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

FORM 8-A

**FOR REGISTRATION OF CERTAIN CLASSES OF SECURITIES
PURSUANT TO SECTION 12(b) OR (g) OF
THE SECURITIES EXCHANGE ACT OF 1934**

XENON PHARMACEUTICALS INC.

(Exact name of registrant as specified in its charter)

Canada
(State or other jurisdiction of
incorporation or organization)

98-0661854
(I.R.S. Employer
Identification No.)

**200-3650 Gilmore Way
Burnaby, British Columbia V5G 4W8
Canada
(604) 484-3300**
(Address of principal executive offices including zip code)

Securities to be registered pursuant to Section 12(b) of the Act:

**Title of each class
to be so registered**
Common Shares, no par value per share

**Name of each exchange on which
each class is to be registered**
The NASDAQ Stock Market LLC

If this form relates to the registration of a class of securities pursuant to Section 12(b) of the Exchange Act and is effective pursuant to General Instruction A. (c), check the following box.

If this form relates to the registration of a class of securities pursuant to Section 12(g) of the Exchange Act and is effective pursuant to General Instruction A. (d), check the following box.

Securities Act registration statement file number to which this form relates: 333-198666

Securities to be registered pursuant to Section 12(g) of the Act: None

Item 1. Description of Registrant's Securities to be Registered

For a description of the securities of Xenon Pharmaceuticals Inc. (the "**Registrant**") being registered hereunder, reference is made to the information set forth under the heading "Description of Share Capital" contained in the Registrant's registration statement on Form S-1 (File No.: 333-198666), as initially filed with the Securities and Exchange Commission (the "**Commission**") on September 10, 2014, as amended (the "**Registration Statement**"), and in the prospectus included in the Registration Statement to be filed separately by the Registrant with the Commission pursuant to Rule 424(b) under the Securities Act of 1933, as amended, which prospectus shall be deemed to be incorporated by reference herein.

Item 2. Exhibits

Under the "Instructions as to Exhibits" section of Form 8-A, no exhibits are required to be filed because no other securities of the Registrant are to be registered on The NASDAQ Stock Market LLC and the securities to be registered hereby are not being registered pursuant to Section 12(g) of the Securities Exchange Act of 1934, as amended.

SIGNATURE

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereto duly authorized.

Date: October 10, 2014

XENON PHARMACEUTICALS INC.

By: /s/ KAREN CORRAINI

Karen Corraini

General Counsel and Corporate Secretary