

September 29, 2014

Via EDGAR and Overnight Delivery

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549-3720

Attention: Jeffrey P. Riedler, Assistant Director
Johnny Gharib, Attorney
Joel Parker, Accounting Branch Chief
Tabatha Akins, Staff Accountant

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

Ladies and Gentlemen:

On behalf of Xenon Pharmaceuticals Inc. (the "**Company**"), we submit this letter in response to comments from the staff (the "**Staff**") of the Securities and Exchange Commission (the "**Commission**") received by letter dated September 22, 2014, relating to the Company's Registration Statement on Form S-1 (File No. 333-198666) filed with the Commission on September 10, 2014 (the "**Registration Statement**").

In this letter, we have recited the comments from the Staff in italicized, bold type and have followed each comment with the Company's response. Except as otherwise specifically indicated, page references herein correspond to the page of the Registration Statement, as applicable.

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.***

The Company respectfully advises the Staff that, as disclosed on page 112 of the Registration Statement, the latest expiration date of the in-licensed patents from UBC is June 2020 (absent any extensions of term) and the latest expiration date of the in-licensed patent applications from UBC is expected to be 2020 (absent any extensions of term). Accordingly, absent any extensions of the relevant patent terms, the license agreement with UBC shall expire in 2020, upon which the uniQure agreement is also expected to terminate.

Furthermore, regarding the expiration of the royalty terms under the agreement with uniQure, the Company respectfully submits that, as discussed in the Company's response to comment 5 to the Staff's letter dated October 4,

2013, licensed patents under the UBC agreement include several patents that are in various stages of prosecution in numerous countries and the terms of which could be extended. Accordingly, providing estimated durations of the royalty terms under the uniQure agreement based on an anticipated year of expiration of the UBC in-licensed patents brings with it a significant likelihood of inaccurately reflecting the actual royalty term as, for example, certain patent applications may not issue and additional patents may be filed that fall within the scope of the UBC agreement. Given the potential changes in the term of the UBC in-licensed patents and other related uncertainties, the Company respectfully submits that disclosure of the year that a royalty term expires would not be helpful to an investor and could potentially be misleading.

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.***

In response to the Staff's comment, the Company proposes to revise the disclosure on page 111 of the Registration Statement as follows in connection with its submission of an amendment to the Registration Statement (deleted language shown in ~~strike through~~ and added language underlined):

"In March 2014, we entered into an additional agreement with Genentech for pain genetics, where we intend to use our Extreme Genetics discovery platform to focus on identifying genetic targets associated with rare phenotypes where individuals have an inability to perceive pain or where individuals have non-precipitated spontaneous severe pain. Pursuant to the terms of this agreement, any intellectual property arising out of the collaboration will be jointly owned by us and Genentech. We have also granted Genentech a time-limited, exclusive right of first negotiation on a target-by-target basis to form joint drug discovery collaborations. Under the terms of this agreement, Genentech paid us an upfront payment of \$1.5 million. ~~In addition, and we~~ are eligible for an additional \$2.0 million in milestone payments. The agreement terminates upon the expiration of Genentech's time-limited, exclusive right of first negotiation which shall be exercisable for two years. Genentech may terminate the agreement with three months advance notice anytime on or after the 12 month anniversary of the effective date of the agreement, and each party may terminate the agreement in the event of a material breach by the other party that remains uncured for 90 days, and Furthermore, at our option, a Genentech affiliate will invest up to \$5.0 million in a private placement concurrent with this public offering at the same price per share as this public offering. The option to invest will expire if the public offering does not occur by December 31, 2014."

The Company respectfully advises the Staff that, notwithstanding the foregoing, the March 2014 agreement is not material to the Company, the existing disclosure regarding the agreement, as revised above, is sufficient for an agreement of this nature and that disclosure of the additional details requested would neither be helpful to an investor nor would disclosure of such details alter the total mix of information available regarding the Company.

The March 2014 agreement was made in the ordinary course of business and the Company's business is not substantially dependent on such agreement as the total amount which can be earned under the agreement is \$3.5 million, \$1.5 million of which has been received by the Company as an upfront payment. The existing description on pages 64 and 111 of the Registration Statement already provides the following details:

- The maximum amount payable to the Company pursuant to upfront and milestone payments;

- A description of the genetic target identification work the Company will perform pursuant to the agreement;
- Joint ownership by the Company and Genentech for any intellectual property arising out of the collaboration; and
- A grant of a time-limited, exclusive right of first negotiation to Genentech on a target-by-target basis.

Furthermore, the Company supplementally advises the Staff that the agreement does not contain any royalty provisions.

Given the foregoing details, the Company respectfully submits that the March 2014 agreement is not material to the Company, but that the disclosure provides additional evidence to investors of the Company's execution on its strategy of forming collaborations for the advancement of its product pipeline. For the foregoing reasons, the Company believes that the new agreement with Genentech is not a material contract within the meaning of 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.**

In response to the Staff's comment, the Company proposes to revise the disclosure on page 112 of the Registration Statement as follows in connection with its filing of an amendment to the Registration Statement (deleted language shown in ~~strike through~~ and added language underlined)

"As of ~~June 30~~ September 30, 2014 we, together with Genentech, co-owned two pending U.S. patent applications, one pending PCT international patent application and three corresponding patent applications in ~~various foreign jurisdictions~~ Argentina, Taiwan and the Cooperation Council for the Arab States of the Gulf relating to GDC-0276 and methods of making and using this and certain related compounds. Any patents issuing from these applications are expected to expire in 2033 (absent any extensions of term)."

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.**

The Company acknowledges the Staff's comment and will update the principal shareholders table with its filing of an amendment to the Registration Statement so that it is as of the latest practicable date within two weeks of the filing date.

* * * * *

Please direct your questions or comments regarding the Company's responses to the undersigned at (650) 493-9300 or sbernard@wsgr.com. Thank you for your assistance.

Sincerely,

WILSON SONSINI GOODRICH & ROSATI
Professional Corporation

/s/ Steven V. Bernard

Steven V. Bernard

Enclosures
cc (w/encl.):

Simon Pimstone
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Xenon Pharmaceuticals Inc.

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