

Via Facsimile and U.S. Mail  
Mail Stop 6010

December 22, 2008

Mr. John S. Kovach  
Lixte Biotechnology Holdings, Inc.  
Chief Executive Officer and Chief Financial Officer  
(Principal Executive Officer and Principal Financial Officer)  
248 Route 25A, No. 2  
East Setauket, New York 11733

**Re: Lixte Biotechnology Holdings, Inc.  
Item 4.01 Form 8-K  
Filed December 22, 2008  
File No. 000-51476**

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 more 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.

Item 4.01 Form 8-K

1. It appears AJ Robbins, P.C. disclosed an uncertainty of the Registrant to continue as a going concern in your Form 10-KSB filed March 31, 2008. Please amend your filing to provide a description of nature of their conclusion. Refer to Item 304(a)(1)(ii) of Regulation S-K.

Mr. John S. Kovach  
Lixte Biotechnology Holdings, Inc.  
December 22, 2008  
Page 2

2. The current disclosure in the third paragraph is absent with respect to Item 304(a)(2)(ii). Please amend your filing to include the disclosures required under this guidance.
3. Upon amending your filing, please include, as Exhibit 16, an updated letter from your former accountants, AJ Robbins, P.C., as required by Item 304(a)(3) of Regulation S-K. Please ensure that your former accountants date their letter.

\* \* \* \*

As appropriate, please amend your filing and respond to these comments within five business days or tell us when you will provide us with a response. 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 Exchange Act of 1934 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.

In connection with responding to our comments, please provide, in writing, a 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.

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

Mr. John S. Kovach  
Lixte Biotechnology Holdings, Inc.  
December 22, 2008  
Page 3

If you have any questions, please do not hesitate to call me at (202) 551-3658.

Sincerely,

Tabatha Akins  
Staff Accountant