

September 30, 2016

AND EDGAR

Ruairi Regan, Esq.
Pamela Howell, Esq.
U.S. Securities and Exchange Commission
Division of Corporation Finance
Mail Stop 3561
100 F Street, NE
Washington, DC 20549

**Re: Enzo Biochem, Inc.
Registration Statement on Form S-3
Filed September 1, 2016
File No. 333-213440**

Dear Mr. Regan and Ms. Howell:

On behalf of Enzo Biochem, Inc., a New York corporation (the “**Company**”), we are writing to submit the Company’s responses to a comment of the staff (the “**Staff**”) of the Division of Corporation Finance of the Securities and Exchange Commission (the “**Commission**”) dated September 28, 2016, relating to the Company’s Registration Statement on Form S-3 (File No. 333-213440) (the “**Registration Statement**”) filed with the Commission on September 1, 2016.

For ease of review, we have summarized the Staff’s comment in bold and provided the Company’s response immediately thereafter. Capitalized terms used herein but not defined herein have the meanings given to such terms in the Registration Statement.

Certain Relationships and Plan of Distribution, page S-10

Your disclosure of the plan of distribution of the securities covered by this prospectus states that you may sell your common stock “in negotiated transactions at market prices prevailing at the time of sale or at prices related to such prevailing market prices, and/or any other method permitted by law.” Please tell us whether sales made in such “negotiated transactions” satisfy the “at the market offering” definition under Rule

415. If any sales method does not constitute a sales method that is deemed to be an “at the market offering” as defined in Rule 415 or if any material information with respect to a particular offering has been omitted, please confirm that you will file an additional prospectus supplement at the time of such sales or tell us why such additional filing would not be necessary.

Response: The Company acknowledges the Staff’s comment and confirms that, if any sales method employed by the Company does not constitute a sales method that is deemed to be an “at the market offering” as defined in Rule 415, or if any material information with respect to a particular offering has been omitted from the prospectus supplement included in the Registration Statement, the Company will file an additional prospectus supplement at the time of such sale.

Please contact me at 212-547-5885 if you have any questions or require any additional information in connection with this letter or the Company’s filing of the Registration Statement.

Sincerely,

/s/ Robert H. Cohen

Robert H. Cohen

cc: Barry W. Weiner, Chief Financial Officer, Enzo Biochem, Inc.



ENZO BIOCHEM, INC.

527 Madison Avenue,
New York, NY 10022

September 30, 2016

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549

**Re: Enzo Biochem, Inc.
Registration Statement on Form S-3
File No. 333-213440**

VIA EDGAR

Ladies and Gentlemen:

Pursuant to Rule 461 under the Securities Act of 1933, as amended, Enzo Biochem, Inc. (the “**Registrant**”) hereby respectfully requests that the effectiveness of the Registration Statement on Form S-3 (File No. 333-213440) of the Registrant (the “**Registration Statement**”) be accelerated so that it will be declared effective at 4:30 p.m., Eastern Time, on October 4, 2016 or as soon thereafter as may be practicable. As of the date above, there is no managing or principal underwriter for any of the Company’s securities that may be offered pursuant to the Registration Statement. Future managing or principal underwriters, if any, will be identified in a prospectus supplement to the Registration Statement at the time of offering.

The Registrant hereby confirms that it is aware of its responsibilities under the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended, as they relate to the proposed offering of the securities specified in the Registration Statement. The Registrant hereby acknowledges that:

- should the Securities and Exchange Commission (the “Commission”) or the staff, acting pursuant to delegated authority, declare the Registration Statement effective, it does not foreclose the Commission from taking any action with respect to the Registration Statement;
 - the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the Registration Statement effective, does not relieve the Registrant from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
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- the Registrant may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

The undersigned respectfully requests that it be notified of the effectiveness of the Registration Statement by telephone call to our counsel, McDermott Will & Emery LLP, by calling Robert H. Cohen at (212) 547-5885. The Company hereby authorizes Mr. Cohen to orally modify or withdraw this request for acceleration.

Please also provide a copy of the Commission's order declaring the Registration Statement effective to Mr. Cohen via email to rcohen@mwe.com or facsimile to (212) 547-5444 and via mail at 340 Madison Avenue, New York, NY 10173.

Very truly yours,

ENZO BIOCHEM, INC.

By: /s/ Barry W. Weiner

Name: Barry W. Weiner

Title: Chief Financial Officer

cc: Robert H. Cohen (McDermott Will & Emery LLP)
