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

DIVISION OF
CORPORATION FINANCE

December 15, 2010

Vipin K. Garg, Ph.D.
President and Chief Executive Officer
Tanzyme, Inc.
4819 Emperor Boulevard, Suite 400
Durham, North Carolina 27703

Re: Tanzyme, Inc.
Registration Statement on Form S-1
Filed November 19, 2010
File No. 333-170749

Dear Dr. Garg:

We have reviewed your registration statement 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 by amending your registration statement and providing the requested information. 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 registration statement and the information you provide in response to these comments, we may have additional comments.

FORM S-1

General

1. Please provide us proofs of all graphic, visual, or photographic information you will provide in the printed prospectus prior to its use, for example in a preliminary prospectus. Please note we may have comments regarding these materials.

2. Please update the discussion in your prospectus to the most recent date practicable.

3. Please note that our comments on your request for confidential treatment will be provided under separate cover. Please be advised that we will not be in a position to consider a request for acceleration of effectiveness of the registration statement until we resolve all issues concerning the confidential treatment request.

4. Please note that when you file a pre-effective amendment containing pricing-related information, we may have additional comments. As you are likely aware, you must file this amendment prior to circulating the prospectus.

5. Please note that when you file a pre-effective amendment that includes your price range, it must be bona fide. We interpret this to mean that your range may not exceed $2 if you price below $20 and 10% if you price above $20.

Summary
Tranzyme, Inc., page 1

6. Please provide the basis for your statements concerning the number of people in the United States:
   - who are suffering from GI motility disorders;
   - who undergo bowel resection surgeries; and
   - who are experiencing symptomatic manifestations of gastroparesis.

7. Please expand the discussion to clarify what portion of the respective markets is attributed to each of the specific type of products you intend to provide. For example, to what portion of the 40% of US residents with GI motility disorders is your product candidate directed. If you do not intend to serve the global market, the discussion of your anticipated markets should be revised accordingly.

8. We note your statement that "there is currently a void of treatment options for patients suffering from these conditions." Please revise the discussion to clarify whether there are no options or only a limited number of options currently available. In this regard, we note the discussion pertaining to competition in your risk factor section and the section entitled "Limitations of Current and Historical Promotility Treatments." If treatment options are available, please expand the discussion to briefly describe the available alternatives.

9. Please state whether and when you submitted applications to the FDA for your proposed products and whether you have received regulatory approval for your products in any jurisdiction.

Ulimorelin (Intravenous Ghrelin Agonist) page 1

10. Please expand the discussion concerning the annual number of bowel resection surgeries in the United States to also indicate the number of such patients who experienced POI or similar disorders for which your drug candidates are intended to address. In addition, please clarify whether ulimorelin is intended to be administered to all patients as a type of preventative or only to patients after they exhibit symptoms.

TZP-102 (Oral Ghrelin Agonist) page 1

11. We note the statement that "up to 4% of the population in the United States experiences symptomatic manifestations of gastroparesis." However, the FDA granted you fast track status for the treatment of gastroparesis in diabetic patients. Please revise the discussion define the term "fast track status" and to indicate the number of diabetic patients with gastroparesis.

Risks Associated with our Business, page 3

12. Please expand the list of bullet points to include your dependence on third parties.

"Our near-term success is largely dependent on the success of our clinical stage…," page 8

13. Please include a separate stand-alone risk factor discussion describing the 5th bullet point in more detail.

"We rely and will continue to rely on outsourcing arrangements…," page 12

14. Based on the disclosure in this risk factor and in the "Manufacturing" section on page 78, it appears that the company has entered into manufacturing and supply agreements with third party manufacturers for required raw materials, drug substance and finished product for its preclinical research and clinical trials. Please disclose the name of the respective manufacturers and/or suppliers in this risk factor. Similarly, please identify the raw material that is the subject of the risk factor, whether the company has any agreements in place for the raw material, and, if known, the name of the manufacturer and/or supplier. If you have entered into manufacturing or supply agreements, please file them as exhibits and describe them in an appropriate location in your document. Alternatively, please provide us with an analysis that supports your conclusion that the agreements are not required to be filed pursuant to Item 601(b)(10) of Regulation S-K.

"If we fail to attract and retain…," page 16

15. Please expand the discussion to state the extent to which you have employment agreements with the management, clinical and scientific personnel upon whom you are dependent.

16. To the extent that you have experienced problems attracting and retaining qualified employees in the recent past, please revise the discussion to describe these problems.

"If we engage in an acquisition or business combination…," page 16

17. Please expand the discussion to clarify whether you are currently considering such a transaction. We may have additional comments.

"Any termination or suspension of, or delays in the commencement…," page 17

18. We note that one of the factors you cite that may delay the commencement and rate of completion of clinical testing is "subjects experiencing severe or unexpected drug-related adverse effects." If you have identified any safety issues, please revise your disclosure to include an additional risk factor to address the safety issues you have encountered to date in preclinical studies and clinical trials.

"If product liability lawsuits are brought against us…," page 22

19. We note you currently carry product liability insurance and the extent of such coverage. Please disclose the cost of such coverage, if material.

"If we fail to obtain the capital necessary to fund our operations…," page 26

20. Please expand the discussion to clarify the extent to which the proceeds of the offering will satisfy your capital requirements. To the extent practicable, please disclose the amount of additional funds you need to develop and commercialize your product candidates and provide an estimate of your monthly cash burn rate over the next 12 months.

Use of Proceeds, page 33

21. Please clarify whether you anticipate the amount allocated to the ulimorelin Phase 3 and TZP-102 Phase 2b clinical trials is sufficient to complete the Phase 3 and Phase 2b trials, respectively.

22. If you expect to use a significant portion of the proceeds reflected in bullet 3 to continue the development of ulimorelin and TZP-102, please disclose the amounts you expect to use for these purposes separately and disclose the stage of development for each product you expect to achieve using these proceeds.

Strategic Partnerships, page 42

23. Please expand the discussion of the Norgine "tiered double-digit percentage royalties" to define the "tiers" and provide a range within ten percent for each tier. Alternatively, provide the low point of the lowest tier, the high point of the highest tier, disclose how many tiers there are and whether the movement from one tier to the next is based on lapse of time or achievement of sales based milestones.

24. Please expand the discussion of the BMS agreement to disclose the aggregate amount of sales milestone payments you may receive.

25. Please expand the discussion concerning the Open Biosystems, Inc. agreement to quantify the royalty provisions to provide a range within ten percent or a general discussion such as single digits, mid teens, etc.

26. We note the agreement with Open Biosystems is described in this section and in the notes to the financial statements, however the agreements has not been filed as exhibit to the Form S-1. Please file this agreement as an exhibit or provide us with an analysis supporting your determination that the agreements are not required to be filed as exhibits pursuant to Item 601(b)(10) of Regulation S-K.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Financial Operations Overview

Research and Development, page 44

27. Please disclose the costs incurred to date for each project. If historical data is not maintained, please disclose that fact and quantify the information from the point the data was available.

Business
Overview, page 58

28. Please expand the disclosure to include a discussion of the development of your business for at least the past five years.

29. Please revise your disclosure in the business section to attribute the below statements and other similar statements to the source from which you obtained the information. In addition, where you cite your own estimates or conclusions, please explain how you arrived at those estimates or conclusions and disclose any third-party sources upon which you relied.

- Page 60: "We estimate worldwide sales of GI drugs to be worth $49.9 billion in 2008. Sales in the United States of $18.8 billion represented 38% of this market, the largest percentage by value."
- Page 62: "In one study, it was reported that 29% of gastroparesis cases were found in association with diabetes, 13% developed as a complication of surgery and 36% were due to unknown causes. As the incidence of diabetes rises worldwide, the prevalence of gastroparesis is expected to rise correspondingly."
- Page 62: "Delayed gastric emptying is common, occurring in approximately 50% of mechanically ventilated critically ill patients. GI dysfunction also occurs in approximately 80% of patients with burn injuries, 80% of patients with increased intracranial pressure after head injury, 70% of multi-trauma patients, 60% of patients with sepsis, 33% of patients with respiratory failure and 30% of patients with cardiac injury."
- Page 63: "Even with this limitation, we estimate that approximately 958 extended million units of various formulations of metoclopramide were sold in 2008."

The Gastrointestinal Market, page 60

30. Please expand the disclosure to provide the title of the retrospective review and the date of publication. Similarly, revise the following sections:
    - "Postoperative Ileus" to provide the title of the retrospective review and the date of publication;
    - "Gastroparesis" to provide the title of the American Motility Society Task Force study or report and the date of publication; and
    - "Gastric Stasis in Critical Care" to provide the title of the Society for Critical Care Medicine publication that is the source for the information provided and the date of publication.

Limitations of Current and Historical Promotility Treatments, page 62

31. Please expand the disclosure to provide the source for the sales of Propulsid and Zelnorm.

Ghrelin, page 63

32. Please expand the discussion to explain the advantages and disadvantages of the mechanism of action of your candidates compared to the mechanisms of products that target serotonin and dopamine receptors.

Clinical Overview, page 64

33. Please expand the discussion in this section and the similar section beginning on page 68 to indicate when the various trials you describe were completed.

Our Technology, page 72

34. Please identify "our founder."

35. Please balance the discussion of the advantages of MATCH with a discussion of any disadvantages relative to traditional methods of drug discovery.

Management, page 85

36. Please state when Dr. Garg became a director.

37. Please expand the discussion of Mr. Johnson's background to clarify whether he served as group chairman of Johnson & Johnson's Worldwide Pharmaceuticals unit from 2005 to August 2007.

38. We note the statement that Mr. Corcoran "is the former President, Chief Executive Officer and a director of MethylGene, Inc." Please expand the discussion to clarify his specific work experience for the past five years, including applicable dates.

Principal Stockholders, page 116

39. Please revise the footnotes to disclose the natural person(s) with voting and/or investment power over the shares held by BDC Capital, Inc., entities affiliated with Desjardins Venture Capital, HIG Ventures, Quaker BioVentures, and entities affiliated with Thomas, McNerney and Partners, respectively.

Financial Statements

Notes To Consolidated Financial Statements

7. Notes Payable and Other Liabilities, page F-21

40. Your disclosure here and in Note 12. Subsequent Events (page F-34) indicate you have issued warrants in connection with the issuance of various Notes Payable. It appears you used the proceeds from the loan agreement closed on October 1, 2010 to pay the Notes referred to here. We have the following comments:
    - Your Warrant Exhibits 4.3, 4.4 and 4.5 for the notes described above discuss that the warrants are subject to adjustment under the occurrence of certain events. Please explain to us how you considered the guidance under ASC 815-40-55 (example 8 of EITF 07-5) in not accounting for these warrants as liabilities.
    - Please tell us your expected accounting treatment for recording the warrants issued on October 1, 2010.

9. Equity Transactions, page F-28

41. We may have comments on your accounting for stock compensation and related disclosure once you have disclosed an estimated offering price. In addition, please provide quantitative and qualitative disclosures explaining the difference between the estimated offering price and the fair value of your recent stock sales.

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 Act of 1933 and all applicable Securities Act rules require. 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.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;

- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and

- the company 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.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact James Peklenk, Staff Accountant, at (202) 551-3661 or Joel Parker, Branch Chief, at (202) 551-3651 if you have questions regarding comments on the financial statements and related matters. Please contact John Krug, Senior Counsel, at (202) 551-3862, Suzanne Hayes, Branch Chief, at (202) 551-3675 or me at (202) 551-3715 with any other questions.

Sincerely,

Jeffrey Riedler
Assistant Director

cc: Mitchell S. Bloom, Esq.
Joseph C. Theis, Esq.
Goodwin Procter LLP
Exchange Place
Boston, Massachusetts 02109