



DIVISION OF
CORPORATION FINANCE

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

April 7, 2011

Mr. Jonathan S. Wolfson
Chief Executive Officer
Solazyme, Inc.
225 Gateway Boulevard
South San Francisco, CA 94080

Re: Solazyme, Inc.
Registration Statement on Form S-1
Filed March 11, 2011
File No. 333-172790

Dear Mr. Wolfson:

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.

General

1. We note the publicity the company is receiving while in registration including the video found online at www.greentechmedia.com (March 14, 2011), a New York Times article (March 23, 2011), and a San Francisco Chronicle article (March 27, 2011). Please note that we interpret the definition of an offer broadly, and that statements that condition the market for the sale of the company's securities may be offers within the meaning of Section 2(a)(3) of the Securities Act. Please give us your supplemental analysis as to whether these statements constitute offers, and tell us what steps you have in place to assure that offers are made only orally or pursuant to a Section 10(a) prospectus. We may have additional comments upon review of your response.
2. We note that you have omitted a price range and related information from your prospectus. Since the price range triggers a number of disclosure matters, we will need sufficient time to process the amendment when it is included. Please understand that its

effect on disclosure throughout the document may cause us to raise issues on areas not previously commented upon.

3. Absent a bona fide estimate of your expected offering price, we cannot complete a review of your disclosures regarding stock compensation and convertible securities. In order to avoid a delay in the effectiveness of your registration statement, please supplementally provide us with an estimated range for your IPO price. If the IPO price materially differs from your corresponding equity fair value accounting estimates, then an expanded disclosure may be required for investors to assess the reasonableness of your critical accounting estimates.
4. Prior to the effectiveness of your registration statement, please inform us as to whether or not the amount of compensation allowable or payable to the underwriters has received clearance by FINRA.
5. We encourage you to file all exhibits, including your legal opinion and form of underwriting agreement, with your next amendment. Please understand that we will need adequate time to review these materials before effectiveness.

Prospectus Summary, page 1

6. The text of the charts and graphs on pages 2, 68, 82, and 84 is unclear in our copy of the filing. Please provide us supplementally with a printed copy of the prospectus, or of these pages, that is representative of the copies of these materials that investors will receive. The information should be of a sufficient type size so that it is clear and legible. Note as well that we may have comments on the substance of these charts and graphs once we are able to review the material.

Use of Proceeds, page 37

7. As required by Item 504 of Regulation S-K, please state the approximate amount of proceeds intended to be used for each purpose identified here. If you have no current specific plan for a significant portion of the proceeds, please state this. If you wish to reserve the right to change the use of proceeds, you may do so provided that the reservation is due to specific contingencies that you discuss and that you indicate the alternatives to such use. Please see Instruction 7 to Item 504 of Regulation S-K.

Management's Discussion and Analysis . . . , page 44

Significant Partner Agreements, page 47

8. We note your statement that under the terms of your current agreement with Chevron, Chevron is providing research funding through June 30, 2012. Please disclose whether there are any limits on the amount of research funding Chevron will provide.

Cash flow from Operating Activities, page 64

9. You quantify the changes year over year for your operating accounts, which is information that is readily available from the face of the balance sheet. Please amend your filing to discuss the underlying reasons for material changes in your operating accounts. For example, accounts payable and accrued expenses materially increased from December 31, 2009 to the same period in 2010, however, you do not provide an explanation for the increase. Refer to Section 501.13 of the Financial Reporting Codification for guidance.

Business, page 68

General

10. To the extent material, please disclose the information required by Regulation S-K Item 101(a) and Item 101(c)(iii), (vii), (xi), and (xii). With regard to Item 101(c)(vii), we note your statement on page F-12 that the company had two customers accounting for 98% of its receivable balance as of December 31, 2010.

Our Company, page 68

11. On page 70 and elsewhere throughout the registration statement, you disclose that you have signed a non-binding letter of intent with “one of the largest sugarcane processing companies in Brazil to form a joint venture” Please amend your registration statement to disclose the name of this company, or tell us why you do not believe such disclosure is necessary.
12. You state on page 70 that you believe you “have produced more non-ethanol, microbial-based fuels and oils than any other company in the advanced biofuels industry.” Please provide us with the basis for this assertion.

Our Competitive Strengths, page 72

13. In addition to your competitive strengths, please include a discussion, to the extent material, of your competitive weaknesses, if any. Refer to Item 101(c)(x) of Regulation S-K.

Manufacturing Capacity Scale Up, page 75

14. Please discuss the material terms upon which Roquette has committed to providing corn-based dextrose feedstock to the company’s joint venture with Roquette.

Our Products, Customers and Partners, page 76
Chemicals, page 78

15. In the table on page 79, you disclose some of the “near-term” product applications for your oils. Please define “near-term” and disclose whether your oils are currently available for these uses. If they are not, please disclose the development stage of the oils as it pertains to these products.

Intellectual Property, page 87

16. Please disclose the duration of your patents, trademarks, and licenses. Refer to item 101(c)(iv) of Regulation S-K.

Facilities, page 90

17. Please disclose whether your facilities are suitable and adequate for your needs. Refer to Instruction 1 to Item 102 of Regulation S-K.

Management, page 96

Strategic Advisors, page 99

18. You state that your “strategic advisors are active in support of the company.” Please discuss the roles of your strategic advisors as they relate to your company.

Board of Directors, page 100

19. We note your disclosure that your board of directors currently consists of six members who will serve until the next meeting of stockholders and until their successors are duly elected and qualified. We further note your statement that the authorized number of directors may only be changed by resolution of the board of directors. Based on your class disclosure on page 100, it appears as if you anticipate having nine directors upon completion of the offering. Please disclose whether the board intends to increase the authorized number of directors, and if so, how it intends to fill the new vacancies. Finally, please disclose how you will determine which directors will serve in which class.

Non-Employee Director Compensation, page 103

20. Please confirm to us whether members of the compensation committee will receive compensation for their services on the committee.

2010 Director Compensation Table, page 104

21. Please provide a discussion of director compensation that clarifies the material terms of director compensation for the fiscal year ended December 31, 2010. In this regard, it is unclear why only one of your non-employee directors is identified as having received director compensation in 2010.

Compensation Discussion and Analysis, page 106

22. Throughout this section, we note your references to individual and corporate performance; key strategic business, financial, and operational goals; corporate objectives; and targets. Please amend your registration statement to disclose the actual goals or targets for achievement by each of the named executive officers and the company, and the extent to which those goals or targets were met. To the extent that goals and targets were quantified, your disclosure should provide precise quantitative information. If you believe that disclosure of these goals is not required because disclosure would result in competitive harm such that the information could be excluded under Instruction 4 to Item 402(b) of Regulation S-K, please provide a detailed explanation supporting your conclusion. Additionally, to the extent that you have a sufficient basis to keep the information confidential, expand your disclosure to discuss how difficult or how likely it would be for the named executive officers or the company to achieve the undisclosed performance targets.

Executive Compensation Procedures, page 107

23. We note your statement that your “compensation committee has historically reviewed and recommended, and the board of directors has approved, the compensation of [y]our Chief Executive Officer, President and Chief Financial Officer.” Please disclose who determined the compensation to be paid to your other named executive officers in 2010.

Elements of Compensation and Pay Mix, page 108

24. We note your statement that you do not have a policy to allocate specific percentages of compensation to any particular element. Please disclose how you determined the amount of each element to pay.

Short-Term Incentives, page 108

Cash Bonuses, page 108

25. You state that the compensation committee has not determined whether it would attempt to recover bonuses from your executive officers upon a restatement of the figures that led to your bonus determinations. Please reconcile this disclosure with Section 304 of the Sarbanes-Oxley Act of 2002.

Employment Agreements, page 118

26. Please discuss the material terms of your employment agreements with each of your named executive officers including Mr. Painter and Mr. Licari. To the extent that any of the terms you discuss have been superseded by other provisions, please clearly distinguish the superseded terms from any terms that remain valid under the employment agreements.

Principal and Selling Stockholders, page 131

27. Please provide all of the information required by Item 507 of Regulation S-K for the selling stockholders, including any material relationship the selling stockholders had with the company within the past three years.

Description of Capital Stock, page 134

Voting Rights, page 134

28. We note your statement that your stockholders will not have cumulative voting rights unless you are subject to Section 2115(b) of California General Corporation Law at the time of an election. Please discuss the circumstances under which you would be subject to Section 2115(b).

Market and Industry Data, page 149

29. Please provide us with copies of the reports citing the market data you provide throughout your prospectus, marked with page references tracking your disclosures in the filing.

Consolidated Statements of Operations, page F-4

30. Please amend your filing to state separately the cost of sales for each revenue stream. Refer to paragraph 2 of Rule 5-03 of Regulation S-X for guidance. If you have negative margins, please amend your results of operations to quantify and identify the contributing factors.

Item 15. Recent Sales of Unregistered Securities, page II-2

31. Please reconcile your disclosure in this section with your disclosure on pages F-20 and F-21.

Item 16. Exhibits and Financial Statement Schedules, page II-4

32. We note that you have requested confidential treatment for certain portions of several exhibits to your registration statement. Please be advised that we will take your filing

effective only after resolving any comments with respect to your confidential treatment application. Upon review of your confidential treatment application, we will send our comments on the confidential treatment application under separate cover.

33. Please tell us what consideration you gave to filing the letters of intent and other agreements as exhibits to the registration statement. In this regard, we note your references to letters of intent with The Dow Chemical Company, a sugarcane processing company in Brazil, Hawaiian Commercial & Sugar Company, and Qantas Airways Limited. We further note your references to the joint venture with Therabotronics, the development agreement with Ecopetrol, your contract with the US Navy, and your agreement with QVC.

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.

Mr. Jonathan S. Wolfson
Solazyme, Inc.
April 7, 2011
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You may contact Tracey McKoy at (202) 551-3772 or Alfred Pavot at (202) 551-3738 if you have questions regarding comments on the financial statements and related matters. Please contact Jessica Dickerson at (202) 551-3749 or me at (202) 551-3765 with any other questions.

Sincerely,

Pamela Long
Assistant Director

cc: Alan F. Denenberg
Davis Polk & Wardwell LLP
via facsimile at (650) 752-3604