



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

(212) 583-0100

March 24, 2011

BY EDGAR TRANSMISSION

Securities and Exchange Commission
100 F Street, NE
Washington, D.C. 20549
Attention: Pamela Howell

Re: Enzo Biochem, Inc.
Form 10-K for the Fiscal Year Ended July 31, 2010
Filed October 14, 2010
Schedule 14A
Filed November 16, 2010
File No. 001-09974

Ladies and Gentlemen:

Enzo Biochem, Inc., a New York corporation (the "Registrant"), hereby transmits herewith for filing with the Securities and Exchange Commission (the "Commission") the following response to the comment received from the Commission's staff (the "staff") by letter dated March 18, 2011 (the "Comment Letter"), with respect to the Registrant's Definitive Proxy Statement on Schedule 14A filed with the Commission on November 16, 2010 (the "Proxy Statement"). For the staff's convenience, the staff's comment has been restated below in bold type and the Registrant's responses to such comment appears immediately below such comment.

Definitive Proxy Statement on Schedule 14A

1. Please confirm that in future filings you will provide the disclosure required by Item 407(h) of Regulation S-K regarding the board leadership structure and the board's role in risk oversight.

The Registrant respectfully refers the staff to the disclosure contained under the caption "Directors, Executive Officers and Key Employees" in the Proxy Statement, which discloses that Dr. Elazar Rabbani serves as both Chief Executive Officer and Chairman of the Board of the Registrant, and the disclosure contained under the caption "Corporate Governance" in the Proxy Statement, which discloses that Dr. Stephen B. H. Kent serves as the Lead Independent Director of the Registrant and the specific role he plays in the leadership of the Registrant's board.

The Registrant hereby confirms that in future filings of its preliminary and definitive proxy statements on Schedule 14A in which the disclosure required by Item 407 is required to be provided it will include all of the disclosure required by Item 407(h) of Regulation S-K regarding board leadership structure and the board's role in risk oversight under a subheading titled "Board Leadership Structure and Role in Risk Oversight" under the caption "Corporate Governance," including the above-referenced disclosure which was provided in the Proxy Statement, as well as disclosure relating to why the Registrant has determined that its leadership structure is

appropriate given the specific circumstances or characteristics of the Registrant and the extent of the board's role in the risk oversight of the Registrant.

* * * *

The Registrant hereby acknowledges that:

- the Registrant is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the Registrant may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Should any member of the staff have any questions or comments concerning this letter, please do not hesitate to contact the undersigned at (212) 583-0100, or our counsel, Robert H. Cohen of Greenberg Traurig, LLP, at (212) 801-6907.

Sincerely,

/s/ Barry W. Weiner

Barry W. Weiner
President, Chief Financial Officer and
Principal Accounting Officer

cc: Elazar Rabbani
Robert H. Cohen, Esq.
