



DIVISION OF
CORPORATION FINANCE

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

June 22, 2010

Michael S. Wyzga
Chief Financial Officer
Genzyme Corporation
500 Kendall Street
Cambridge, MA 02142

**Re: Genzyme Corporation
Definitive Proxy Statement
Filed April 26, 2010
File No. 000-14680**

Dear Mr. Wyzga:

We have reviewed your filing and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by amending your filing, by providing the requested information, or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing any amendment to your filing and the information you provide in response to these comments, we may have additional comments.

Schedule 14A

Compensation Discussion and Analysis, page 24

Annual Incentive Program, page 28

1. We note that under your 2010 annual incentive program 20% of the award is based on a subjective review of your NEO's performance for the applicable year. Please confirm that your 2011 proxy statement will include discussion of each NEO's individual performance relative to the individual performance component and how the level of performance resulted in the amounts awarded under the annual incentive program.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are

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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 responding to our comments, please provide a written statement from the company acknowledging that:

- the company 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 company 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.

You may contact Bryan Pitko at (202) 551-3203 or Suzanne Hayes at (202) 551-3675 if you have any questions. In this regard, please also feel free to contact me at (202) 551-3715.

Sincerely,

Jeffrey Riedler
Assistant Director

cc: Andrew J. Sung
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One International Place
Boston, MA 02110-2624