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

DIVISION OF
CORPORATION FINANCE

February 29, 2012

Via E-Mail
Frank Oakes
President and Chief Executive Officer
Stellar Biotechnologies, Inc.
332 E. Scott Street
Port Hueneme, California 93041

Re: Stellar Biotechnologies, Inc.
Registration Statement on Form 20-F
Filed February 3, 2012
File No. 000-54598

Dear Mr. Oakes:

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 within ten business days 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.

Registration Statement on Form 20-F

General

1. Please note that your registration statement will become effective automatically by operation of law 60 days from the date you filed it. Upon effectiveness, you will become subject to the reporting requirements of the Exchange Act, even if we have not completed the review process of your filing. To the extent this is a voluntary filing, if you do not wish to incur these obligations until all of the following issues are resolved, you should withdraw your registration statement prior to the sixtieth day and resubmit a new registration statement when you have revised your document.

2. Please note that where we provide examples to illustrate what we mean by our comments, they are examples and not complete lists. If our comments are applicable to portions of the filing that we have not cited as examples, please make the appropriate changes in compliance with our comments.

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

Business of Stellar Biotechnologies, Inc., page 4

4. Please define the term Keyhole Limpet and KLH subunit the first time you use the terms.

5. Please expand the discussion to clarify whether you develop and manufacture the vaccines or whether you raise and harvest the limpets from which a component of the vaccine is derived.

Statement of Capitalization and Indebtedness, page 7

6. Please revise to include a statement of capitalization and indebtedness in dollar amounts or tell us how your statement complies with Item 3B of Form 20-F.

Risk Factors – General

7. Please include a risk factor addressing competition in the production and marketing of KLH and the development of therapeutic vaccines, respectively, if material. If applicable, the discussion should also address whether your KLH is unique relative to the KLH produced by other companies.

8. Please include a risk factor that addresses the risks posed by the diminishing supply of M. crenulata in the wild due to the lack of regulation limiting the fishery of limpets and the risk that the company's aquaculture facility may not be sufficient to meet demand.

"The Company faces uncertainties related to regulatory approval." page 9

9. Please discuss the specific regulatory approvals that the company must obtain to market and sell its current products and the status of such approvals.

10. Please clarify the extent to which you have conducted the preclinical testing and clinical trials for products developed by others which products utilize your KLH.

"Even if the Company obtains marketing approval…," page 9
"The Company has limited marketing, sales and distribution experience," page 9

11. Please expand the discussion in these risk factors to clarify whether you are referring to your KLH product or the vaccines developed by others which use your KLH as a component.

"The Company is subject to the risk of product liability claims…," page 10

12. Please expand the disclosure to state whether or not you currently maintain liability insurance, the amount of such coverage, and, if material, the cost of such coverage. Similar risk factor disclosure should also be provided with respect to environmental and/or hazardous waste liability, if material.

"The Company has a history of net losses and limited cash flow…,' page 10

13. Please expand the discussion to include the amount of net losses for each of the last two years and your cumulative losses.

"The Company will require additional financing…," page 10

14. Please disclose whether your existing resources will be sufficient to fund your operations for the next twelve months. If not, please disclose how long your existing resources will fund your operations. In addition, please expand the discussion to quantify the amount of additional financing required for your budgeted expenditures, the nature of the expenditures, and when you will need the additional financing.

"The Company has a dependence upon key management employees…," page 11

15. Please expand the discussion to indicate the extent to which you have employment contracts with your key employees. In addition, if applicable, please discuss the extent to which you have previously experienced difficulty in attracting and retaining qualified personnel.

Corporate Background, page 13

16. Please expand the discussion to define the terms "Capital Pool Corporation" and "qualifying transaction."

17. Please describe the nature and extent of the company's activities prior to the reverse merger with Stellar CA.

History and Development of the Business, page 13

18. Please discuss the conditions under which the 10 million performance shares were issuable and the extent to which any such shares have been issued.

19. We note the reference to the filing of patents in September 2010. Since Stellar CA was formed in 1999, please expand the discussion to clarify the extent to which Stellar CA or its predecessors filed patents prior to September 2010 and when such patents were filed.

20. We note the reference to the new facility with a spawning capacity of two million larvae, designed production of 50,000 juvenile limpets per year, and future production capacity of 20,000 grams of KLH annually. Please expand the discussion to explain the apparent discrepancy between spawning capacity and the amount of designed production, i.e. do all but 50,000 of the larvae die before reaching juvenile stage or do you sell or intend to sell the larvae you do not use for your own production requirements.

Capital Expenditures, page 15

21. Please expand the discussion to indicate your current KLH production capacity, the number of grams of KLH your actually produce currently, and the number of grams of KLH you sold in the last fiscal year. In addition, please expand the discussion of KLH where appropriate in the document to indicate the storage properties and "shelf life", if any, for KLH.

Business Overview, page 16

22. We note the statement that pharmaceutical formulations of KLH typically sell for $5000 to $200,000 per gram. Please discuss the variables for this range of pricing.

23. We note for the year ended August 31, 2011 you had revenues of approximately $79,000 from contract revenue and commercial sales. Assuming all of this revenue was derived from the sale of KLH, at the minimum price of $5000 per gram, it appears you sold approximately 16 grams of KLH. If so, please explain the reason(s) for increasing your production capacity to 20,000 grams. We may have additional comments.

Aquaculture, page 17

24. Please expand the discussion to indicate the approximate number of mature Giant Keyhole Lympets you currently have at your facility. In addition, please describe the approximate duration a mature Giant Keyhole Lympet can be expected to produce hemolymph for your purposes.

Company Products and Development, page 19

25. Please explain what you mean by the phrase "supported by an FDA drug master file" and the significance of such information.

26. Please expand the discussion to describe whether the immuno-toxicity diagnostic test you are developing requires regulatory approval and, if so, the nature of the requirements and your status in the approval process.

Patents, page 21

27. Please include here a discussion of your September 9, 2010 patent filings for your inventions related to your native immunogenic KLH technology platform and immune status monitoring product portfolio and clarify the status of these filings.

28. Please expand the discussion to explain what you mean by the term "provisional patents."

29. Please clarify whether the patent pertaining to non-lethal extraction methods is the patent that was assigned to you from Mr. Oakes.

30. Please expand your disclosure to indicate the jurisdiction(s) for the granted and provisional patents.

31. Please provide the expiration date of the granted patent and with respect to the provisional patents, please expand the disclosure to describe what the patents or patent applications cover.

New drug development, page 21

32. Please expand your disclosure to clarify whether the discussion pertains to the company's activities related to new drugs and vaccines or to the activities of the companies to which Stellar sells its KLH.

Results of Operations
Year Ended August 31, 2011 vs. Year Ended August 31, 2010, page 23

33. Please expand the discussion to explain what you mean by the phrase "contract revenue of $60,000 from one customer for maintaining dedicated inventory."

34. Please clarify whether the commercial sales of $18,988 represents your entire sales of KLH for the year. If so, the sections entitled "Business of Stellar Biotechnologies, Inc." on page 4 and "History and Development of the Business" on page 13 should be expanded to quantify the limited amount of revenues you currently derive from your sales of KLH.

35. Please explain the reason why commercial sales declined from $299,700 in 2010 to $18,988 for the year ended 2011.

Liquidity and Capital Resources, page 26

36. We note your statement that "management believes the current working capital, as well as anticipated revenue, is sufficient to meet the Company's contractual obligations and

anticipated research and development expenditures in Fiscal 2011." Please update this disclosure for the current fiscal year.

Audit Committee, page 44

37. We note the statement that the audit committee charter has been filed as an exhibit, however the charter is not included in the list of exhibits and it does not appear that the charter has been filed. Please advise or revise.

Item 8. Financial Information, page 48

38. Please include the more current interim financial information published on February 28, 2012 in the filing. Please refer to Item 8A5 of Form 20-F and the related instructions.

Current Legal Proceedings, page 49

39. Please expand the disclosure to indicate when the company filed its request to waive any penalties and when the revised discharge permit was issued.

Shareholder Rights Plan, page 60

40. Please update the discussion to include the results of the special meeting held on January 17, 2012.

Exhibits, page 75

41. Please file the following documents or provide us with your basis for not filing as exhibits the following documents pursuant to the Instructions for exhibits to Form 20-F:
    - The Bayer Innovation GmbH collaborative and license agreement(s) (page 14);
    - Therapeutic Discovery Project Program grants (page 14);
    - SAFC marketing and sales agreement (page 14);
    - National Science Foundation grant (page 14); and
    - The October 2011 agreement with Life Diagnostics, Inc. (page 14).

Combined Statements of Cash Flows, page 81

42. Please revise your statement of cash flow to show the effect of exchange rate changes on cash balances held in a foreign currency as a separate part of the reconciliation of the change in cash and cash equivalents.
43. Please tell us why the net assets assumed on recapitalization represent cash provided by financing activities when the cash acquired from the recapitalization of approximately $84 thousand is netted against other assets and liabilities acquired in the transaction.

Please revise your statement of cash flow disclosure to clarify that $84,012 in cash was acquired in the transaction.

Notes to Consolidated Financial Statements

Note 3. Merger Transaction, page 87

44. Your disclosure of the transaction appears to be inconsistent. You disclose that the acquisition has been treated for accounting purposes as a recapitalization and then disclose in (b) that the transaction has been accounted as a purchase of the assets and liabilities of the Company, which have been recorded at their fair values. Please revise your disclosure to state, if true, that CAG Capital, Inc. was non-operating and had only monetary assets and liabilities at the date of the merger transaction, and there was no revaluation to fair value or tell us the basis for your current disclosure.
45. You disclose in other sections of the filing that 16,207,401 shares were issued in the merger agreement. This appears to be inconsistent with your disclosure that CAG issued 10,000,000 shares to Stellar CA shareholders completing the reverse takeover of the Company. Please revise your disclosure to eliminate all inconsistencies.

Note 7. Licensing Rights, page 91

46. Please revise your disclosure to describe the significant terms of your Bayer Innovation GmbH agreement including potential future milestones. Also in the appropriate section of the notes describe the significant terms of other agreements, such as the agreements disclosed in Item 4.

Note 10. Share Capital, page 92

47. Please revise your tabular disclosure information for periods prior to the reverse merger, so that the equity of the legal parent is the historical equity of Stellar CA prior to the transaction, retroactively restated to reflect the number shares Stellar CA received in the transaction. In addition, reflect the reverse merger as a line item during fiscal 2010 by showing the number of shares of the legal parent outstanding prior the transaction. Revise your disclosure in Note 16 as appropriate.

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 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.

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

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 Dana Hartz, Staff Accountant, at (202) 551-3648 or Don Abbott, Senior Accountant, at (202) 551-3608, if you have questions regarding comments on the financial statements and related matters. Please contact John Krug, Senior Counsel, at (202) 551-3862, Dan Greenspan, Branch Chief, at (202) 551-3623, or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Daniel Greenspan for

Jeffrey Riedler
Assistant Director

cc: Mr. Steve Taylor
A.B. Korelin & Associates, Inc.
17404 163rd Place SE
Renton, Washington 98058