Mail Stop 6010

March 16, 2006

Dr. Michael Fonstein
Chief Executive Officer and President
Cleveland Biolabs, Inc.
11000 Cedar Avenue, Suite 290
Cleveland, Ohio 44106

Re: Cleveland Biolabs, Inc.
Registration Statement on Form SB-2
Filed February 17, 2006
File No. 333-131918

Dear Dr. Fonstein:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

General

1. Please confirm that any preliminary prospectus you circulate will include all non-Rule 430A information. This includes the price range and related information based on a *bona fide* estimate of the public offering within that range. Also, in the next amendment, please fill in the blanks throughout the filing, and note that we may have additional comments after you do so.

2. Please provide us with copies of any graphics or artwork that you intend to use in your prospectus. We may have further comment after reviewing those materials.

Prospectus Summary, page 1

3. We note that here and throughout the prospectus you use various terms that all appear to refer to your product candidates, including the following: "drug candidates," "lead therapeutic compounds," "product candidates" and "prospective drugs." If these terms all refer to your product candidates, please make consistent references throughout the prospectus. If these terms do not all refer to your product candidates, revise your disclosure to clarify any distinctions.

Our Products and Technology, page 1

4. Please tell us why you believe it is appropriate to make references to your "products" when it does not appear that you have any saleable products at this time.

5. We note your reference on page 1 to initial test results for your CBLC100 series. In an appropriate section of the prospectus, please disclose when those tests took place, who conducted the tests and all other material details regarding those tests.

Our Markets, page 2

6. Revise this paragraph to clarify, if true, that the full FDA approval process applies to potential medical applications of Protectan CBLB502.

7. Please provide the reports cited throughout the registration statement, clearly marking the relevant sections. For example, you cite the American Cancer Society in the fourth paragraph of this section and on page 38. Please also disclose the source of your quoted statistics, such as the statistics in the final paragraph on page 2 and the first paragraph on page 3 and on pages 38 and 39. In addition, please tell us whether the sources of the citied reports have consented to your use of their data and whether any reports were prepared specifically for your use.

8. Please balance the disclosure in your summary section by including a summary of the greatest risks and uncertainties that face your business.

The Offering, page 4

9. Please expand your disclosure to quantify your assumptions in the first paragraph on page 4 regarding the number of shares of common stock that will be issued in connection with the automatic conversion of (i) outstanding preferred stock and (ii) convertible notes referenced.

Risk Factors, page 6

10. Please revise the captions for your risks factors to briefly indicate the nature of the specific risk or harm you describe. Avoid risk factor headings that are too vague and generic to adequately describe the risk that follows or merely allude to the risk. Readers should be able to read the risk factor headings and come away with a strong understanding of what the risk is and the result of the risk as it specifically applies to you. Refrain from merely stating facts or describing events that may occur in the future in your headings. Examples include "Our R&D expenses are subject to uncertainty;" "We are dependent upon our license agreement with the Cleveland Clinic, as well as proprietary technology of others;" "U.S. government agencies have special contracting requirements, which create additional risks;" and "The price of our common stock may be volatile."

11. Please add a risk factor regarding uncertainty with respect to the market for treating radiation injury due to exposure to nuclear or radiological events.

12. Please add a risk factor regarding uncertainty with respect to the size and frequency of government contracts issued under Project BioShield for radioprotectant drugs.

If we lose funding from R&D grants, page 8

13. Specify the percentage of your 2005 revenues that are attributable to grants.

Certain of our products may be subject to the orphan drug provisions . . ., page 10

14. Specifically identify the product candidates referred to in this risk factor.

We can provide no assurance that our products will obtain . . ., page 10

15. Given the importance of regulatory approval to your business, consider making this one of the first risk factors you discuss.

We are dependent upon our license agreement . . ., page 12

16. Disclose any material licenses that you expect will expire during "critical periods" for your business.

We will rely on third-party manufacturers . . ., page 12

17. Reconcile your statements regarding your current sales of existing products in the first paragraph of this risk factor with your statements on page 7 and elsewhere in the prospectus that your products are all in the development stage.

Sales of additional equity securities may adversely affect . . ., page 20

18. Disclose the number of shares of your capital stock that you may be required to register for resale under the rights agreement.

Additional authorized shares of common stock available for issuance…, page 20

19. Supplement the disclosure in this risk factor with a discussion of the warrants that you intend to sell to Sunrise Securities Corp. upon consummation of the offering.

Special Note Regarding Forward-Looking Statements, page 22

20. Please revise the final sentence of the third paragraph on page 22 to remove any implication that you are incorporating by reference into your Form SB-2 disclosure contained in other filings.

Use of Proceeds, page 23

21. Please disclose the approximate amount of the proceeds from this offering you intend to use for each stated purpose.

22. Please expand your disclosure to clarify (i) how proceeds will be used to "commercialize" Protectan CBLB502 and (ii) which "other product leads" you plan to develop with the proceeds from this offering.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 27

Overview, page 27

23. Please specify the "other funding sources" referenced in the third paragraph.

Year Ended December 31, 2005 Compared to Year Ended December 31, 2004, page 28

Results of Operations, page 28

24. Please revise to quantify and discuss each of the factors that contributed to the significant increases in revenues and expenses each period. The discussion that the increase results from an increase in government grants is not sufficient and should include a discussion of the specific factors or grants that contributed to the increase. More details should also be included of the significant increase in R&D expenses in 2005.

Revenue, page 28

25. Please quantify the material changes in your grant levels. Also discuss any other sources of revenue.

Operating Expenses, page 29

26. We note your reference in the second paragraph to a stock split. In an appropriate section of the prospectus, please disclose the date of and reasons for the stock split.

Liquidity and Capital Resources, page 29

27. Revise to disclose details of your specific plan of operations, including plans to fully develop your products and services, liquidity needs and expected sources of liquidity. Please discuss the expected sources of funds to satisfy milestone, license and other required payments.

28. With a view toward disclosure, tell us your basis for your estimated milestone payments referenced in the final paragraph of this section in light of your disclosure on page 51 that these payments may range from $50,000 to $4 million.

Business, page 31

Protectan CBLB502, page 33

29. Please disclose the aspects of the Project BioShield Act that are material to your business. In so doing, please address to what extent the absence of otherwise required Phase II and Phase III testing affects the potential for product liability or shareholder suits against you.

30. We note your references to "total gamma radiation" and "ionizing radiation" as well as your statement regarding Protectan CBLB502's ability to protect "not only the hematopoietic system, but also the gastrointestinal tract." In an appropriate section of the prospectus, briefly describe in a manner understandable by investors not familiar with your industry how lethal levels of radiation (such as radiation from a nuclear device or accident) affect the human body.

31. We note your reference to the "outstanding stability" of Protectan CBLB502. Please disclose how this product candidate will be administered and stored.

32. Provide the basis for your estimate that Protectan CBLB502 may be approved for defense application within 18-36 months. Please disclose the current status of the FDA approval process and all material details of test results to date.

33. We note your reference to the expedited approval process available for drugs with defense applications. Please disclose material details of this approval process and the hurdles you face to receive this approval for this drug candidate. Also disclose whether you have applied for such approval and if so, the status of your application.

34. Please disclose whether the fact that Protectan CBLB502 has potential defense applications results in any limitations on your ability to sell this drug candidate. For example, would you be prohibited from selling in any foreign markets?

35. Please revise your disclosure to quantify the "significant delay in radiation-associated mortality" referenced in the fourth paragraph on page 33.

36. Clarify the relevance of the statement that "Protectan CBLB502 is effective despite multiple administrations." Do other competing drugs lose efficacy with multiple administrations?

Curaxin CBLC102, page 34

37. Clarify the significance of the FDA allowing you to use "staged-cohort escalating dose design" in your clinical trials of Curaxin CBLC102 in patients. Also disclose in an appropriate section of the prospectus the hurdles you face in preparing an IND application and gaining IND approval for this drug candidate.

Product Development Schedule and Capital Requirements, page 34

38. Please provide us with support for your statement that "the development of a single compound often costs a half billion dollars and can take up to 15 years to complete."

39. Regarding the government grants referenced on page 35, please disclose the source and amount of each grant, as well as any material terms or limitations, such as the prescribed uses for grant funds. Reconcile the disclosure of the aggregate dollar value of the grant commitments with your disclosure in the penultimate paragraph that you "cannot be certain that [you] will be successful in attracting capital from any of the foregoing sources to fund [your] development of products."

Research and Development, page 35

40. Please clarify what the SBIR grant program is and why you state that the program is designed to support companies "such as [y]ours."

Strategic Partnerships, page 36

41. Revise your disclosure here to clarify the consideration received by ChemBridge in connection with both access to its compound library and its role in "hit-to-lead optimization."

42. Disclose the material terms of the August 2004 cooperative research and development agreement with the Armed Forces Radiobiology Research Institute and file that agreement as an exhibit to your registration statement.

Need and Opportunity, page 37

Non-Medical Applications of Protectans, page 37

43. Balance your disclosure in the fourth paragraph on page 38 with disclosure regarding known government contracts issued to date for radioprotectants. We note, for example, limited contracts for radioprotectants granted to date pursuant to the Project BioShield Act.

Management, page 44

Executive Officers and Directors, page 44

44. Please revise the biographical information on page 44 to clarify Dr. Fonstein's employment from 2002 to 2003.

Executive Compensation, page 46

45. Please tell us why you have not included disclosure regarding stock options granted in the last year required by Item 402of Regulation S-B. We refer you to the notes to your financial statements found on pages F-8 and F-13.

46. Disclose in an appropriate footnote the repurchase price for shares subject to repurchase by you owned by each of your named executive officers.

Principal Stockholders, page 48

47. Identify the natural persons who beneficially own the shares held by The Cleveland Clinic Foundation and ChemBridge Corporation.

Certain Relationships and Related Party Transactions, page 51

The Cleveland Clinic Foundation, page 51

48. Please disclose all material terms of this license agreement, including, for example, the number of shares of common stock issued as consideration, the terms of the milestone payments, term and termination provisions and the terms upon which you may license additional technologies discovered by Dr. Gudkov in this field.

49. Describe the material terms of your high through-put screening engagement with The Cleveland Clinic, and file any related written agreements.

50. Clarify how the Cleveland Clinic can be "entitled" to have one representative elected to your board of directors. If other shareholders have agreed to vote in favor of a Cleveland Clinic nominee, so state.

University of New South Wales, page 52

51. Please file this agreement as and exhibit to your registration statement.

ChemBridge Corporation, page 52

52. Please disclose all material terms of the library access agreement with ChemBridge, including, for example, the date of the agreement, term and termination provisions, rights to derivative products and intellectual property, etc. Also clarify the significance of this agreement to your business by disclosing how you will use the chemical library.

53. Describe the material terms of two optimization projects with ChemBridge, and file any related written agreements.

Founders, page 53

54. Disclose the material terms of employment or consulting agreements as required by Item 404 of Regulation S-B.

55. We note your statement that you issued shares to your founders "in consideration of their knowledge and expertise." Please clarify the consideration paid for the shares. For example, did the founders contribute intellectual property or a business plan? Were these shares issued for prior services rendered?

Description of the Series A Participating Convertible Preferred Stock, page 54

Rights Agreement, page 54

56. You indicate in the first sentence of this section that your existing stockholders have entered into a Rights Agreement, however, your exhibit index suggests that you have entered into three separate rights agreements (exhibits 10.5, 10.6 and 10.15). Please specify the specific rights agreement or agreements described in this paragraph.

57. For each of the Rights Agreement and the Registration Rights Agreement, please quantify the number of shares you may be obligated to issue for every 30 day period under the applicable penalty provisions.

Shares of the Company Eligible For Future Sale, page 58

Lock Up of Certain Shares, page 58

58. Quantify the number of shares subject to each of the 24 month and 180 day lock up agreements.

Financial Statements

General

59. Please update the audited financial statements when required by Item 310(g) to Regulation S-B.

60. Please include an updated accountants' consent with all amendments to the filing.

Balance Sheet, page F-2

61. Please tell us the nature of the interest amounts included on the balance sheet under accounts receivable.

Statements of Cash Flows, page F-4

62. Please revise the noncash financing activities on page F-4 to clearly indicate the years for each of these activities.

Note 2. Summary of Significant Accounting Policies, page F-7

- I – Revenue recognition, page F-8

63. We note that most of your revenues come from R&D grants which are used to fund your personnel and other R&D costs and expenses. You state that revenue is recognized at the time of submitting the invoice for cost reimbursement grants and upon collection of funds for the fixed-cost grants. Similarly the government contract revenue is recognized upon delivery of an invoice for allowable R&D expenses. Please tell us your accounting basis for reflecting these transactions as revenues and not contra-expenses. Clarify why you believe that each of these represent revenue generating activities and not cost reimbursement activities. The basis for the recognition of revenue for each of these contracts or grants should be clearly disclosed. Please cite the accounting literature that is relied on.

64. Please include your accounting policy for deferred revenue.

65. In addition, your critical accounting policies on page 27 should include disclosure of critical estimates and assumptions related to your recognition of each of the significant types of revenue.

- L – Stock based compensation, page F-8

66. Please tell us why you do not include the detailed disclosures on your stock option grants per paragraph 64 of SFAS 123R. Please see paragraphs A240 and A241 of SFAS 123R for an illustration of how the disclosure requirements might be satisfied. In addition, tell us how you determined the market price of your stock of $2 per share.

- R – Effect of new accounting standards, page F-10

67. You state that the disclosure information required by EITF 03-1 is included in Note 7 but no such disclosure currently exists in your filing. Please revise to make the necessary corrections.

Note 3. Significant Alliances, page F-10 and F-11

68. Please disclose how you determined the fair value of the shares issued in 2004 for the strategic alliance with the Cleveland Clinic Foundation.

Note 4. Stock transaction, page F-12

69. Please disclose how you determined the values assigned to the 2004 stock transactions.

70. We note the requirements under the Rights Agreement that you are obligated to become a public company. Please tell us whether you have any other obligations under the Rights Agreement after you become a public company such as the requirement to maintain effectiveness or continue to be listed on an exchange. In addition, disclose the accounting treatment for the penalty shares.

Part II

Recent Sales of Unregistered Securities, page II-2

71. Please revise your disclosures generally to include all of the information required by Item 701 of Regulation S-B for each of the sales referenced here, as well as the additional transactions referenced on pages F-12 and F-13, if applicable. Include in your revised disclosure, among other things, the following:

- Please identify by name or by class the persons to whom the securities were sold. Please also revise as necessary to disclose the number of purchasers who participated in each offering.
- Where an offering was conducted in reliance on Regulation D, please disclose the specific Regulation D exemption relied upon and the facts that supported the availability of that exemption.
- Where an offering was conducted in reliance on Rule 701, please disclose the facts that supported the availability of that exemption.
- Please provide the disclosures required by Item 701(b) of Regulation S-B with respect to any underwriters, placement agents, finders or other persons who participated in any offering.

Please also file as exhibits to your registration statement all agreements and related transaction documents pursuant to which securities described in this section were sold, to the extent required by Item 601(b)(10) of Regulation S-B.

Exhibits

72. Please file all other required exhibits to allow sufficient time for staff review.

* * *

As appropriate, please amend your registration statement in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

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 all information required under the Securities Act of 1933 and that they have provided all information 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.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, 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.

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 connection with our review of your filing or in response to our comments on your filing.

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. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two business days in advance of the requested effective date.

You may contact Praveen Kartholy at (202) 551-3778 or Brian Cascio, Accounting Branch Chief, at (202) 551-3676 if you have questions regarding comments on the financial statements and related matters. Please contact Donald C. Hunt at (202) 551-3647 or me at (202) 551-3444 with any other questions.

Sincerely,

Perry Hindin
Special Counsel

cc (via fax): Ram Padmanabhan, Esq. – Katten Muchin Rosenman LLP