outstanding option to the extent necessary to ensure the qualification of the Plan under Rule 16b-3.

20. WITHHOLDING.

(a) The Company shall have the right to deduct from payments of any kind otherwise due to the optionee any federal, state or local taxes of any kind required by law to be withheld with respect to any shares issued upon exercise of options under the Plan. Subject to the prior approval of the Company, which may be withheld by the Company in its sole discretion, the optionee may elect to satisfy such obligations, in whole or in part, (i) by causing the Company to withhold shares of Common Stock otherwise issuable pursuant to the exercise of an option or (ii) by delivering to the Company shares of Common Stock already owned by the optionee. The shares so delivered or withheld shall have a Fair Market Value equal to such withholding obligation as of the date that the amount of tax to be withheld is to be determined. An optionee who has made an election pursuant to this Article 20(a) may only satisfy his or her withholding obligation with shares of Common Stock which are not subject to any repurchase, forfeiture, unfulfilled vesting or other similar requirements.

(b) The acceptance of shares of Common Stock upon exercise of an Incentive Stock Option shall constitute an agreement by the optionee (i) to notify the Company if any or all of such shares are disposed of by the optionee within two years from the date the option was granted or within one year from the date the shares were issued to the optionee pursuant to the exercise of the option, and (ii) if required by law, to remit to the Company, at the time of and in the case of any such disposition, an amount sufficient to satisfy the Company's federal, state and local withholding tax obligations with respect to such disposition, whether or not, as to both (i) and (ii), the optionee is in the employ of the Company at the time of such disposition.

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(c) Notwithstanding the foregoing, in the case of a Reporting Person whose options have been granted in accordance with the provisions of Article 3(b) herein, no election to use shares for the payment of withholding taxes shall be effective unless made in compliance with any applicable requirements of Rule 16b-3.

21. CANCELLATION AND NEW GRANT OF OPTIONS, ETC.

The Board of Directors shall have the authority to effect, at any time and from time to time, with the consent of the affected optionees, (i) the cancellation of any or all outstanding options under the Plan and the grant in substitution thereof of new options under the Plan covering the same or different numbers of shares of Common Stock and having an option exercise price per share which may be lower or higher than the exercise price per share of the canceled options or (ii) the amendment of the terms of any and all outstanding options under the Plan to provide an option exercise price per share which is higher or lower than the then-current exercise price per share of such outstanding options.

22. EFFECTIVE DATE AND DURATION OF THE PLAN.

(a) EFFECTIVE DATE. The Plan shall become effective when adopted by the Board of Directors, but no Incentive Stock Option granted under the Plan shall become exercisable unless and until the Plan shall have been approved by the Company's shareholders. If such shareholder approval is not obtained within twelve months after the date of the Board's adoption of the Plan, no options previously granted under the Plan shall be deemed to be Incentive Stock Options and no Incentive Stock Options shall be granted thereafter. Amendments to the Plan not requiring shareholder approval shall become effective when adopted by the Board of Directors; amendments requiring shareholder approval (as provided in Article 21) shall become effective when adopted by the Board of Directors, but no Incentive Stock Option granted after the date of such amendment shall become exercisable (to the extent that such amendment to the Plan was required to enable the Company to grant such Incentive Stock Option to a particular optionee) unless and until such amendment shall have been approved by the Company's shareholders. If such shareholder approval is not obtained within twelve months of the Board's adoption of such amendment, any Incentive Stock Options granted on or after the date of such amendment shall terminate to the extent that such amendment to the Plan was required to enable the Company to grant such option to a particular optionee. Subject to this limitation, options may be granted under the Plan at any time after the effective date and before the date fixed for termination of the Plan.

(b) TERMINATION. Unless sooner terminated in accordance with Article

16, the Plan shall terminate upon the earlier of (i) the close of business on the day next preceding the tenth anniversary of the date of its adoption by the Board of Directors, or (ii) the date on which all shares available for issuance under the Plan shall have been issued pursuant to the exercise or cancellation of options granted under the Plan. If the date of termination is determined under (i) above, then options outstanding on such date shall continue to have force and effect in accordance with the provisions of the instruments evidencing such options.

23. PROVISION FOR FOREIGN PARTICIPANTS.

The Board of Directors may, without amending the Plan, modify awards or options granted to participants who are foreign nationals or employed outside the United States to recognize differences in laws, rules, regulations or customs of such foreign jurisdictions with respect to tax, securities, currency, employee benefit or other matters.

24. GOVERNING LAW.

The provisions of this Plan shall be governed and construed in accordance with the laws of the State of New York without regard to the principles of conflicts of laws.

Adopted by the Board of Directors on November 20, 1998.

MORRISON COHEN SINGER & WEINSTEIN, LLP
750 Lexington Avenue
New York, New York 10022
Telephone: (212) 735-8600
Facsimile: (212) 735-8708

September 14, 1999

Enzo Biochem, Inc.
60 Executive Boulevard
Farmingdale, New York 11735

RE: 1999 STOCK OPTION PLAN
REGISTRATION STATEMENT ON FORM S-8

Gentlemen:

In our capacity as counsel to Enzo Biochem, Inc., a New York corporation (the "Company"), we have been requested to render this opinion in connection with a registration statement on Form S-8 (the "Registration Statement") being filed by the Company with the Securities and Exchange Commission under the Securities Act of 1933, as amended, covering an aggregate of 950,000 shares (the "Shares") of common stock, \$.01 par value per share (the "Common Stock"), of the Company issuable upon the exercise of certain stock options (the "Options") granted or to be granted under the Company's 1999 Stock Option Plan (the "Plan").

In furnishing our opinion, we have examined the Certificate of Incorporation, as amended, of the Company, and such other instruments and documents as we have deemed relevant and necessary as the basis for our opinion expressed herein. We have examined originals or certified, conformed, or photostatic copies of all documents, the authenticity of which has been established to our satisfaction. In all such examinations, we have assumed the genuineness of all signatures on original and certified documents, and the conformity to executed documents of all executed copies submitted to us as conformed or photostatic copies.

Based upon and subject to the foregoing, we are of the opinion that the Shares issuable upon exercise of the Options have been duly authorized and, when paid for and issued in accordance with the terms of the Options, will be duly and validly issued shares of Common Stock.

We hereby consent to use of this opinion as an exhibit to the Registration Statement.

Very truly yours,

/s/ MORRISON COHEN SINGER & WEINSTEIN, LLP

Morrison Cohen Singer & Weinstein, LLP

CONSENT OF INDEPENDENT AUDITORS

We consent to the incorporation by reference in the Registration Statement (Form S-8, No. 333-00000) pertaining to the 1999 Stock Option Plan of Enzo Biochem, Inc. of our report dated October 14, 1998, with respect to the consolidated financial statements and schedule of Enzo Biochem, Inc. included in its Annual Report (Form 10-K) for the fiscal year ended July 31, 1998, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Melville, New York
September 14, 1999