

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

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of the Securities
Exchange Act of 1934 (Amendment No.)

Filed by the Registrant
Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**
- Definitive Proxy Statement
- Definitive Additional Materials
- Soliciting Material Pursuant to §240.14a-12

Lexicon Pharmaceuticals, Inc.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

- No fee required.
- Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

(1) Title of each class of securities to which transaction applies:

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

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Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

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FOR IMMEDIATE RELEASE

**LEXICON PHARMACEUTICALS ANNOUNCES TWO AGREEMENTS TO FINANCE
LONG-TERM DRUG DEVELOPMENT STRATEGY**

INVUS TO INVEST \$205 MILLION IN COMMON STOCK AT SIGNIFICANT PREMIUM

SYMPHONY TO FUND ADDITIONAL \$60 MILLION TO ADVANCE FIRST THREE DRUGS

The Woodlands, Texas, June 17, 2007 — Lexicon Pharmaceuticals, Inc. (Nasdaq: LXRX) has entered into a major financing agreement with The Invus Group, LLC ("Invus") to help fund its strategic goal of transitioning into an integrated biopharmaceutical company. Under the agreement, Invus will invest \$205M in 2007 with the potential for up to an additional \$345M over the next four years.

Simultaneously, Lexicon announced it has entered into a \$60 million product development collaboration with Symphony Capital Partners, L.P. and its co-investors ("Symphony") to move its first three drug candidates into advanced clinical development:

- LX6171 for cognitive disorders — currently completing Phase 1b
- LX1031 for irritable bowel syndrome — currently in Phase 1b, and
- LX1032 for gastrointestinal disorders — currently in preclinical development

"We have developed a long-term financial framework upon which we are building an integrated biopharmaceutical company. With Invus and Symphony, Lexicon will have substantially greater resources and flexibility to aid in fulfilling our mission to discover and develop breakthrough treatments for human disease," said Arthur T. Sands, M.D., Ph.D., founder, president and chief executive officer of Lexicon. "We have accomplished groundbreaking target discovery work, resulting in a portfolio of more than 100 promising new targets, and have built an exciting pipeline of both antibody and small molecule drug candidates."

"We have chosen to partner with Lexicon's talented scientists and management team because we believe that, with our commitment as a long-term shareholder with significant capital, Lexicon has the potential to become a major biopharmaceutical company," said Raymond Debbane, founder and president of The Invus Group, LLC.

Summary of the Invus Transaction

Under the agreement, which the Lexicon board of directors has approved, Invus has received warrants to purchase 16.5 million shares of Lexicon common stock, for a per share purchase price of \$3.09, the ten-day volume weighted average as of June 14, 2007. Upon shareholder approval, Invus will purchase, at that price, the number of shares that remain subject to the warrants, and the warrants will terminate. Invus also will purchase approximately 34.3 million

additional shares of common stock which, when added to the shares already owned by Invus, will bring Invus' ownership to 40% of the post-transaction outstanding shares of common stock. The purchase price for these additional 34.3 million shares will be \$4.50, a 46% premium over the Friday, June 15th, 2007 closing price of \$3.08.

To assure long-term adequate financing, Invus will have the right to require the company to initiate up to two rights offerings, which would provide all shareholders with pro rata rights to acquire additional common stock in an aggregate amount not to exceed \$345 million. The first rights offerings may be initiated, subject to certain adjustments, beginning 27 months from the closing of the initial investment, and the second rights offering may be initiated beginning 12 months after the initiation of the first, or 39 months from the closing of the initial investment if the first rights offering does not take place. The initial investment and subsequent rights offerings are designed to achieve up to approximately \$550 million in proceeds to Lexicon. Invus would participate in the rights offering for up to its pro rata portion of the offering, and would commit to purchase the entire portion of the offering not subscribed for by other stockholders.

As part of its agreement with Invus, Lexicon will have the right to issue common stock before the commencement of the rights offerings at a price above \$4.50 per share. Such offerings will reduce the total amount required to be raised under the rights offerings. Invus will have the right to participate in future equity issuances by the company so as to maintain its percentage ownership of the company. Invus will also agree to customary standstill restrictions that will not apply to the rights offerings and will have other exceptions. Invus will have initially three members on the Lexicon board of directors, which will be expanded from eight to eleven members.

The transaction will be submitted to Lexicon stockholders for approval at a meeting planned for August or September.

"We are implementing a long-term financial strategy that will fuel our extensive drug discovery and development pipeline," said Julia P. Gregory, executive vice president and chief financial officer. "Taken together, the Invus and Symphony agreements substantially reduce financing risk and enhance our drug development expertise, while allowing all shareholders to continue to participate in Lexicon's growth. This strong financial backing will complement Lexicon's corporate partnering strategy to accelerate the development and commercialization of our products."

Summary of the Symphony Transaction

Under the terms of the \$60 million Symphony transaction, \$45 million has been provided to Symphony Icon, Inc., a newly-created company that was established to accelerate development of Lexicon's first three product candidates and hold the license to the intellectual property of LX6171, LX1031 and LX1032. An additional \$15 million of equity capital was provided directly to Lexicon for general corporate purposes.

Through a purchase option, Lexicon retains the exclusive right, but not the obligation, to acquire 100% of the equity of Symphony Icon at exercise prices that range from \$72 million in the second year up to \$90 million in the fourth year of the collaborative development period. The option exercise may be paid in cash or a combination of cash and Lexicon common stock at Lexicon's sole discretion. If Lexicon chooses not to exercise the purchase option, Symphony Icon will retain the rights to the three programs. In exchange for the purchase option and \$60 million of funding, Lexicon issued approximately 7.7 million shares of Lexicon common stock to Symphony Icon's investors at a purchase price of \$3.14, the ten-day closing price average as of June 12, 2007. The collaboration is intended to last up to four years.

"Our collaboration with Symphony provides capital as well as additional drug development expertise to further the clinical development of LX1031, LX1032 and LX6171," said Arthur T. Sands, M.D., Ph.D., Lexicon's founder, president and chief executive officer. "The structure of the collaboration also provides Lexicon with the unique opportunity to develop these lead product candidates rapidly while we retain exclusive rights. Simultaneously, we expand our early-stage pipeline of drug candidates in the Lexicon 10T010 Program to achieve 10 drug candidates in clinical development through 2010. Our agreement with Symphony affords Lexicon the flexibility to partner with pharmaceutical companies at a more advanced stage of development."

In accordance with Financial Accounting Standards Board Interpretation No. 46 regarding variable interest entities, Lexicon will consolidate the results of operations of Symphony Icon into its financial statements beginning with the filing of its second quarter 2007 financial statements.

Symphony Icon will be governed by a board of directors comprised of Arthur T. Sands, M.D., Ph.D., Lexicon's founder, president and chief executive officer; two representatives of Symphony Capital, Mark Kessel and Jeffrey S. Edelman; and two independent Board members, Steven H. Ferris, Ph.D., executive director of the NYU Silberstein Aging and Dementia Research Center, and Douglas A. Drossman, M.D., professor of medicine and psychiatry, UNC School of Medicine, Division of Gastroenterology & Hepatology and Co-Director of the UNC Center for Functional GI & Motility Disorders.

Symphony Icon has retained RRD International, LLC, a regulatory and clinical development advisory group, to serve as Symphony Icon's management team. Lexicon will continue to lead the development of LX1031, LX1032 and LX6171.

Advisors

Morgan Stanley & Co. Incorporated and Vinson & Elkins LLP represent Lexicon in the Invus transaction. Cahill Gordon & Reindel LLP advised Lexicon's board of directors.

Simpson Thacher & Bartlett LLP represents Invus in the Invus transaction.

Paul, Weiss, Rifkind, Wharton & Garrison LLP represents Symphony in the Symphony Icon transaction.

Conference Call Tomorrow, Monday, June 18th

Lexicon management will hold a conference call tomorrow to discuss the Invus investment and the Symphony Icon collaboration at 8:30 a.m. Eastern Time. The dial-in number for the conference call is 800-289-0485 (within the United States) or 913-981-5518 (international). The passcode for all callers is 4692046. Investors can access www.lexpharma.com to listen to a live webcast of the call.

About Lexicon

Lexicon is a biopharmaceutical company focused on the discovery and development of breakthrough treatments for human disease. Lexicon currently has clinical programs underway for such areas of major unmet medical need as irritable bowel syndrome and cognitive disorders. The company has used its proprietary gene knockout technology to discover more than 100 promising drug targets and create an extensive pipeline of clinical and preclinical programs in the therapeutic areas of diabetes and obesity, cardiovascular disease, psychiatric and neurological disorders, cancer, immune system disorders and ophthalmic disease. To advance the development and commercialization of its programs, Lexicon is working both independently and through collaborators including Bristol-Myers Squibb Company, Genentech, Inc., N.V. Organon and Takeda Pharmaceutical Company Limited. For additional information about Lexicon and its programs, please visit www.lexpharma.com.

About Invus Group

Invus is a New York-based investment firm with additional offices in London and Paris. Invus invests in a variety of equity transactions, including buyouts, longer term public equity investments, venture capital, and expansion financings. Invus manages in excess of \$4 billion of capital. Invus has achieved both cash on cash multiples and annual internal rates of return over 22 years that are at the very top of the private equity industry. Invus manages interests in a broad range of industries, including consumer goods, consumer services, education, software, biotechnology and medical devices.

The Invus principals draw on their broad experience in partnering with management teams and boards to help formulate and execute strategies that maximize long-term value.

About Symphony Capital Partners, L.P.

Symphony Capital is a New York-based private equity firm that invests in development stage biopharmaceutical programs. Symphony has the most experienced team in R&D project-specific financings and invests exclusively in the type of collaboration undertaken with Lexicon. Symphony Capital Partners, L.P. is the lead investor in Symphony Icon. Additional information about Symphony is available at www.symphonycapital.com.

About RRD International, LLC

RRD International, LLC (RRD) is an innovative product development company dedicated to supporting the global regulatory, preclinical and clinical needs of biotechnology, pharmaceutical and medical device companies. RRD provides comprehensive strategic planning and operational support from program inception to product approval including the design, management and execution of clinical trials. RRD's team of highly experienced drug and device developers has a substantial record of favorable FDA interactions and outcomes. Through its customized and flexible business approach, RRD offers a unique risk-sharing model, enabling its goals and interests to be aligned with a partner company's success. Additional information about RRD is available at www.rrdintl.com.

Lexicon Safe Harbor Statement

This press release contains "forward-looking statements," including statements relating to, without limitation, all statements regarding the agreement with Invus to invest in Lexicon and the agreement with Symphony Capital to provide capital to advance Lexicon's development of LX1031, LX1032 and LX6171, Lexicon's growth and future operating results, discovery and development of products, strategic alliances and intellectual property, as well as other matters that are not historical facts or information. All forward-looking statements are based on management's current assumptions and expectations and involve risks, uncertainties and other important factors, specifically including those relating to Lexicon's ability to successfully conduct preclinical and clinical development of its potential drug candidates, advance additional candidates into preclinical and clinical development, obtain necessary regulatory approvals, achieve its operational objectives, obtain patent protection for its discoveries and establish strategic alliances, as well as additional factors relating to manufacturing, intellectual property rights, and the therapeutic or commercial value of its drug candidates, that may cause Lexicon's actual results to be materially different from any future results expressed or implied by such forward-looking statements. Information identifying such important factors is contained under "Factors Affecting Forward-Looking Statements" and "Risk Factors" in Lexicon's annual report on Form 10-K for the year ended December 31, 2006, as filed with the Securities and Exchange Commission. Lexicon undertakes no obligation to update or revise any such forward-looking statements, whether as a result of new information, future events or otherwise.

Lexicon will file a proxy statement and other documents with the Securities and Exchange Commission relating to the approval of the Invus transactions.

Stockholders are urged to carefully read the proxy statement when it becomes available, because it will contain important information regarding Lexicon and the Invus transactions. A definitive proxy statement will be sent to stockholders seeking their approval of the Invus transactions. Stockholders may obtain a free copy of the proxy statement (when it is available) and other documents containing information about Lexicon, without charge, at the SEC's web site at www.sec.gov. Copies of the definitive proxy statement and the SEC filings that will be incorporated by reference in the proxy statement may also be obtained for free by directing a request to Lexicon Pharmaceuticals, Inc. 8800 Technology Forest Place, The Woodlands, Texas 77381, Attention: Corporate Communications.

Lexicon and its officers and directors may be deemed to be participants in the solicitation of proxies from the stockholders. Information about these persons can be found in Lexicon's Annual Report on Form 10-K filed with the SEC, and additional information about such persons may be obtained from the proxy statement when it becomes available.

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