

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

SCHEDULE 14A INFORMATION
PROXY STATEMENT PURSUANT TO SECTION 14(a) OF THE SECURITIES EXCHANGE ACT OF 1934

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

Preliminary Proxy Statement

CONFIDENTIAL, FOR USE OF THE COMMISSION ONLY (AS PERMITTED BY RULE 14a-6(e)(2))

Definitive Proxy Statement

Definitive Additional Materials

Soliciting Material Pursuant to Rule 14a-12

ENZO BIOCHEM, INC.

(Name of Registrant as Specified in Its Charter)

(Name of Person(s) Filing Proxy Statement, if Other Than the Registrant)

Payment of Filing Fee (Check the appropriate box):

No fee required.

Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

(1) Title of each class of securities to which transaction applies:

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

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(1) Amount previously paid:

(2) Form, Schedule or Registration Statement No.:

(3) Filing Party:

(4) Date Filed:

To the Shareholders of Enzo Biochem, Inc.:

NOTICE IS HEREBY GIVEN that the Annual Meeting of Shareholders of Enzo Biochem, Inc., a New York corporation (the "Company"), will be held at The Yale Club, 50 Vanderbilt Avenue, New York, New York 10017, on January 23, 2007, at 9:00 a.m., local time (the "Annual Meeting"), for the following purposes:

1. To elect Shahram K. Rabbani and Irwin C. Gerson as Class I Directors for a term of three (3) years or until their respective successors are elected and qualified;
2. To ratify the appointment of Ernst & Young LLP as the Company's independent registered public accounting firm for the Company's fiscal year ending July 31, 2007; and
3. To transact such other business as may properly come before the Annual Meeting or any adjournment thereof.

The close of business on November 27, 2006 has been fixed as the record date for the determination of shareholders entitled to notice of and to vote at the Annual Meeting. The transfer books of the Company will not be closed.

All shareholders are cordially invited to attend the Annual Meeting. Please note that you will be asked to present valid picture identification, such as a driver's license or passport, in order to attend the Annual Meeting. The use of cameras, recording devices and other electronic devices will be prohibited at the Annual Meeting.

Whether or not you expect to attend, you are requested to sign, date and return the enclosed proxy promptly. Shareholders who execute proxies retain the right to revoke them at any time prior to the voting thereof by filing written notice of such revocation with the Secretary of the Company, by submission of a duly executed proxy bearing a later date or by voting in person at the Annual Meeting of Shareholders. Attendance at the Annual Meeting will not in and of itself constitute revocation of a proxy. Any written notice revoking a proxy should be sent to Enzo Biochem, Inc., 527 Madison Avenue, New York, New York 10022, Attention: Shahram K. Rabbani, Secretary. A return envelope which requires no postage if mailed in the United States is enclosed for your convenience.

By Order of the Board of Directors,

Shahram K. Rabbani, SECRETARY

New York, New York
December 4, 2006

ENZO BIOCHEM, INC.
527 MADISON AVENUE
NEW YORK, NEW YORK 10022
(212) 583-0100

PROXY STATEMENT

ANNUAL MEETING OF SHAREHOLDERS
TO BE HELD ON JANUARY 23, 2007

This Proxy Statement is furnished in connection with the solicitation by the Board of Directors of Enzo Biochem, Inc., a New York corporation (the "Company"), of proxies in the enclosed form for the Annual Meeting of Shareholders to be held at The Yale Club, 50 Vanderbilt Avenue, New York, New York 10017, on January 23, 2007, at 9:00 a.m., local time (the "Annual Meeting"), and for any adjournment or adjournments thereof, for the purposes set forth in the preceding Notice of Annual Meeting of Shareholders. The persons named in the enclosed form of proxy will vote the shares for which they are appointed in accordance with the directions of the shareholders appointing them. In the absence of such directions, such shares will be voted FOR Proposals 1 and 2 listed in the preceding Notice of Annual Meeting of Shareholders and, in their best judgment, will be voted on any other matters as may come before the Annual Meeting. Any shareholder giving a proxy has the power to revoke the same at any time before it is voted by timely filing written notice of such revocation with the Secretary of the Company, by timely submission of a duly executed proxy bearing a later date or by voting in person at the Annual Meeting. Attendance at the Annual Meeting will not in and of itself constitute revocation of a proxy. Any written notice revoking a proxy should be sent to Enzo Biochem, Inc., 527

Madison Avenue, New York, New York 10022, Attention: Shahram K. Rabbani, Secretary. A return envelope that requires no postage if mailed in the United States is enclosed for your convenience.

The expense of the solicitation of proxies for the meeting, including the cost of mailing, will be borne by the Company. In addition to mailing copies of the enclosed proxy materials to shareholders, the Company may request persons, and reimburse them for their expenses with respect thereto, who hold stock in their names or custody or in the names of nominees for others, to forward copies of such materials to those persons for whom they hold stock of the Company and to request authority for the execution of the proxies. In addition to the solicitation of proxies by mail, it is expected that some of the officers, directors and regular employees of the Company, without additional compensation, may solicit proxies on behalf of the Board of Directors by telephone, telefax and personal interview.

The principal executive offices of the Company are located at 527 Madison Avenue, New York, New York 10022. The approximate date on which this Proxy Statement and the accompanying form of proxy will first be sent or given to the Company's shareholders is December 4, 2006.

VOTING SECURITIES

Only holders of record of shares of common stock, par value \$.01 per share (the "Common Stock"), of the Company as of the close of business on November 27, 2006 are entitled to vote at the Annual Meeting (the "Record Date"). On the Record Date there were issued and outstanding 32,361,768 shares of Common Stock. Each outstanding share of Common Stock is entitled to one (1) vote upon all matters to be acted upon at the Annual Meeting. The holders of a majority of the outstanding shares of Common Stock as of the Record Date must be present in person or by proxy at the Annual Meeting to constitute a quorum for the transaction of business at the Annual Meeting.

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The election of a nominee for director requires a plurality of votes (i.e., an excess of votes over those cast for an opposing candidate) in the event that more than one candidate is running for a vacancy. Shareholders may either vote "for" or "withhold" their vote for the director nominees. A properly executed proxy marked "withhold" with respect to the election of one or more directors will not be voted with respect to the director or directors, although it will be counted for purposes of determining whether there is a quorum. The ratification and approval of Proposal 2 will require the affirmative vote of the majority of the votes cast by holders of shares of Common Stock present in person or represented by proxy at the Annual Meeting and entitled to vote on such proposals. Abstentions and broker non-votes are not counted as votes cast on any matter to which they relate and will have no effect on the outcome of the vote with respect to any matter. A broker non-vote occurs when a broker or other nominee does not have discretionary authority and has not received instructions with respect to a particular proposal. Proxy ballots are received and tabulated by the Company's transfer agent and certified by the inspector of election.

HOUSEHOLDING OF ANNUAL MEETING MATERIALS

Some brokers and other nominee record holders may be participating in the practice of "householding" proxy statements. This means that only one copy of the proxy statement may have been sent to multiple shareholders in a shareholder's household. The Company will promptly deliver a separate copy of the proxy statement to any shareholder who contacts the Company's investor relations department at (212) 583-0100 or at the Company's principal executive offices at 527 Madison Avenue, New York, New York 10022 requesting such copies. If a shareholder is receiving multiple copies of the proxy statement at the shareholder's household and would like to receive a single copy of the proxy statement for a shareholder's household in the future, shareholders should contact their broker, other nominee record holder, or the Company's investor relations department to request mailing of a single copy of the proxy statement.

STOCK OWNERSHIP OF PRINCIPAL SHAREHOLDERS AND MANAGEMENT

Set forth below is information concerning stock ownership of all persons known by the Company to own beneficially 5% or more of the shares of Common Stock of the Company, the executive officers named under "Compensation of Directors and Executive Officers," all directors, and all directors and executive officers of the Company as a group based upon the number of outstanding shares of Common Stock as of the close of business on the Record Date. Except as otherwise indicated, each of the persons named has sole voting and investment power with respect to the shares shown.

NAME AND ADDRESS OF BENEFICIAL OWNER	AMOUNT AND NATURE OF BENEFICIAL OWNERSHIP (1)	PERCENT OF CLASS (2)
----- Elazar Rabbani, Ph.D	2,257,277 (3)	6.9%
Shahram K. Rabbani	2,189,740 (4)	6.7%

Barry W. Weiner	1,445,301 (5)	4.4%
Dean Engelhardt, Ph.D	253,429 (6)	*
Norman E. Kelker, Ph.D	172,233 (7)	*
John J. Delucca	82,824 (8)	*
Irwin C. Gerson	57,190 (8)	*
Melvin E. Lazar, CPA	70,393 (9)	*
John B. Sias	176,660 (10)	*

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NAME AND ADDRESS OF BENEFICIAL OWNER -----	AMOUNT AND NATURE OF BENEFICIAL OWNERSHIP (1) -----	PERCENT OF CLASS (2) -----
J. Morton Davis	2,926,769 (11)	9.1%
CAM North America, LLC, Smith Barney Fund Management LLC, Salomon Brothers Asset Management Inc.	4,215,738 (12)	13.1%
All directors and executive officers as a group (15 persons) (13)	7,087,134 (14)	20.6%

* Less than 1%.

- (1) Except as otherwise noted, all shares of Common Stock are beneficially owned and the sole investment and voting power is held by the persons named, and such persons' address is c/o Enzo Biochem, Inc., 527 Madison Avenue, New York, New York 10022.
- (2) Based upon 32,361,768 shares of Common Stock of the Company outstanding as of the close of business on the Record Date.
- (3) Includes (i) 523,342 shares of Common Stock issuable upon the exercise of options which are exercisable within 60 days from the date hereof, (ii) 3,469 shares of Common Stock held in the name of Dr. Rabbani as custodian for certain of his children, (iii) 2,168 shares of Common Stock held in the name of Dr. Rabbani's wife as custodian for certain of their children, and (iv) an aggregate of 5,100 shares of Common Stock held in the name of Dr. Rabbani's children. Includes 4,216 shares of Common Stock held in the Company's 401(k) plan.
- (4) Includes (i) 523,342 shares of Common Stock issuable upon the exercise of options which are exercisable within 60 days from the date hereof, (ii) 1,354 shares of Common Stock held in the name of Mr. Rabbani's son and (iii) 1,671 shares of Common Stock that Mr. Rabbani holds as custodian for certain of his nephews. Includes 4,180 shares of Common Stock held in the Company's 401(k) plan.
- (5) Includes (i) 523,342 shares of Common Stock issuable upon the exercise of options which are exercisable within 60 days from the date hereof and (ii) 3,642 shares of Common Stock that Mr. Weiner holds as custodian for certain of his children. Includes 4,223 shares of Common Stock held in the Company's 401(k) plan.
- (6) Includes 72,386 shares of Common Stock issuable upon the exercise of options which are exercisable within 60 days from the date hereof. Includes 5,442 shares of Common Stock held in the Company's 401(k) plan.
- (7) Includes 58,365 shares of Common Stock issuable upon the exercise of options which are exercisable within 60 days from the date hereof. Includes 4,132 shares of Common Stock held in the Company's 401(k) plan.
- (8) Includes 2,500 shares of restricted Common Stock vesting on January 19, 2007. The remaining shares represent Common Stock issuable upon the exercise of options which are exercisable within 60 days from the date hereof.
- (9) Includes 28,644 shares of Common Stock issuable upon the exercise of options which are exercisable within 60 days from the date hereof. Includes 26,249 shares of Common Stock owned by Mr. Lazar's wife and 6,300 shares of Common Stock held in the name of a defined benefit plan for which Mr. Lazar is the sole trustee and beneficiary. Includes 5,000 shares of restricted Common Stock vesting on January 19, 2007. Includes 4,200 shares in an Individual Retirement Account.

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- (10) Includes 89,897 shares of Common Stock issuable upon the exercise of options which are exercisable within 60 days from the date hereof. Includes 2,500 shares of restricted Common Stock vesting on January 19, 2007.

- (11) Mr. Davis' address is D.H. Blair Investment Banking Corp., 44 Wall Street, New York, New York 10005. Includes (i) 30,525 owned directly by Mr. Davis, (ii) 1,419,345 shares of Common Stock owned by D.H. Blair Investment Banking Corp. of which Mr. Davis is the sole shareholder, (iii) 800,670 shares owned by Rosalind Davidowitz, Mr. Davis' wife, (iv) 663,446 shares of Common Stock owned by Engex, Inc., a close-end registered investment company of which Mr. Davis is the Chairman of the Board of Directors, and (v) 12,733 shares owned by an investment advisor whose principal is Mr. Davis. This information is based solely on Amendment No. 4 to a Schedule 13G filed on February 7, 2006.
- (12) The address of each entity in the group is 399 Park Avenue, New York, New York 10022. This information is based solely on a Schedule 13G filed on January 10, 2006.
- (13) The total number of directors and executive officers includes six (6) executive officers who were not named under "Compensation of Directors and Executive Officers."
- (14) Includes 2,135,473 shares of Common Stock issuable upon the exercise of options which are exercisable within 60 days from the date hereof.

PROPOSAL 1
ELECTION OF DIRECTORS

The Company has three (3) staggered classes of Directors, each of which serves for a term of three (3) years. At the Annual Meeting, the Company's Class I Directors will be elected to hold office for a term of three (3) years or until their respective successors are elected and qualified. Unless otherwise instructed, the accompanying form of proxy will be voted for the election of the below-listed nominees all of whom currently serve as Class I Directors, to continue such service as Class I Directors. Management has no reason to believe that any of the nominees will not be a candidate or will be unable to serve as a director. However, in the event that the nominees should become unable or unwilling to serve as directors, the form of proxy will be voted for the election of such persons as shall be designated by the Class II and Class III Directors.

Effective November 8, 2006, the total cumulative length of time that any Outside Director (a member of the Board who is not an officer or employee of the Company) may serve on the Board shall be limited to a maximum of three three-year terms, whether consecutively or in total, plus any portion of an earlier three-year term that such Outside Director may have been appointed to serve.

CLASS I DIRECTOR NOMINEES TO SERVE UNTIL
THE 2010 ANNUAL MEETING, IF ELECTED:

CLASS I: NEW TERM TO EXPIRE IN 2010

NAME - - - - -	AGE ---	YEAR FIRST BECAME A DIRECTOR -----
Shahram K. Rabbani	54	1976
Irwin C. Gerson	76	2001

THE BOARD OF DIRECTORS OF THE COMPANY RECOMMENDS A VOTE "FOR" THE ELECTION OF THE ABOVE-NAMED NOMINEES. PROXIES SOLICITED BY THE BOARD OF DIRECTORS WILL BE SO VOTED UNLESS SHAREHOLDERS SPECIFY IN THEIR PROXIES A CONTRARY CHOICE.

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DIRECTORS WHO ARE CONTINUING IN OFFICE:

CLASS II: TERM TO EXPIRE IN 2008

NAME - - - - -	AGE ---	YEAR FIRST BECAME A DIRECTOR -----
Barry W. Weiner	56	1977
John J. Delucca	63	1982
Melvin F. Lazar, CPA	67	2002

CLASS III: TERM TO EXPIRE IN 2009

NAME - - - - -	AGE ---	YEAR FIRST BECAME A DIRECTOR -----
Elazar Rabbani, Ph.D.	62	1976
John B. Sias	79	1982

The directors and executive officers of the Company are identified in the table below. Each executive officer of the Company serves at the pleasure of the Board of Directors.

NAME	AGE	YEAR BECAME A	
		EXECUTIVE OFFICER	DIRECTOR OR POSITION
Elazar Rabbani, Ph.D.	62	1976	Chairman of the Board of Directors and Chief Executive Officer
Shahram K. Rabbani	54	1976	Chief Operating Officer, Treasurer Secretary, and Director
Barry W. Weiner	56	1977	President, Chief Financial Officer and Director
Carl Balezentis, Ph.D	49	2006	President, Enzo Life Sciences, Inc.
Gary C. Cupit, Pharm.D.	59	2006	President, Enzo Therapeutics, Inc.
Dean Engelhardt, Ph.D.	66	1981	Executive Vice President
Norman E. Kelker, Ph.D	67	1981	Senior Vice President
Andrew R. Crescenzo	50	2006	Senior Vice President of Finance
Herbert B. Bass	58	1995	Vice President of Finance
Barbara E. Thalenfeld, Ph.D.	66	1995	Vice President, Corporate Development
David C. Goldberg	49	1995	Vice President, Business Development
John J. Delucca	63	1982	Director
John B. Sias	79	1982	Director
Irwin C. Gerson	76	2001	Director
Melvin F. Lazar, CPA	67	2002	Director

BIOGRAPHICAL INFORMATION REGARDING DIRECTORS AND EXECUTIVE OFFICERS

DR. ELAZAR RABBANI (age 62) Enzo Biochem's founder has served as the Company's Chairman of the Board of Directors and Chief Executive Officer since its inception in 1976. Dr. Rabbani has authored numerous scientific publications in the field of molecular biology, in particular, nucleic acid labeling and detection. He is also

the lead inventor of many of the Company's pioneering patents covering a wide range of technologies and products. Dr. Rabbani received his Bachelor of Arts degree from New York University in Chemistry and his Ph.D. in Biochemistry from Columbia University. He is a member of the American Society for Microbiology.

SHAHRAM K. RABBANI (age 54) Chief Operating Officer, Treasurer, Secretary and Director, is a founder and has been with the Company since its inception. He is also President of Enzo Clinical Labs. Mr. Rabbani serves on the New York State Clinical Laboratory Association, a professional board. He received a Bachelor of Arts Degree in Chemistry from Adelphi University, located in Long Island, New York.

BARRY W. WEINER (age 56) President, Chief Financial Officer and Director, is a founder of Enzo Biochem, Inc. He has served as the Company's President since 1996, and previously held the position of Executive Vice President. Before his employment with Enzo, he worked in several managerial and marketing positions at the Colgate Palmolive Company. Mr. Weiner is a Director of the New York Biotechnology Association. He received his Bachelor of Arts degree in Economics from New York University and a Master of Business Administration in Finance from Boston University.

DR. CARL W. BALEZENTIS (age 49) President, Enzo Life Sciences, Inc., has held this position since June 2006. Before his employment with Enzo, he was CEO of Lark Technologies, Inc. from 2000 to 2004, prior to its acquisition by Genaissance Pharmaceuticals, Inc. Subsequent to the acquisition he held the positions of President of Lark Technologies, Inc., and Senior Vice President of Genaissance. From 1998 to 2000 he has held numerous executive positions in the life sciences industry with companies such as Sigma-Aldrich, Perceptive Scientific Instruments, Inc., Applied Biosystems, Inc. (now Applera) and Promega Corporation. Dr. Balezentis holds a Ph.D in Genetics from the University of Arizona and completed a Post Doctoral Fellowship at M.D. Anderson Cancer Center in Houston, TX.

DR. GARY C. CUPIT (age 59) President, Enzo Therapeutics, Inc. joined the Company in October 2006. Dr. Cupit previously held positions as President and CEO of Sapphire Therapeutics from 2004 to 2006 and Vice President, Global Search and Evaluation for Novartis Pharmaceuticals from 2000 to 2004. Prior positions include Business Development at Knoll Pharmaceuticals, Vice President of

Cardiovascular Therapeutics at The Medicines Company and various positions in sales, marketing and new product development at SmithKline Beecham Pharmaceuticals. He earned a Bachelor of Science in Pharmacy at the Medical College of Virginia and a Doctor of Pharmacy degree at the Philadelphia College of Pharmacy and Science.

DR. DEAN ENGELHARDT (age 66) Executive Vice President has held this position since July 2000. Since joining the Company in 1981, Dr. Engelhardt has held several other executive and scientific positions within Enzo Biochem. In addition, Dr. Engelhardt has authored many papers in the area of nucleic acid synthesis and protein production and has been a featured presenter at numerous scientific conferences and meetings. He holds a Ph.D. degree in Molecular Genetics from Rockefeller University.

DR. NORMAN E. KELKER (age 67) Senior Vice President has held this position since 1989. Before this, he was the Company's Vice President for Scientific Affairs. Dr. Kelker has authored numerous scientific papers and presentations in the biotechnology field. He is a member of American Society of Microbiology and the American Association of the Advancement of Science. Dr. Kelker received his Ph.D. in Microbiology and Public Health from Michigan State University.

ANDREW R. CRESCENZO (age 50) Senior Vice President of Finance for the Company has held this position since May 2006. Before joining the Company, Mr. Crescenzo was an Executive Director from 2002 to 2006 and a Senior Manager from 1997 to 2003 at Grant Thornton LLP. From 1993 to 1997 he served as Vice President and Chief Financial Officer of J. D'Addario & Co, Inc and was employed at Ernst and Young LLP from 1984 to 1993. Mr. Crescenzo is a Certified Public Accountant and received his Bachelors of Business Administration from Adelphi University, located in Long Island, New York.

HERBERT B. BASS (age 58) Vice President of Finance for the Company and is also Senior Vice President of Enzo Clinical Labs. Before his promotion in 1989 to Vice President of Finance, Mr. Bass served as the Corporate Controller of the Company. Mr. Bass has been with the Company since 1986. From 1977 to 1986, Mr. Bass held various positions at Danziger and Friedman, Certified Public Accountants, the most recent of which was audit

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manager. For the preceding seven (7) years, he held various positions at Berenson & Berenson, Certified Public Accountants. Mr. Bass received a Bachelor of Business Administration degree in Accounting from Bernard M. Baruch College, in New York City

DR. BARBARA E. THALENFELD (age 66) Vice President of Corporate Development for Enzo Biochem and Vice President of Clinical Affairs for Enzo Therapeutics. Dr. Thalenfeld has been employed with the Company since 1982. She has authored numerous scientific papers in the areas of molecular biology and genetics, and is a member of the American Society of Gene Therapy, the Association of Clinical Research Professionals, and the Drug Development Association. Dr. Thalenfeld received her Ph.D. at the Institute of Microbiology at Hebrew University in Jerusalem, Israel and a Master of Science degree in Molecular Biology from Yale University. She also completed a Post Doctoral Fellowship in the Department of Biological Sciences at Columbia University.

DAVID C. GOLDBERG (age 49) Vice President of Business Development for Enzo Biochem and Senior Vice President of Enzo Clinical Labs has been employed with the Company since 1985. He has held several managerial positions within Enzo Biochem. Mr. Goldberg also held management and marketing positions with DuPont-NEN and Gallard Schlesinger Industries before joining the Company. He received a Master of Science degree in Microbiology from Rutgers University and a Master of Business Administration in Finance from New York University.

JOHN J. DELUCCA (age 63) has been a Director of the Company since 1982, and is Chairman of the Governance Committee. From 2003 to 2004, Mr. Delucca was Executive Vice President and Chief Financial Officer of REL Consulting Group. Mr. Delucca was the Chief Financial Officer & Executive Vice President, Finance & Administration of Coty, Inc., from 1999 to 2002. From 1993 until 1999, he was Senior Vice President and Treasurer of RJR Nabisco, Inc. Mr. Delucca is a board member, member of the Compensation Committee of Endo Pharmaceuticals Holdings Inc. (ENDP: NasdaqGS), and Chairman of the Audit Committees of Endo and ITC^Deltacom (ITCD.OB). Endo engages in the research, development, sale and marketing of prescription pharmaceuticals. ITC Deltacom is a provider of integrated communication services primarily to business customers in the southeastern United States. Mr. Delucca is also a board member and serves as the Deputy Chairman of the Audit Committee of British Energy (BEYGF.PK). Mr. Delucca holds a BA in Business Administration from Bloomfield College and an MBA from Fairleigh Dickinson University.

JOHN B. SIAS (age 79) has been a Director of the Company since 1982. Mr. Sias had been President and Chief Executive Officer of Chronicle Publishing Company from April 1993 to September 2000. From January 1986 until April 1993, Mr. Sias was President of ABC Network Division, Capital Cities/ABC, Inc. From

1977 until January 1986, he was the Executive Vice President, President of the Publishing Division (which includes Fairchild Publications) of Capital Cities Communications, Inc. Mr. Sias holds a Bachelor's degree in Economics from Stanford University.

IRWIN C. GERSON (age 76) has been a Director of the Company since May 2001, and is Chairman of the Compensation Committee. From 1995 until December 1998, Mr. Gerson served as Chairman of Lowe McAdams Healthcare and prior thereto had been, since 1986, Chairman and Chief Executive Officer of William Douglas McAdams, Inc., one of the largest advertising agencies in the U.S. specializing in pharmaceutical marketing and communications to healthcare professionals. In February 2000, he was inducted into the Medical Advertising Hall of Fame. Mr. Gerson has a Bachelor of Science in Pharmacy from Fordham University and an MBA from the NYU Graduate School of Business Administration. He was a director of Andrx Corporation, a NASDAQ listed company which specializes in proprietary drug delivery technologies until November 2006. From 1990-1999, he was Chairman of the Council of Overseers of the Arnold and Marie Schwartz College of Pharmacy and has served as a trustee of The Albany College of Pharmacy and Long Island University. He was elected President of the Advisory Board of Florida Atlantic University Lifelong Learning Society in October 2006.

MELVIN F. LAZAR, CPA (age 67) has been a Director of the Company since August 2002, the Lead Independent Director since October 2005, and is Chairman of the Audit Committee. Mr. Lazar was a founding partner of the public accounting firm of Lazar, Levine & Felix LLP from 1969 until October 2002. Mr. Lazar and his firm served the business and legal communities for over 30 years. Mr. Lazar is a board member and chairman of the audit committee of Arbor Realty Trust, Inc. (ABR: NYSE). Arbor is a real estate investment trust (REIT) formed to invest in real estate related bridge and mezzanine loans, preferred equity investments and other real estate

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related assets. Mr. Lazar is a board member and serves as the Chairman of the Audit Committee of Grubb & Ellis Realty Advisors, Inc. (GAV:AMEX). The company is a development stage company formed to acquire commercial real estate properties. Mr. Lazar holds a Bachelor of Business Administration degree from The City College of New York (Baruch College).

Dr. Elazar Rabbani and Shahram K. Rabbani are brothers and Barry W. Weiner is their brother-in-law.

John J. Delucca, John B. Sais, Irwin C. Gerson and Melvin F. Lazar qualify as "independent directors" under the criteria established by the New York Stock Exchange.

CORPORATE GOVERNANCE

Our Board of Directors and management are committed to responsible corporate governance to ensure that the Company is managed for the long-term benefit of its shareholders. To that end, during the past year, as in prior years, the Board of Directors and management have periodically reviewed and updated, as appropriate, the Company's corporate governance policies and practices. During the past year, the Board has also continued to evaluate and, when appropriate, update the Company's corporate governance policies and practices in accordance with the requirements of the Sarbanes-Oxley Act of 2002 and the rules and listing standards issued by the Securities and Exchange Commission and the New York Stock Exchange ("NYSE").

CORPORATE GOVERNANCE POLICIES AND PRACTICES

The Company has instituted a variety of policies and practices to foster and maintain responsible corporate governance, including the following:

CORPORATE GOVERNANCE GUIDELINES - The Board of Directors adopted Corporate Governance Guidelines, which collect in one document many of the corporate governance practices and procedures that had evolved over the years. These guidelines address the duties of the Board of Directors, director qualifications and selection process, Board operations, Board committee matters and continuing education. The guidelines also provide for annual self-evaluations by the Board and its committees. The Board reviews these guidelines on an annual basis. The guidelines are available on the Company's website at www.enzo.com, and in print to any interested party that requests them.

CORPORATE CODE OF ETHICS - The Company has a Code of Ethics that applies to all of the Company's employees, officers and members of the Board. The Code of Ethics is available on the Company's website at www.enzo.com, and in print to any interested party that requests them.

BOARD COMMITTEE CHARTERS - Each of the Company's Audit, Compensation and Nominating/Governance Committees has a written charter adopted by the

Company's Board of Directors that establishes practices and procedures for such committee in accordance with applicable corporate governance rules and regulations. The charters are available on the Company's website at www.enzo.com, and in print to any interested party that requests them.

LEAD INDEPENDENT DIRECTOR CHARTER - On October 31, 2005, the Board of Directors voted to create the position of Lead Independent Director of the Board of Directors, to elect Melvin F. Lazar to serve as Lead Independent Director and adopted a Lead Independent Director Charter. See below for a description of the responsibilities of the Lead Independent Director. The Lead Independent Director Charter is available on the Company's website at www.enzo.com, and in print to any interested party that requests them.

DIRECTOR INDEPENDENCE

REQUIREMENTS - The Board of Directors believes that a substantial majority of its members should be independent, non-employee directors. The Board adopted the following "Director Independence Standards," which are consistent with criteria established by the New York Stock Exchange, to assist the Board in making these independence determinations.

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No Director can qualify as independent if he or she has a material relationship with the Company outside of his or her service as a Director of the Company. A Director is not independent if, within the preceding three years:

- o The director was an employee of the Company.
- o An immediate family member of the director was an executive officer of the Company.
- o A director was affiliated with or employed by a present or former internal or external auditor of the Company.
- o An immediate family member of a director was affiliated with or employed in a professional capacity by a present or former internal or external auditor of the Company.
- o A director, or an immediate family member of the director, received more than \$100,000 per year in direct compensation from the Company, other than director and committee fees and pension or other forms of deferred compensation for prior services (provided such compensation is not contingent in any way on continued service).
- o The director, or an immediate family member of the director, was employed as an executive officer of another company where any of the Company's executives served on that company's compensation committee of the board of directors.
- o The director was an executive officer or employee, or an immediate family member of the director was an executive officer, of another company that made payments to, or received payments from, the Company for property or services in an amount which, in any single fiscal year, exceeded the greater of \$1 million or two percent (2%) of such other company's consolidated gross revenues.
- o The director, or an immediate family member of the director, was an executive officer of another company that was indebted to the company, or to which the Company was indebted, where the total amount of either company's indebtedness to the other was five percent (5%) or more of the total consolidated assets of the company he or she served as an executive officer.
- o The director, or an immediate family member of the director, was an officer, director or trustee of a charitable organization where the Company's annual discretionary charitable contributions to the charitable organization exceeded the greater of \$1 million or five percent (5%) of that organization's

The Board has reviewed all material transactions and relationships between each director, or any member of his or her immediate family, and the Company, its senior management and its independent auditors. Based on this review and in accordance with its independence standards outlined above, the Board of Directors has affirmatively determined that all of the non-employee directors are independent.

BOARD NOMINATION POLICIES AND PROCEDURE

- NOMINATION PROCEDURE - The Nominating/Governance Committee is responsible for identifying, evaluating, and recommending candidates for election to the Board, with due consideration for recommendations made by other Board members, the CEO, shareholders, and other sources. In addition to the above criteria, the Nominating/Governance Committee also considers the appropriate balance of experience, skills, and characteristics desirable among the members of the board. The independent members of the Board review the Nominating/Governance Committee candidates and nominate candidates for election by the Company shareholders.

Directors must also possess the highest personal and professional ethics, integrity and values and be committed to representing the long-term interests of all shareholders. Board members are expected to diligently prepare for, attend and participate in all Board and applicable Committee meetings. Each Board member is expected to ensure that other existing and future commitments do not materially interfere with the member's service as a director.

The Nominating/Governance Committee also reviews whether a potential candidate will meet the Company's independence standards and any other director or committee membership requirements imposed by law, regulation or stock exchange rules.

Director candidates recommended to the Committee are subject to full Board approval and subsequent election by the shareholders. The Board of Directors is also responsible for electing directors to fill vacancies on the Board that occur due to retirement, resignation, expansion of the Board or other reasons between the Shareholders' annual meetings. The Nominating/Governance Committee may retain a recruitment firm, from time to time, to assist in identifying and evaluating director candidates. When a firm is used, the Committee provides specified criteria for director candidates, tailored to the needs of the Board at that time, and pays the firm a fee for these services. Suggestions for director candidates are also received from board members and management and may be solicited from professional associations as well.

BOARD COMMITTEES

- All members of each of the Company's three standing committees - the Audit, Compensation, and Nominating/Governance - are required to be independent in accordance with NYSE criteria. See below for a description of the responsibilities of the Board's standing committees.

EXECUTIVE SESSIONS OF NON-MANAGEMENT DIRECTORS

- The Board and the Audit, Compensation and Nominating/Governance Committees periodically hold meetings of only the independent directors or Committee members without management present.

LEAD INDEPENDENT DIRECTOR

- The duties of the Lead Independent Director, as set forth in the Lead Independent Director Charter, among other things, are to develop the agendas for and serve as chairman of the executive sessions of the independent directors of the Company; serve as principal liaison between

the independent directors of the Company and the Chairman of the Board and between the independent directors and senior management; provide the Chairman of the Board with input as to

the preparation of the agendas for Board meetings; advise the Chairman of the Board as to the quality, quantity and timeliness of the information submitted by the Company's management that is necessary or appropriate for the independent directors to effectively and responsibly perform their duties; ensure that independent directors have adequate opportunities to meet and discuss issues in executive sessions without management present; if the Chairman of the Board is unable to attend a Board of Directors meeting, act as chairman of such Board of Directors meeting; and perform such other duties as the Board of Directors shall from time to time delegate. On October 31, 2005, the Board of Directors elected Melvin F. Lazar to serve as the Lead Independent Director.

BOARD ACCESS TO INDEPENDENT ADVISORS

- The Board as a whole, and each of the Board committees separately, have authority to retain and terminate such independent consultants, counselors or advisors to the Board as each shall deem necessary or appropriate.

COMMUNICATIONS WITH BOARD OF DIRECTORS

- DIRECT COMMUNICATIONS - Any interested party desiring to communicate with the Board of Directors or with any director regarding the Company may write to the Board or the director, c/o Shahram K. Rabbani, Office of the Secretary, Enzo Biochem, Inc., 527 Madison Avenue, New York New York 10022. The Office of the Secretary will forward all such communications to the director(s). Interested parties may also submit an email by filling out the email form on the Company's website at www.enzo.com. Moreover, any interested party may contact the non-management directors of the Board and/or the presiding (or lead) director.

- ANNUAL MEETING - The Company encourages its directors to attend the annual meeting of shareholders each year. Messrs. Delucca, Sias, Gerson and Lazar attended the Annual Meeting of Shareholders held in January 2006.

MEETINGS OF THE BOARD OF DIRECTORS AND ITS COMMITTEES

During the fiscal year ended July 31, 2006, there were six formal meetings of the Board of Directors, several actions by unanimous consent and several informal meetings. Currently, the Board of Directors has a Nominating/Governance Committee, an Audit Committee and a Compensation Committee. The Nominating/Governance Committee had one formal meeting, the Audit Committee had four formal meetings and the Compensation Committee had four formal meetings.

The Audit Committee was established by and among the Board of Directors for the purpose of overseeing the accounting and financial reporting processes of the Company and audits of the financial statements of the Company in accordance with Section 3(a)(58)(A) of the Securities Exchange Act of 1934, as amended. The Audit Committee is authorized to review proposals of the Company's auditors regarding annual audits, recommend the engagement or discharge of the auditors, review recommendations of such auditors concerning accounting principles and the adequacy of internal controls and accounting procedures and practices, review the scope of the annual audit, approve or disapprove each professional service or type of service other than standard auditing services to be provided by the auditors, and review and discuss the audited financial statements with the auditors. The current members of the Audit Committee are Messrs. Lazar, Delucca and Gerson, and Mr. Lazar is the Chairman. The Board of Directors has determined that each of the Audit Committee members are independent, as defined in the NYSE's listing standards and as defined in Item 7(d)(3)(iv) of Schedule 14A under the Securities and Exchange Act of 1934. The Board of Directors has further determined that Messrs. Delucca and Lazar are each "audit committee financial experts" as such term is defined under Item 401(h)(2) of Regulation S-K.

The Compensation Committee has the power and authority to (i) establish a general compensation policy for the officers and employees of the Corporation, including to establish and at least annually review officers' salaries and levels of officers' participation in the benefit plans of the Corporation, (ii) prepare any reports that may be required by the regulations of the Securities and Exchange Commission or otherwise relating to officer compensation, (iii) approve any increases in directors' fees, (iv) grant stock options and/or other equity instruments (v) exercise all other powers of the Board of Directors with respect to matters involving the compensation of employees and the employee benefits of the Corporation as shall be delegated by the Board of Directors to the Compensation Committee. The current members of the Compensation Committee are Messrs. Gerson, Sias and Lazar and Mr. Gerson is the Chairman.

The Nominating/Governance Committee has the power to recommend to the Board of Directors prior to each annual meeting of the shareholders of the Corporation: (i) the appropriate size and composition of the Board of Directors; and (ii) nominees: (1) for election to the Board of Directors for whom the Corporation should solicit proxies; (2) to serve as proxies in connection with the annual shareholders' meeting; and (3) for election to all committees of the Board of Directors other than the Nominating/Governance Committee. The Nominating/Governance Committee will consider nominations from the shareholders, provided that they are made in accordance with the Company's By-laws. The current members of the Nominating/Governance Committee are Messrs. Delucca, Lazar and Sias and Mr. Delucca is the Chairman.

AUDIT COMMITTEE REPORT

In connection with the preparation and filing of the Company's Annual Report on Form 10-K for the year ended July 31, 2006:

- (1) The Audit Committee reviewed and discussed the audited financial statements with management;
- (2) The Audit Committee discussed with the independent auditors matters required to be discussed under Statement on Auditing Standards No. 61, as may be modified or supplemented;
- (3) The Audit Committee reviewed the written disclosures and the letter from the independent auditors required by the Independence Standards Board Standard No. 1, as may be modified or supplemented, and discussed with the independent auditors any relationships that may impact their objectivity and independence and satisfied itself as to the auditors' independence;
- (4) The Audit Committee discussed with the Company's independent auditors the overall scope and plans for its audit. The Audit Committee met with the independent auditors, with and without management present, to discuss the results of their examinations, their evaluations of the Company's internal controls, and the overall quality of the Company's financial reporting. The Audit Committee held four formal meetings during the fiscal year ended July 31, 2006 and
- (5) Based on the review and discussions referred to above, the Audit Committee recommended to the Board of Directors that the audited financial statements of the Company be included in the 2006 Annual Report on Form 10-K.

Submitted by the members of the Audit Committee

Melvin F. Lazar, CPA
John J. Delucca
Irwin C. Gerson

SECTION 16(A) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Securities Exchange Act of 1934, as amended, requires the Company's executive officers, directors and persons who beneficially own more than 10% of a registered class of the Company's equity

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securities (collectively, "Reporting Persons") to file with the Securities and Exchange Commission initial reports of ownership and reports of changes in ownership of common stock and other equity securities of the Company. Such executive officers, directors and greater than 10% beneficial owners are required by Securities and Exchange Commission regulation to furnish the Company with copies of all Section 16(a) forms filed by such reporting persons.

Based solely on the Company's review of such forms furnished to the Company and written representations from certain reporting persons, the Company believes that the Reporting Persons have complied with all applicable filing requirements, except that Messrs. Delucca, Gerson, Lazar, Sias, Bass and Goldberg and Dr. Thalenfeld each filed one report late.

CERTAIN RELATIONSHIP AND RELATED TRANSACTIONS

Enzo Clinical Labs, Inc. ("Enzo Lab"), a subsidiary of the Company, leases a facility located in Farmingdale, New York from Pari Management Corporation ("Pari"). Pari is owned equally by Elazar Rabbani, Ph.D., Shahram Rabbani and Barry Weiner and his wife, the officers and directors of Pari. The lease originally commenced on December 20, 1989, but was amended and extended in March 2005 and now terminates on March 31, 2017. During fiscal 2006, Enzo Lab paid approximately \$1,337,000 (including \$172,000 in real estate taxes) to Pari with respect to such facility and future payments are subject to cost of living adjustments. The Company, which has guaranteed Enzo Lab's obligations to Pari

under the lease, believes that the existing lease terms are as favorable to the Company as would be available from an unaffiliated party.

CODE OF ETHICS

The Company has adopted a Code of Ethics (as such term is defined in Item 406 of Regulation S-K). The Code of Ethics is available on the Company's website at www.enzo.com, and in print to any shareholder that requests them. The Code of Ethics applies to the Company's Executive Officer, Chief Financial Officer and principal accounting officer or controller, or persons performing similar functions. The Code of Ethics has been designed to deter wrongdoing and to promote:

- (1) Honest and ethical conduct, including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships;
- (2) Full, fair, accurate, timely, and understandable disclosure in reports and documents that the Company files with, or submits to, the Securities and Exchange Commission and in other public communications made by the Company;
- (3) Compliance with applicable governmental laws, rules and regulations;
- (4) The prompt internal reporting or violations of the Code of Ethics to an appropriate person or persons identified in the Code of Ethics; and
- (5) Accountability for adherence to the Code of Ethics.

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COMPENSATION OF DIRECTORS AND EXECUTIVE OFFICERS

The following summary compensation table sets forth the aggregate compensation paid by the Company to its chief executive officer and to the Company's four other most highly compensated executive officers whose annual compensation exceeded \$100,000 for the fiscal year ended July 31, 2006 (each, a "Named Executive Officer") for services during the fiscal years ended July 31, 2006, 2005 and 2004:

SUMMARY COMPENSATION TABLE

NAME AND PRINCIPAL POSITION -----	YEAR ---	ANNUAL COMPENSATION -----		LONG TERM COMPENSATION AWARDS -----
		SALARY (\$) -----	BONUS (\$) -----	SECURITIES UNDERLYING OPTIONS/SARS (#) -----
Elazar Rabbani, Ph.D., CHAIRMAN OF THE BOARD OF DIRECTORS AND CEO	2006	\$458,315	\$237,000	-0-
	2005	\$442,200	\$283,250	50,000
	2004	\$430,942	\$275,000	78,750
Shahram K. Rabbani, CHIEF OPERATING OFFICER, TREASURER, SECRETARY AND DIRECTOR	2006	\$420,192	\$175,000	-0-
	2005	\$405,423	\$267,800	50,000
	2004	\$395,046	\$260,000	78,750
Barry W. Weiner, PRESIDENT, CHIEF FINANCIAL OFFICER AND DIRECTOR	2006	\$420,192	\$200,000	-0-
	2005	\$405,423	\$267,800	50,000
	2004	\$395,046	\$260,000	78,750
Dean Engelhardt, Ph.D., EXECUTIVE VICE PRESIDENT	2006	\$240,039	\$55,000	-0-
	2005	\$231,624	\$55,000	10,000
	2004	\$225,737	\$55,000	15,750
Norman E. Kelker, Ph.D., SENIOR VICE PRESIDENT	2006	\$207,388	\$35,000	-0-
	2005	\$200,104	\$45,000	10,000
	2004	\$202,476	\$45,000	15,750

OPTION/SAR GRANTS IN LAST FISCAL YEAR

There were no stock option/SAR grants to the Named Executive Officers during the fiscal year ended July 31, 2006.

AGGREGATED OPTION/SAR EXERCISES IN LAST FISCAL YEAR AND FISCAL YEAR-END
OPTION/SAR VALUES

The following table sets forth certain information with respect to stock option exercises by the Named Executive Officers during the fiscal year ended July 31, 2006 and the value of unexercised options held by them at fiscal year-end.

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NAME	SHARES ACQUIRED ON EXERCISE (#)	VALUE REALIZED (\$)	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS/SARS OPTIONS AT FISCAL YEAR-END (#)		VALUE OF UNEXERCISED IN-THE-MONEY OPTIONS/SARS AT FISCAL YEAR-END (\$)	
			EXER- CISABLE	UNEXER- CISABLE	EXER- CISABLE	UNEXER- CISABLE
Elazar Rabbani, Ph.D.	67,005	\$126,170	523,342	-0-	\$1,051,286	\$0
Shahram K. Rabbani	67,005	\$126,170	523,342	-0-	\$1,051,286	\$0
Barry W. Weiner	67,005	\$126,170	523,342	-0-	\$1,051,286	\$0
Dean Engelhardt, Ph.D.	20,101	\$37,850	72,386	-0-	\$133,670	\$0
Norman E. Kelker, Ph.D					\$119,029	\$0

(1) Market value of the underlying securities at fiscal year end minus the exercise price paid in cash or stock.

On June 3, 2005 the Board of Directors unanimously approved a resolution to immediately accelerate the effectiveness of all unvested stock options that were "out of the money" by \$1.50 or more based on the closing price of the Company's Common Stock on the date of the resolution. As a result of the acceleration, options to purchase approximately 666,000 shares of the Company's common stock (which represented approximately 21% of the Company's outstanding stock options) became exercisable immediately. The total number of options subject to acceleration included options to purchase 575,000 shares held by executive officers and directors of the Company. This action was taken to avoid expense recognition in future financial statements upon adoption of SFAS 123(R).

EMPLOYMENT AGREEMENTS

Each of Mr. Barry Weiner, Mr. Shahram Rabbani and Dr. Elazar Rabbani (the "Executives") are parties to a employment agreements effective May 4, 1994, as amended as of July 13, 2000 (the "Employment Agreement(s)"), with the Company. Pursuant to the terms of their respective Employment Agreements, Messrs. Weiner and Rabbani and Dr. Rabbani are currently compensated for the calendar year 2006 at a base annual salary of \$427,300, \$427,300 and \$466,100, respectively. Each Executive will also receive an annual bonus, the amount of which shall be determined by the Board of Directors in its discretion. Each Employment Agreement provides that, in the event of termination of employment by the Executive for "good reason," or a termination of employment by the Company without "cause" or, additionally, a nonrenewal, as such terms are defined in the Employment Agreement, each Executive shall be entitled to receive: (a) a lump sum in an amount equal to three years of the Executive's base annual salary; (b) a lump sum in an amount equal to the annual bonus paid by the Company to the Executive for the last fiscal year of the Company ending prior to the date of termination multiplied by three; (c) insurance coverage for the Executive and his dependents, at the same level and at the same charges to the Executive as immediately prior to his termination, for a period of three (3) years following his termination from the Company; (d) all accrued obligations, as defined therein; and (e) with respect to each incentive pay plan (other than stock option or other equity plans) of the Company in which the Executive participated at the time of termination, an amount equal to the amount the Executive would have earned if he had continued employment for three additional years. If the Executive is terminated by reason of his disability, he shall be entitled to receive, for three years after such termination, his base annual salary less any amounts received under a long term disability plan. If the Executive is terminated by reason of his death, his legal representatives shall receive the balance of any remuneration due him under the terms of his Employment Agreement. The term of each of the Executive's Employment Agreement currently expires on May 4, 2008, which term automatically renews for successive two year periods if notice to the Company is not given by either party within 180 days of the end of such successive term.

COMPENSATION OF DIRECTORS

As of November 1, 2005, the Lead Independent Director receives an annual director's fee of \$50,000 and each other person who serves as a director and who is not otherwise an officer or an employee (such director being classified as an "Outside Director") of the Company, receives an annual director's fee of \$20,000. For each meeting of the Board of Directors attended in person or by

Directors receive a fee of \$2,000. Additionally, each Outside Director who serves on a committee of the Board of Directors receives a fee of \$1,000 for each meeting of the committee attended in person or by telephone. In addition to the \$1,000 per committee meeting fee, the Chairman of the Audit Committee receives an additional fee of \$1,000 for each meeting of the Audit Committee attended in person or by telephone, the Lead Independent Director receives an additional fee of \$500 for each meeting of any Board committee attended in person or by telephone, and the Chairman of the Compensation Committee and the Chairman of the Nominating/Governance Committee each receives an additional fee of \$500 for each meeting of the committee attended in person or by telephone. The Lead Independent Director will receive restricted stock units immediately following the Annual Meeting, provided such person is a director of the Company at such time. Each of the other Outside Directors will receive restricted stock units immediately following the Annual Meeting, provided such person is a director of the Company at such time. The number of restricted stock units that the Lead Independent Director and each of the Outside Directors receive will be determined on an annual basis by the Compensation Committee. Each of the restricted stock units referred to above shall be subject to a two-year vesting period; provided that at the time any non-employee director ceases to be a director of the Company (other than due to such director's resignation), such non-employee director's restricted stock units shall become fully vested at such time. The Company reimburses directors for their travel and related expenses in connection with attending meetings of the Board of Directors and Board-related activities.

COMPENSATION COMMITTEE INTERLOCKS AND INSIDER PARTICIPATION

The current members of the Compensation Committee are Messrs. Gerson, Sias and Lazar. No member of the Compensation Committee has a relationship that would constitute an interlocking relationship with the Company's executive officers or other directors.

COMPENSATION COMMITTEE REPORT

The Company strives to apply a uniform philosophy to compensation for all of its employees, including the members of its senior management. This philosophy is based on the premise that the achievements of the Company result from the combined and coordinated efforts of all employees working toward common goals and objectives.

The goals of the Company's compensation program are to align remuneration with business objectives and performance, and to enable the Company to retain and competitively reward executive officers who contribute to the long-term success of the Company. The Company's compensation program for executive officers is based on the following principles, which are applicable to compensation decisions for all employees of the Company. The Company attempts to pay its executive officers competitively in order that it will be able to retain the most capable people in the industry. Information with respect to levels of compensation being paid by comparable companies is obtained from various publications and surveys.

During the last fiscal year, the compensation of executive officers consisted principally of salary and bonus. The Company may grant stock options and/or other equity compensation to certain of its executive officers, in the future. The cash portion of such program includes base salary and annual bonuses, which are awarded in the discretion of the Board of Directors. Salary levels have been set based upon historical levels, amounts being paid by comparable companies and performance. The Company's equity-based compensation consists of the award of discretionary stock options, which are designed to provide additional incentives to executive officers to maximize shareholder value. Through the use of extended vesting periods, the option program is designed to encourage executive officers to remain in the employ of the Company. In addition, because the exercise prices of such options are typically set at or above the fair market value of the stock on the date the option is granted, executive officers can only benefit from such options if the trading price of the Company's shares of Common Stock increases, thus aligning their financial interests directly with those of the shareholders.

In consideration for Dr. Elazar Rabbani's services as Chairman of the Board of Directors and Chief Executive Officer of the Company for the fiscal year ended July 31, 2006, the Company paid Dr. Rabbani an annual salary of \$458,315 and a bonus of \$237,000. Such compensation was determined pursuant to the Company's employment agreement with Dr. Rabbani and was based on the Board's view of Dr. Rabbani's successful performance as Chief Executive Officer. See "Employment Agreements."

Irwin W. Gerson
John J. Delucca
Melvin F. Lazar

401(K) PLAN

The Company has adopted a salary reduction profit sharing plan which is generally available to employees of the Company and any subsidiary of the Company. Officers and directors who are employees of the Company participate in the Plan on the same basis as other employees.

The Plan permits voluntary contributions by employees in varying amounts up to 17% of annual earnings (not to exceed the maximum allowable in any calendar year which is \$15,000 for 2006, exclusive of allowed catch-up contributions, as defined). Employee contributions are made by salary reduction under Section 401(k) of the Internal Revenue Code of 1986, as amended (the "Code"), and are excluded from taxable income of the employee. The Company may also contribute additional discretionary amounts as it may determine.

All employees of the Company who are twenty-one (21) years or older and have been employed by the Company for a minimum of three (3) months are eligible to participate in the Plan. Employees, who have more than 500 hours of service per service year, but less than 1,000 hours per service year, are still considered members of the Plan, but contribution allocations and vesting will not increase during such time.

A participant's account is distributed to him upon retirement or termination of employment for any reason and in certain other limited situations. The amount of the Plan allocation attributable to the Company's discretionary contributions will vest in accordance with a schedule. For the fiscal year ended July 31, 2006, the Company has made contributions of 50% of the employees' contribution up to 10% of the employees' compensation in Common Stock of the Company.

1999 STOCK OPTION PLAN

Under the Company's 1999 Stock Option Plan (the "1999 Plan"), the Company's Board of Directors may grant incentive stock options ("ISOs") and non-qualified stock options ("NQSOs") to selected key employees, directors, executive officers, consultants and advisors of the Company to purchase the Company's Common Stock. ISOs and NQSOs granted under the 1999 Plan generally vest no earlier than six (6) months after the date of grant and can be exercised no later than the tenth (10th) anniversary date of the date of grant. When the optionee, however, holds more than 10% of all combined voting stock of the Company, ISOs granted under the 1999 Plan cannot be exercised later than the fifth (5th) anniversary date of the date of grant. The exercise prices of options granted under the 1999 Plan are set by the Board of Directors of the Company, or designated committee. In any event, however, ISOs granted under the 1999 Plan may not be exercisable at a price lower than the fair market value of the Company's Common Stock on the date such options are granted, and, when the optionee holds more than 10% of all combined voting stock of the Company, the exercise prices of such options may not be less than 110% of the fair market value of the Common Stock of the Company on the date of grant. ISOs granted under the 1999 Plan to any optionee which become exercisable for the first time in any one calendar year for shares of Common Stock of the Company with an aggregate fair market value, as of the respective date or dates of grant, of more than \$100,000 shall be treated as NQSOs. The awards under the 1999 Plan are subject to restrictions on transferability, are forfeitable in certain circumstances and are exercisable at such time or times and during such period as shall be set forth in the option agreement evidencing such option. During the fiscal year ended July 31, 2006, no options to purchase shares of the Company's Common Stock were awarded under the 1999 Plan. As of the Record Date, of the 2,187,224 shares of the Company's Common Stock reserved for issuance upon the exercise of options authorized for grant under the 1999 Plan, 62,308 shares of the Company's Common Stock remain available for issuance upon the exercise of options authorized for grant under the 1999 Plan.

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AMENDED AND RESTATED 2005 EQUITY COMPENSATION INCENTIVE PLAN

Under the Company's 2005 Amended and Restated Equity Compensation Incentive Plan (the "2005 Plan"), the Company's Board of Directors may grant incentive stock options ("ISOs"), non-qualified stock options ("NQSOs"), awards of restricted stock, restricted stock units and dividend equivalents to the Company's directors, officers, employees and other persons that provide consulting or advisory services to us and our subsidiaries. Under the 2005 Plan, the maximum number of shares of common stock that may be subject to stock options, restricted stock awards and restricted stock unit awards is 1,000,000. No one participant may receive awards representing more than 200,000 shares of common stock in any one calendar year.

ISOs and NQSOs granted under the 2005 Plan generally vest no earlier than six months after the date of grant and can be exercised no later than the tenth (10th) anniversary date of the date of grant. When the optionee, however, holds more than 10% of all combined VOTING stock of the Company, ISOs granted under the 2005 Plan cannot be exercised later than the fifth (5th) anniversary date of the date of grant. The exercise prices of options granted under the 2005 Plan are set by the Board of Directors of the Company, or designated committee, however, any options granted under the 2005 Plan may not be exercisable at a price lower than the fair market value of the Company's Common Stock on the date such options are granted, and when the optionee holds more than 10% of all combined voting stock of the Company, the exercise prices of such options may not be less than 110% of the fair market value of the Common Stock of the Company on the date of grant. ISOs granted under the 2005 Plan to any optionee that become exercisable for the first time in any one calendar year for shares of Common Stock of the Company with an aggregate fair market value, as of the respective date or dates of grant, of more than \$100,000 shall be treated as NQSOs. The options under the 2005 Plan are subject to restrictions on transferability, are forfeitable in certain circumstances and are exercisable at such time or times and during such period as shall be set forth in the option agreement evidencing such option. Options intended to qualify as incentive stock options may be granted only to persons who are our employees or are employees of our subsidiaries which are treated as corporations for federal income tax purposes. No participant may be granted incentive stock options that are exercisable for the first time in any calendar year for common stock having a total fair market value (determined as of the option grant) in excess of \$100,000. The 2005 Plan prohibits repricing of an outstanding option, and therefore, the administrator may not, without the consent of the shareholders, lower the exercise price of an outstanding option. Unless provided otherwise in a participant's stock option agreement and subject to the maximum exercise period for the option, an option generally will cease to be exercisable upon the earlier of three months following the participant's termination of service with us or the expiration date under the terms of the participant's stock option agreement. The right to exercise an option will expire immediately upon termination if the termination is for "cause" or a voluntary termination any time after an event that would be grounds for termination for cause. Upon death or disability, the option exercise period is extended to the earlier of one year from the participant's termination of service or the expiration date under the terms of the participant's stock option agreement.

Awards of restricted stock are rights to acquire or purchase shares of the Company's Common Stock. A restricted stock award may be subject to payment by the participant of a purchase price for shares of common stock subject to the award, and may be subject to vesting requirements or transfer restrictions or both, if so provided by the administrator. Awards of restricted stock units are dollar value equivalents of shares that vest in accordance with the terms and conditions established by the administrator in its sole discretion. Those requirements may include, for example, a requirement that the participant complete a specified period of service or that certain performance objectives be achieved. The typical award of restricted stock or restricted stock units will vest ratably over a two to four year period (25% to 50% per year). Upon satisfying the applicable vesting criteria, a participant is entitled to the payout in accordance with, and at the times specified in, the award agreement. The administrator may pay earned restricted stock units in cash, shares or a combination of both.

The 2005 Plan also contains specific performance criteria that the Compensation Committee may use to establish performance objectives, the achievement of which may be conditions for certain awards to vest or be issued. By subjecting the vesting to these performance objectives, the Company is able to claim income tax deductions for those awards without regard to the deduction limitations under Section 162(m) of the Code.

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As of the Record Date, 355,500 shares of the Company's Common Stock have been reserved for issuance upon the exercise of options granted under the 2005 Plan, inclusive of stock options to purchase 100,000 shares of Common Stock issued under the 2005 Plan to a consultant during the fiscal year ended July 31, 2006. In addition, as of the Record Date, the Board of Directors has awarded under the 2005 Plan (a) 10,000 restricted stock units to the Lead Independent Director, (b) 5,000 restricted stock units to each of the other Outside Directors, and (c) 55,050 shares of restricted stock to various employees of the Company.

INSURANCE FOR INDEMNIFICATION OF DIRECTORS AND OFFICERS

The Company has in effect, with Darwin Professional Underwriters, Inc. and XL Specialty Insurance Company under a policy effective February 22, 2006, and expiring on February 21, 2007, insurance covering all of its directors and officers and certain other employees of the Company against certain liabilities and reimbursing the Company for obligations which it incurs as a result of its indemnification of such directors, officers and employees. Such insurance has been obtained in accordance with the provisions of Section 726 of the Business

Corporation Law of the State of New York. The annual premium is \$360,000.

This report has been provided by the Board of Directors of the Company.

Elazar Rabbani, Ph.D.
 Shahram K. Rabbani
 Barry W. Weiner
 John J. Delucca
 Irwin C. Gerson
 Melvin F. Lazar, CPA
 John B. Sias

PERFORMANCE GRAPH

The graph below compares the five-year cumulative shareholder total return based upon an initial \$100 investment (assuming the reinvestment of dividends) for Enzo Biochem, Inc. shares of Common Stock with the comparable return for the New York Stock Exchange Market Value Index and two peer issuer indices selected on an industry basis. The two peer group indices include: (i) 60 biotechnology companies engaged in the research and development of diagnostic substances and (ii) 10 companies engaged in the medical laboratories business. All of the indices include only companies whose common stock has been registered under Section 12 of the Securities Exchange Act of 1934 for at least the time frame set forth in the graph.

The total shareholder returns depicted in the graph are not necessarily indicative of future performance. The Performance Graph and related disclosure shall not be deemed to be incorporated by reference in any filing by the Company under the Securities Act of 1933 or the Securities Exchange Act of 1934, except to the extent that the Company specifically incorporates the graph and such disclosure by reference.

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[GRAPHIC OMITTED]

COMPARISON OF CUMULATIVE TOTAL RETURN OF ONE OR MORE
 COMPANIES, PEER GROUPS, INDUSTRY INDEXES AND/OR BROAD MARKETS

	2001	2002	2003	2004	2005	2006
ENZO BIOCHEM, INC.	100.00	55.21	86.51	56.92	73.56	56.51
MEDICAL LABORATORIES	100.00	70.18	74.61	82.01	104.97	130.89
NYSE MARKET INDEX	100.00	80.95	88.81	101.83	120.44	130.75
BIOTECHNOLOGY PEERS	100.00	83.94	100.53	112.03	127.31	138.30

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PROPOSAL 2
 APPROVAL OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors has appointed Ernst & Young LLP, as its independent registered public accounting firm, to audit the accounts of the Company for the fiscal year ending July 31, 2006. The Board of Directors approved the reappointment of Ernst & Young LLP (which has been engaged as the Company's independent registered public accounting firm since 1983). Ernst & Young LLP has advised the Company that neither the firm nor any of its members or associates has any direct financial interest in the Company or any of its affiliates other than as auditors. Although the selection and appointment of independent auditors is not required to be submitted to a vote of shareholders, the Directors deem it desirable to obtain the shareholders' ratification and approval of this appointment.

The following table sets forth the aggregate fees billed by Ernst & Young LLP for the years ended July 31, 2006 and 2005 for audit and non-audit services (as well as all "out-of-pocket" costs incurred in connection with these services) and are categorized as Audit Fees, Audit-Related Fees, Tax Fees and All Other Fees. The nature of the services provided in each such category is described following the table.

	2006	2005
AUDIT FEES	\$702,135	\$667,500
AUDIT-RELATED FEES	0	0
TAX FEES	0	0
ALL OTHER FEES	0	0

ENZO WEBSITE

In addition to the information about the Company and its subsidiaries contained in this proxy statement, extensive information about the Company can be found on our website located at www.enzo.com, including information about our management team, products and services and our corporate governance practices.

The corporate governance information on our website includes the Company's Corporate Governance Guidelines, the Code of Conduct and the charters of each of the committees of the Board of Directors. These documents can be accessed at www.enzo.com. Printed versions of our Corporate Governance Guidelines, our Code of Conduct and the charters for our Board committees can be obtained, free of charge, by writing to the Company at: 527 Madison Avenue, New York, New York 10022, Attn: Corporate Secretary.

This information about Enzo's website and its content, together with other references to the website made in this proxy statement, is for information only and the content of the Company's website is not deemed to be incorporated by reference in this proxy statement or otherwise filed with the Securities and Exchange Commission.

THE COMPANY WILL PROVIDE WITHOUT CHARGE TO EACH PERSON BEING SOLICITED BY THIS PROXY STATEMENT, UPON THE WRITTEN REQUEST OF ANY SUCH PERSON, A COPY OF THE ANNUAL REPORT OF THE COMPANY ON FORM 10-K FOR THE YEAR ENDED JULY 31, 2006 (AS FILED WITH THE SECURITIES AND EXCHANGE COMMISSION) INCLUDING THE FINANCIAL STATEMENTS AND THE SCHEDULES THERETO. ALL SUCH REQUESTS SHOULD BE DIRECTED TO SHAHRAM K. RABBANI, SECRETARY, ENZO BIOCHEM, INC., 527 MADISON AVENUE, NEW YORK, NEW YORK 10022.

SHAREHOLDER PROPOSALS TO BE PRESENTED
AT THE NEXT ANNUAL MEETING

Shareholder Proposals. Proposals of shareholders intended to be presented at the Company's 2007 Annual Shareholder Meeting (i) must be received by the Company at its offices no later than August 6, 2007 (120 days preceding the one year anniversary of the Mailing Date), (ii) may not exceed 500 words and (iii) must otherwise satisfy the conditions established by the Securities and Exchange Commission for shareholder proposals to be included in the Company's Proxy Statement and form of proxy for that meeting.

Discretionary Proposals. Shareholders intending to commence their own proxy solicitations and present proposals from the floor of the 2007 Annual Shareholder Meeting in compliance with Rule 14a-4 promulgated under the Exchange Act of 1934, as amended, must notify the Company of such intentions before October 22, 2007 (the first business day following 45 days preceding the one year anniversary of the Mailing Date). After such date, the Company's proxy in connection with the 2006 Annual Shareholder Meeting may confer discretionary authority on the Board to vote.

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By Order of the Board of Directors

Shahram K. Rabbani, SECRETARY

Dated: December 4, 2006

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PROXY

ENZO BIOCHEM, INC.
527 MADISON AVENUE
NEW YORK, NEW YORK 10022

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS

The undersigned hereby appoints Elazar Rabbani, Ph.D. and Melvin F. Lazar as Proxies, each with the power to appoint his substitute, and hereby authorizes them to represent and to vote, as designated below, all the shares of the Common Stock of Enzo Biochem, Inc. held of record by the undersigned on November 27, 2006, at the Annual Meeting of Shareholders to be held on January 23, 2007 or any adjournment thereof.

PROPOSAL 1. Election of Irwin C. Gerson and Shahram K. Rabbani as Class I Directors.

FOR all nominees (except WITHHOLDING AUTHORITY

as marked to the (as to all nominees)
contrary below)
(INSTRUCTION: To withhold authority to vote for any individual
nominee, print that nominee's name on the line provided below.)

Withheld for: _____

PROPOSAL 2. To ratify the appointment of Ernst & Young LLP as the
Company's independent registered public accounting firm for
the Company's fiscal year ending July 31, 2007.

FOR AGAINST ABSTAIN

In their discretion, the Proxies are authorized to vote upon such other
business as may properly come before the Annual Meeting. This proxy when
properly executed will be voted in the manner directed herein by the undersigned
shareholder. If no direction is made, this proxy will be voted FOR Proposals 1
and 2.

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PLEASE SIGN EXACTLY AS NAME APPEARS BELOW. WHEN SHARES OF COMMON STOCK
ARE HELD BY JOINT TENANTS, BOTH SHOULD SIGN.

Dated: _____, 2006 / 2007 (circle one)

Signature: _____

Signature if held jointly: _____
(When signing as attorney, as executor, as administrator, trustee
or guardian, please give full title as such. If a corporation,
please sign in full corporate name by President or other
authorized officer. If a partnership, please sign in partnership
name by authorized person.)

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