

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

SCHEDULE 13D

Under the Securities Exchange Act of 1934
(Amendment No. 2)*

Lexicon Pharmaceuticals, Inc.

(Name of Issuer)

Common Stock, par value \$0.001 per share

(Title of Class of Securities)

528872104

(CUSIP Number)

Raymond Debbane
c/o Ulys, L.L.C.
750 Lexington Avenue
30th Floor
New York, New York 10022
(212) 371-1717

Copies to:

Robert Spatt, Esq.
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425 Lexington Avenue
New York, NY 10017
(212) 455-2000

(Name, Address and Telephone Number of Person Authorized to
Receive Notices and Communications)

August 28, 2007

(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. 528872104

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only).

Invus, L.P.
I.R.S. Identification No. 83-0359143

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a)
(b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Bermuda

7. Sole Voting Power

Number of Shares

50,824,986

Beneficially Owned by Each Reporting Person

8. Shared Voting Power

0

9. Sole Dispositive Power

50,824,986

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

50,824,986

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

37.16%*

14. Type of Reporting Person (See Instructions)

PN

* Based on 136,790,235 shares of Issuer Common Stock outstanding as of August 28, 2007, as provided by the Issuer.

CUSIP No. 528872104

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only).

Invus Advisors, L.L.C.
I.R.S. Identification No. 83-0359142

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Delaware

7. Sole Voting Power

Number of Shares 50,824,986

Beneficially Owned by 8. Shared Voting Power

Each Reporting Person 0

9. Sole Dispositive Power

With 50,824,986

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

50,824,986

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

37.16%*

14. Type of Reporting Person (See Instructions)

OO

* Based on 136,790,235 shares of Issuer Common Stock outstanding as of August 28, 2007, as provided by the Issuer.

CUSIP No. 528872104

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only).

Invus Public Equities, L.P.
I.R.S. Identification No. 98-0420215

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Bermuda

7. Sole Voting Power

Number of Shares

3,891,108

Beneficially Owned by

8. Shared Voting Power

Each Reporting Person

0

9. Sole Dispositive Power

3,891,108

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

3,891,108

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

2.84%*

14. Type of Reporting Person (See Instructions)

PN

* Based on 136,790,235 shares of Issuer Common Stock outstanding as of August 28, 2007, as provided by the Issuer.

CUSIP No. 528872104

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only).

Invus Public Equities Advisors, LLC
I.R.S. Identification No. 98-04220201

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a) (b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Delaware

7. Sole Voting Power

Number of Shares 3,891,108

8. Shared Voting Power

Beneficially Owned by

0

9. Sole Dispositive Power

Each Reporting

3,891,108

Person

With

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

3,891,108

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

2.84%*

14. Type of Reporting Person (See Instructions)

OO

* Based on 136,790,235 shares of Issuer Common Stock outstanding as of August 28, 2007, as provided by the Issuer.

CUSIP No. 528872104

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only).

Ulys, L.L.C.
I.R.S. Identification No. 83-0359139

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a)

(b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Delaware

7. Sole Voting Power

Number of Shares 54,716,094

8. Shared Voting Power

Beneficially Owned by

0

9. Sole Dispositive Power

Each Reporting

Person 54,716,094

With

10. Shared Dispositive Power

0

11. Aggregate Amount Beneficially Owned by Each Reporting Person

54,716,094

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

40.0%*

14. Type of Reporting Person (See Instructions)

OO

* Based on 136,790,235 shares of Issuer Common Stock outstanding as of August 28, 2007, as provided by the Issuer.

CUSIP No. 528872104

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only).

Raymond Debbane

2. Check the Appropriate Box if a Member of a Group (See Instructions)

(a)

(b)

3. SEC Use Only

4. Source of Funds (See Instructions)

OO

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e)

6. Citizenship or Place of Organization

Panama

7. Sole Voting Power

Number of Shares

54,716,094

Beneficially Owned by Each

0

Reporting Person

54,716,094

With

10. Shared Dispositive Power

0

8. Shared Voting Power

9. Sole Dispositive Power

10. Shared Dispositive Power

11. Aggregate Amount Beneficially Owned by Each Reporting Person

54,716,094

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13. Percent of Class Represented by Amount in Row (11)

40.0%*

14. Type of Reporting Person (See Instructions)

IN

* Based on 136,790,235 shares of Issuer Common Stock outstanding as of August 28, 2007, as provided by the Issuer.

This Amendment No. 2 hereby amends and supplements the statement of beneficial ownership on Schedule 13D, relating to the common stock, \$0.001 par value per share (the "Issuer Common Stock"), of Lexicon Pharmaceuticals, Inc., a Delaware corporation (the "Issuer" or "Lexicon"), initially filed on June 27, 2007, as amended by Amendment No.1 thereto filed on August 24, 2007 (as so amended, the "Statement"). All capitalized terms not otherwise defined herein have the meaning assigned to them in the Statement.

Item 3. Source and Amount of Funds or Other Consideration

Item 3 of the Statement is hereby amended and supplemented by replacing the first and second paragraphs thereof with the following:

The total consideration paid by Invus, L.P. for the purchase of 50,824,986 shares of Issuer Common Stock, as described in Item 4 below, was \$205,473,106.75, all of which was obtained from a capital call to Invus, L.P.'s limited partners in respect of previously made commitments.

Item 4. Purpose of Transaction

Item 4 of the Statement is hereby amended and supplemented by replacing the third paragraph thereof with the following:

On August 28, 2007, Invus, L.P. acquired 50,824,986 shares of Issuer Common Stock pursuant to the Securities Purchase Agreement. Upon the consummation of the purchase of such shares, the warrants to purchase 16,498,353 shares of Issuer Common Stock (the "Warrants"), which were previously issued by Lexicon to Invus, L.P. pursuant to the Warrant Agreement, automatically terminated in accordance with their terms and the provisions of the Warrant Agreement.

Item 5. Interest in Securities of the Issuer

Item 5 of the Statement is hereby amended and supplemented by replacing the first and second paragraphs of clause (a) thereof with the following:

As of August 28, 2007, Invus Public Equities, L.P. was the record and beneficial owner of 3,891,108 shares of Issuer Common Stock, representing approximately 2.84% of the outstanding shares of Issuer Common Stock. Invus Public Equities Advisors, LLC, as the general partner of Invus Public Equities, L.P. controls Invus Public Equities, L.P. and, accordingly, may be deemed to beneficially own the shares of Issuer Common Stock held by Invus Public Equities, L.P. Invus Public Equities Advisors, LLC disclaims such beneficial ownership, except to the extent of its pecuniary interest in such shares.

As of August 28, 2007, Invus, L.P. was the record and beneficial owner of 50,824,986 shares of Issuer Common Stock, representing approximately 37.16% of the outstanding shares of Issuer Common Stock.

Item 6. Contracts, Arrangements or Understandings with Respect to Securities of the Issuer

Item 6 is hereby amended and supplemented by adding the following new paragraph after the last paragraph under the heading "Warrant Agreement" in such Item:

The Warrants automatically terminated in accordance with their terms and the provisions of the Warrant Agreement on August 28, 2007, upon the closing of the purchase of the shares of Issuer Common Stock referred to in Item 3.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

INVUS, L.P.

By: INVUS ADVISORS, L.L.C.,
its general partner

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

INVUS PUBLIC EQUITIES, L.P.

By: INVUS PUBLIC EQUITIES ADVISORS, LLC,
its general partner

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

INVUS ADVISORS, L.L.C.

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

INVUS PUBLIC EQUITIES ADVISORS, LLC

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

ULYS, L.L.C.

By: /s/ Raymond Debbane

Name: Raymond Debbane

Title: President

RAYMOND DEBBANE

/s/ Raymond Debbane

Dated: August 28, 2007