



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

April 1, 2010

Via Facsimile (617) 951-7050 and US Mail

Henri A. Termeer
Chairman & Chief Executive Officer
Genzyme Corporation
500 Kendall Street
Cambridge, MA 02142

**Re: Genzyme Corporation
Amendment No. 2 to Preliminary Proxy Statement on
Schedule 14A
Filed March 31, 2010
File No. 0-14680**

Dear Mr. Termeer:

We have reviewed your amended filing and have the following comments.

General

1. We partially reissue prior comment 3 of our letter dated March 26, 2010. Although you have revised to provide some of the information requested in the comment, please supplement your disclosure to further clarify whether the continued "constructive dialogue" amongst the parties includes discussion of Relational representation on the Board (other than Mr. Whitworth if nominated) and/or in management positions.

* * *

Please respond to the above comments promptly and comply with our comments when disseminating information in the future. If you believe that compliance with our comments is not appropriate, please provide the basis for your view in your response letter filed via EDGAR and tagged as "CORRESP". You should be aware, however, that we may have additional comments based on your supplemental response.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings to be certain that the filing includes all information required under the Securities Exchange Act of 1934 and that they have provided all information

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investors require for an informed investment decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In connection with responding to our comments, please provide, in writing, a statement from the participants acknowledging that:

- the participants are responsible for the adequacy and accuracy of the disclosure in the filings;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filings; and
- the participants 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.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filings or in response to our comments on your filings.

Please direct any questions to me at (202) 551-3757. You may also contact me via facsimile at (202) 772-9203. Please send all correspondence to us at the following ZIP code: 20549-3628.

Sincerely,

Melissa Campbell Duru
Special Counsel
Office of Mergers and Acquisitions

Cc (via facsimile): Paul Kinsella, Esq.