

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549

FORM 8-K

CURRENT REPORT PURSUANT  
TO SECTION 13 OR 15(D) OF THE  
SECURITIES EXCHANGE ACT OF 1934

Date of report (Date of earliest event reported): **September 20, 2010**

**Enzo Biochem, Inc.**

(Exact Name of Registrant as Specified in Its Charter)

**New York**

(State or Other Jurisdiction of Incorporation)

**001-09974**

(Commission File Number)

**13-2866202**

(IRS Employer Identification No.)

**527 Madison Avenue**

**New York, New York**

(Address of Principal Executive Offices)

**10022**

(Zip Code)

**(212) 583-0100**

(Registrant's Telephone Number, Including Area Code)

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions *see* General Instruction A.2. below:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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**Item 7.01 Regulation FD Disclosure.**

On September 20, 2010, Enzo Biochem, Inc. (the “Company”) issued a press release regarding its operations. A copy of such press release is furnished as Exhibit 99.1 to this Current Report on Form 8-K. Pursuant to the rules and regulations of the Securities and Exchange Commission, such exhibit and the information set forth therein are deemed to have been furnished and shall not be deemed to be “filed” under the Securities Exchange Act of 1934.

**Item 9.01 Financial Statements and Exhibits.**

(d) Exhibits.

<u>Exhibit No.</u>	<u>Description</u>
99.1	Press Release of Enzo Biochem, Inc., dated September 20, 2010

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

ENZO BIOCHEM, INC.

Date: September 20, 2010

By:           /s/ Barry W. Weiner          

Barry W. Weiner  
President

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**EXHIBIT INDEX**

Exhibit No.

Description

99.1

Press Release of Enzo Biochem, Inc., dated September 20, 2010

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**news  
release**

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

**FOR IMMEDIATE RELEASE****Enzo Biochem Streamlines Operations; Expects Positive Operating Cash Flow in 2011**

- Consolidation of Acquisitions, Improved Operations intended to reduce annualized operating expenses by more than \$4 million.
- Company Cash, Cash Equivalents and Short-Term Investments approximated \$34 million at July 31, 2010, same as three months earlier.
- Fiscal 2010 Fourth Quarter Year over Year Revenue Increase Expected, Gross Margins Consistent; exclusive of one-time and non-cash streamlining charges; Company to report results in mid-October.
- Company focus toward higher-margin products and services.

NEW YORK, NY, September 20, 2010 -- Enzo Biochem, Inc. (NYSE:ENZ), announced today that it has streamlined its operations, which is anticipated to result in a reduction in annualized operating expenses of more than \$4 million beginning in the fiscal 2011 first quarter. These initiatives are also expected to result in increased gross margins. The Company believes that the operating cost reductions, which affect all of its operating businesses as well as corporate overhead, will result in Enzo generating positive cash flow from operations in 2011. The overall improvements are primarily a result of streamlining operations at Enzo Life Sciences, where the Company completed a series of acquisitions over the past three years, and Enzo Clinical Labs, where Enzo has invested significantly over the past year in technology and process improvements. The Company will continue to drive operating efficiencies through process improvements.

At Enzo Clinical Labs, the Company expects gross margin improvements and expense reductions, primarily through selective work force rationalization and process improvements, including customer service and billing designed to reduce processing and collection costs of receivables, improved laboratory service operations and lower reagent costs. At Enzo Life Sciences, as a result of the acquisitions that the Company has completed, certain operations have become redundant, which provided opportunities to reduce costs through realignment or centralization of R&D, customer service and manufacturing activities. Enzo Life Sciences has also undertaken a repositioning of its product offerings, refocusing its marketing efforts on higher-margin, higher volume products. As a result, the Company will record a charge in the fourth quarter as certain low-volume products are rationalized. Enzo expects the benefits of the operational improvements to occur commencing with the Company's fiscal 2011 first quarter ending October 31, 2010. In connection with the streamlining, the Company expects to record a one-time charge of approximately \$500,000 in its fiscal 2010 fourth quarter to reflect severance payments to terminated employees.

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Preliminary fourth quarter operating results anticipate a slight increase in fourth quarter revenue over last year, with consistent gross margins exclusive of one time and non-cash streamlining charges.

“The initiatives we are announcing today are the result of ongoing intensive analysis designed to ramp up our activities, enhance operations and position Enzo for fresh growth,” said Barry Weiner, Enzo’s President. “Over the past three years, Enzo has built, through a series of acquisitions at its Life Sciences unit, a global life sciences biomedical products company which is positioned for growth with over 10,000 in-house manufactured products. The acquired companies R&D efforts, sales and marketing and back office operations have now been consolidated, resulting in reduced costs and improve efficiencies, and a focus on higher margined products.

At Enzo Clinical Labs, we have lowered costs, including staffing levels, through the significant investments we have made in technology over the past year as well as the result of management changes, which have contributed to heightened efficiency. As a result of these improved systems, we expect increased Enzo Clinical Labs gross margins, improvement in the collections process and enhanced operating results.

Now that we have completed the heavy investment phase of our development, it is time to drive operating results. The actions will allow us to more fully focus on the operational synergies between divisions, and, as a result, position us even more strongly for the development of higher-margin innovative products and services for the markets we serve.”

### **About Enzo Biochem**

Enzo Biochem, Inc., is a growth-oriented integrated life sciences and biotechnology company focused on harnessing biological process to develop research tools, diagnostics and therapeutics, and serves as a provider of test services, including exotic tests, to the medical community. Since our founding in 1976, our strategic focus has been on the development of enabling technologies in the life sciences field. Enzo Life Sciences develops, produces and markets proprietary labeling and detection products for gene sequencing, genetic analysis and immunological research, among others. Its catalog of over 30,000 products serves the molecular biology, drug discovery and pathology research markets worldwide. Enzo Clinical Labs provides laboratory services for a growing roster of physicians in the New York Metropolitan area, Pennsylvania and New Jersey. Its tests include, in addition to routine tests, capabilities for detecting molecular infection disease, molecular oncology, autoimmune disorders and genetics. Enzo Clinical Labs also provides clinical diagnostic services that allow Enzo to capitalize on its extensive advanced molecular and cytogenetic capabilities and the broader trends in predictive and personalized diagnostics. Enzo Therapeutics is a biopharmaceutical venture that has developed multiple novel approaches in the areas of gastrointestinal, infectious, ophthalmic and metabolic diseases. It has focused its efforts on developing treatment regimens for diseases and conditions for which current treatment options are ineffective, costly, and/or cause unwanted side effects. In the course of the company’s research and development activities, Enzo has developed a substantial portfolio of intellectual property assets, with over 240 issued patents worldwide and over 200 pending patent applications.

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Except for historical information, the matters discussed in this news release may be considered "forward-looking" statements within the meaning of Section 27A of the Securities Act of 1933, as amended and Section 21E of the Securities Exchange Act of 1934, as amended. Such statements include declarations regarding the intent, belief or current expectations of the Company and its management, including those related to cash flow, gross margins, revenues, and expenses are dependent on a number of factors outside of the control of the company including, *inter alia*, the markets for the Company's products and services, costs of goods and services, other expenses, government regulations, litigations, and general business conditions. See Risk Factors in the Company's Form 10-K for the fiscal year ended July 31, 2009. Investors are cautioned that any such forward-looking statements are not guarantees of future performance and involve a number of risks and uncertainties that could materially affect actual results. The Company disclaims any obligations to update any forward-looking statement as a result of developments occurring after the date of this press release.

Contact:

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