



DIVISION OF
CORPORATION FINANCE
Mail Stop 6010

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

May 3, 2007

John S. Kovach
Chairman and Chief Executive Officer
Lixte Biotechnology Holdings, Inc.
248 Route 25A, No. 2
East Setauket, NY 11733

**Re: Lixte Biotechnology Holdings, Inc.
Amendment No. 4 to Form SB-2
Filed April 19, 2007
File No. 333-137208**

Dear Mr. Kovach:

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.

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.

Summary, page 1

1. If your "exclusive license" from the NIH is subject to terms that are unknown or to be negotiated in the future, please balance your discussion regarding the license here and throughout your document accordingly.

Management's Discussion and Analysis of Financial Condition..., page 24

2. We note your revised disclosure in response to comment two in our letter to you dated April 3, 2007. That comment also sought clarification on how the penalties affect the proceeds from this transaction, and your liquidity. Therefore, we reissue the comment.
3. Please file as an exhibit the agreement mentioned in Exhibit 2.4.

Intellectual Property, page 34

4. We note your response to prior comment five. Please revise to clarify whether your provisional patent application falls under your CRADA agreement. Explain the scope of your rights to the intellectual property if it is not defined by the agreement. Also, with a view toward disclosure, please tell us the status of the December 2006 agreement mentioned in response 19 of your December 1, 2006 letter to us.

Financial Statements

Note 8. Restatement, page F-16

5. We note that you restated your December 31, 2006 financial statements to recognize a charge of \$74,000 for estimated liquidated damages under the registration rights agreement associated with the shares of common stock sold in 2006 but not yet registered with the SEC. Please tell us why Amendment 3 to your Form SB-2 did not discuss your early adoption of EITF 00-19-2. Also, please tell us why you did not file an Item 4.02 Form 8-K disclosing when you concluded that your prior financial statements and all financial press releases and similar communications issued by the Company with respect to such statement of operation and balance sheet for the year ended December 31, 2006 should no longer be relied upon. Please file any Item 4.02 Form 8-K necessary based on our concerns.
6. In addition, please have your auditor tell us what consideration they have given to revising the audit report date in light of the restatement of the financial statements to properly account for the estimated liquidated damages resulting from early adoption of EITF 00-19-2. Refer to AICPA Auditing Standards Section 561.06.a for further guidance.

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.

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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 David Burton at (202) 551-3626 or Jay Webb at (202) 551-3603 if you have questions regarding comments on the financial statements and related matters. Please contact Eduardo Aleman at (202) 551-3646 or me at (202) 551-3617 with any other questions.

Sincerely,



Russell Mancuso
Branch Chief

cc(via facsimile): David Ficksman, *Troy & Gould, P.C.*