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

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported):

October 14, 2009

Lexicon Pharmaceuticals, Inc.

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization) 000-30111 (Commission File Number) 76-0474169 (I.R.S. Employer Identification Number)

8800 Technology Forest Place The Woodlands, Texas 77381 (Address of principal executive offices and Zip Code)

(281) 863-3000 (Registrant's telephone number, including area code)

	Check the appropriate box below if the Form	8-K filing is intend	led to simultaneous	sly satisfy the fi	iling obligations	of the registrant	under any	⁷ of the
followin	g provisions:							

Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 1.01 Entry into a Material Definitive Agreement

On October 14, 2009, Lexicon Pharmaceuticals, Inc. (the "Company") completed the sale of 22,878,187 shares of the Company's common stock, par value \$0.001 per share (the "Common Stock"), including 2,984,111 shares of Common Stock upon exercise of the underwriters' over-allotment option, under the Underwriting Agreement dated October 8, 2009 among the Company and Morgan Stanley & Co. Incorporated and Thomas Weisel Partners LLC. On October 14, 2009, the Company also completed the sale of 13,439,257 shares of Common Stock under the Purchase Agreement dated October 8, 2009 between the Company and Invus, L.P. ("Invus") and entered into a Purchase Agreement Supplement for the purchase by Invus of an additional 2,015,888 shares of Common Stock. The sale of the additional shares to Invus is expected to close on October 15, 2009. The net proceeds to Lexicon from the offering are approximately \$55.2 million, after deducting the underwriting discount and estimated offering expenses and giving effect to the anticipated receipt of proceeds from the sale of additional shares to Invus pursuant to the Purchase Agreement Supplement.

The Purchase Agreement Supplement is filed as Exhibit 10.1 to this report and is incorporated herein by reference.

The Company and Invus are also parties to a Securities Purchase Agreement, dated June 17, 2007 and amended October 7, 2009, and a Stockholders' Agreement and Registration Rights Agreement, each dated June 17, 2007.

Item 9.01	F	Financial Statements and Exhibits
(d)	Exhibits	
Exhibit No.		Description
10.1		Purchase Agreement Supplement with Invus, L.P. dated October 14, 2009

Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Lexicon Pharmaceuticals, Inc.

Date: October 14, 2009 By: /s/ Jeffrey L. Wade

Jeffrey L. Wade

Executive Vice President and

General Counsel

Index to Exhibits

Exhibit No.Description10.1— Purchase Agreement Supplement with Invus, L.P. dated October 14, 2009

PURCHASE AGREEMENT SUPPLEMENT

October 14, 2009

Invus, L.P. c/o The Invus Group, L.L.C. 750 Lexington Avenue (30th Floor) New York, New York 10022

Lexicon Pharmaceuticals, Inc. 8800 Technology Forest Place The Woodlands, Texas 77381 Attn: President and Chief Executive Officer

Re: Purchase Agreement Supplement

Ladies and Gentlemen:

Reference is made to that certain Purchase Agreement, dated as October 8, 2009 (the "Purchase Agreement"), by and between Invus, L.P. (the "Investor") and Lexicon Pharmaceuticals, Inc. (the "Company"). Capitalized terms used but not otherwise defined herein shall have the meanings ascribed to them in the Purchase Agreement. The Company has informed the Investor that the underwriters under the Underwriting Agreement, dated as of October 8, 2009, by and between the Company and the several underwriters party thereto have exercised their over-allotment option thereunder to purchase an additional 2,984,111 shares of Company Common Stock.

Accordingly, the Investor hereby agrees to purchase from the Company the number of additional shares of Company Common Stock specified below (the "<u>Additional Invus Shares</u>") at a price per share equal to the Price to Public, for the total purchase price specified below:

Number of Shares: 2,015,888 shares of Company Common Stock

Total Purchase Price: \$3,023,832.00

The issuance, purchase and delivery of the Additional Invus Shares is being made on the basis of the same representations and warranties and on the same terms and subject to the same conditions, and is considered a part of, the sale of the Invus Shares. The closing of the sale of the Additional Invus Shares shall take place at a time and place to be mutually agreed to by the parties.

The Purchase Agreement is hereby amended by replacing the references therein to Sections 4(b), (c), (d) and (e) of the Underwriting Agreement with references to Sections 5(b), (c), (d) and (e) of the Underwriting Agreement, respectively.

This supplement to the Purchase Agreement shall be deemed to satisfy the Company's obligations under the Stockholders' Agreement with respect to the delivery of a Notice of Issuance with respect to the Additional Invus Shares.

This supplement shall automatically terminate upon any termination of the Purchase Agreement and shall be interpreted as a part of and in accordance with the Purchase Agreement.

[Signature Page Follows]

Sincerely,

INVUS, L.P.,

a Bermuda limited partnership

/s/ Raymond Debbane By:

Name: Raymond Debbane Title:

President, Invus Advisers, L.L.C.

Its General Partner

Accepted and agreed to:

LEXICON PHARMACEUTICALS, INC.

A Delaware corporation

/s/ James F. Tessmer By:

Name: James F. Tessmer

Vice President of Finance and Accounting Title:

[Signature Page to Purchase Agreement Supplement]