



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

DIVISION OF
CORPORATION FINANCE

September 22, 2014

Via E-mail

Ms. Karen Corraini
General Counsel and Corporate Secretary
Xenon Pharmaceuticals, Inc.
200 – 3650 Gilmore Way
Burnaby, British Columbia V5G 4W8, Canada

**Re: Xenon Pharmaceuticals, Inc.
Registration Statement on Form S-1
Filed September 10, 2014
File No. 333-198666**

Dear Ms. Corraini:

We have reviewed your registration statement filed on September 10, 2014 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 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.

Strategic Alliances

Agreement with uniQure for Glybera, page 108

1. We note your revised disclosure in response to our prior comment 2 which states that the royalties under the agreement with uniQure are payable until the expiration of the last licensed patent from UBC. Please revise your disclosure regarding the royalty term to provide the expiration date of the last licensed patent from UBC.

Agreements with Genentech for GDC-0276 and Selective Inhibitors of..., page 110

2. We note your disclosure which states that on March 2014, you entered into an additional agreement with Genentech for pain genetics. Please expand your disclosure to describe the material terms of the agreement, including the parties' rights and obligations, duration, termination provisions, and any royalties within a ten percent range (e.g., single

digits, teens, twenties, etc...). Also, please file the agreement as an exhibit pursuant to Item 601(b)(10) of Regulation S-K.

Intellectual Property, page 111

3. Please expand your disclosure regarding the patent applications which you co-own for GDC-0276 to identify with whom you co-own these patent applications and the foreign jurisdictions where the applications are pending.

Principal Shareholders, page 149

4. We note your updated principal shareholders table to June 30, 2014 in response to our prior comment 4. Please revise the principal shareholders table so that it is as of the latest practicable date within two weeks of the filing date of your amended the registration statement.

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 Act of 1933 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.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company 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.

Please refer to Rules 460 and 461 regarding requests for acceleration. 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. Please allow

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adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Tabatha Akins at (202) 551-3658 or Joel Parker at (202) 551-3615 if you have questions regarding comments on the financial statements and related matters. Please contact Johnny Gharib at (202) 551-3170 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler
Assistant Director

Via E-mail
Troy Foster, Esq.
Wilson Sonsini Goodrich & Rosati, P.C.