



DIVISION OF
CORPORATION FINANCE

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

September 13, 2013

Via E-mail

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

**Re: Lixte Biotechnology Holdings, Inc.
Annual Report on Form 10-K for the Fiscal Year ended December 31, 2012
Filed March 15, 2013
File No. 000-51476**

Dear Mr. Kovach:

We have reviewed your filing 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 filing, by providing the requested information, or by advising us when you will provide the requested response. 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 filing and the information you provide in response to these comments, we may have additional comments.

Item 1. Business

Company Overview, page 4

1. Please disclose the material terms of your collaboration agreement with the National Cancer Institute. Your description should include, as may be applicable:
 - Nature of the collaboration;
 - Material payment provisions including initial, annual, milestone or royalty provisions;
 - Other material rights and obligations of both parties; and

- Duration, term and termination provisions.

Please also file the collaboration agreement as an exhibit to your next quarterly report on Form 10-Q and incorporate the exhibit by reference to your next Form 10-K. If you believe that this agreement is not required to be filed pursuant to Item 601(b)(10) of Regulation S-K, please provide us with an analysis supporting this conclusion.

Intellectual Property, page 5

2. Please expand this disclosure to list each of your material patents and indicate the product candidates to which they relate and the indications they are intended to treat, the jurisdictions in which the patent applications were filed, their expiration dates, and the type of patent protection, e.g. composition of matter, use or process.

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 Exchange 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:

- 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.

John S. Kovach
Lixte Biotechnology Holdings, Inc.
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Please contact Scot Foley at (202) 551-3383, John Krug at (202) 551-3862, or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Daniel Greenspan

Jeffrey P. Riedler
Assistant Director

cc: David L. Ficksman, Esq.
TroyGould
1801 Century Park East, Suite 1600
Los Angeles, CA 90067