

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM S-8
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

LEXICON GENETICS INCORPORATED
(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

DELAWARE
(STATE OR OTHER JURISDICTION OF
INCORPORATION OR ORGANIZATION)

76-0474169
(I.R.S. EMPLOYER
IDENTIFICATION NO.)

4000 RESEARCH FOREST DRIVE
THE WOODLANDS, TEXAS
(ADDRESS OF PRINCIPAL EXECUTIVE OFFICES)

77381
(ZIP CODE)

2000 EQUITY INCENTIVE PLAN AND
2000 NON-EMPLOYEE DIRECTORS' STOCK OPTION PLAN
(FULL TITLES OF THE PLANS)

ARTHUR T. SANDS, M.D., PH.D.
PRESIDENT AND CHIEF EXECUTIVE OFFICER
4000 RESEARCH FOREST DRIVE
THE WOODLANDS, TEXAS 77381
(NAME AND ADDRESS OF AGENT FOR SERVICE)

(281) 364-0100
(TELEPHONE NUMBER, INCLUDING AREA CODE, OF AGENT FOR SERVICE)

COPIES TO:

JEFFREY R. HARDER
ANDREWS & KURTH L.L.P.
2170 BUCKTHORNE PLACE, SUITE 150
THE WOODLANDS, TEXAS 77380
(713) 220-4801

JEFFREY L. WADE
EXECUTIVE VICE PRESIDENT AND GENERAL COUNSEL
LEXICON GENETICS INCORPORATED
4000 RESEARCH FOREST DRIVE
THE WOODLANDS, TEXAS 77381
(281) 364-0100

CALCULATION OF REGISTRATION FEE

TITLE OF SECURITIES TO BE REGISTERED	TITLE OF PLAN	AMOUNT TO BE REGISTERED (1)	PROPOSED MAXIMUM OFFERING PRICE PER SHARE(2)	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE(2)	AMOUNT OF REGISTRATION FEE
Common Stock, par value \$0.001 per share ("Common Stock")	2000 Equity Incentive Plan	11,250,000 shares	\$ 41.50	\$ 466,875,000	\$ 123,288
Common Stock	2000 Non-Employee Directors' Stock Option Plan	600,000 shares	\$ 41.50	\$ 24,900,000	\$ 6,600

- (1) Pursuant to Rule 416(a), this registration statement shall cover any additional securities issued to prevent dilution resulting from stock splits, stock dividends or similar transactions.
- (2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457 (c) and (h), based on the average of the high and low sales price per share of the Registrant's common stock, as reported on The Nasdaq National Market on July 13, 2000.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

ITEM 3. INCORPORATION OF DOCUMENTS BY REFERENCE.

The following documents filed with the Securities and Exchange Commission (the "Commission") by the Registrant are incorporated by reference in this Registration Statement:

- (a) The Registrant's prospectus filed pursuant to Rule 424(b) under the Securities Act of 1933, as amended (the "Securities Act"), on April 7, 2000, in connection with the Registration Statement on Form S-1, as amended (No. 333-96469), originally filed on February 9, 2000;
- (b) The Registrant's Quarterly Report on Form 10-Q for the quarter ended March 31, 2000; and
- (c) The description of the common stock, par value \$0.001 per share (the "Common Stock"), of the Registrant contained in the Registrant's Registration Statement on Form 8-A filed with the Commission on March 27, 2000 pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), including any amendments and reports filed for the purpose of updating such description.

All documents subsequently filed by the Registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, prior to the filing of a post-effective amendment which indicates that all shares of Common Stock offered hereby have been sold or which deregisters all shares of Common Stock then remaining unsold, shall be deemed to be incorporated by reference herein and to be part hereof from the date of the filing of such documents. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

ITEM 4. DESCRIPTION OF SECURITIES.

The information required by Item 4 is not applicable to this registration statement because the class of securities to be offered is registered under Section 12 of the Exchange Act.

ITEM 5. INTERESTS OF NAMED EXPERTS AND COUNSEL.

The information required by Item 5 is not applicable to this registration statement.

ITEM 6. INDEMNIFICATION OF DIRECTORS AND OFFICERS.

Section 145 of the Delaware General Corporation Law ("DGCL") provides that a corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation by reason of the fact that he is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him in connection with such action, suit or proceeding if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful. Section 145 further provides that a corporation similarly may indemnify any such person serving in any such capacity who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that he is or was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation as a director, officer, employee or agent of

another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees) actually and reasonably incurred in connection with the defense or settlement of such action or suit if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation and except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Delaware Court of Chancery or such other court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Delaware Court of Chancery or such other court shall deem proper.

The Registrant's certificate of incorporation and bylaws provide that indemnification shall be to the fullest extent permitted by the DGCL for all current or former directors or officers. As permitted by the DGCL, the certificate of incorporation provides that directors of the Registrant shall have no personal liability to the Registrant or its stockholders for monetary damages for breach of fiduciary duty as a director, except (1) for any breach of the director's duty of loyalty to the Registrant or its stockholders, (2) for acts or omissions not in good faith or which involve intentional misconduct or knowing violation of law, (3) under Section 174 of the DGCL or (4) for any transaction from which a director derived an improper personal benefit.

The Registrant has entered into indemnification agreements with each of its officers and directors. Each such agreement provides that each party to the agreement shall have no personal liability to the Registrant or its stockholders for monetary damages for breach of fiduciary duty as a director, except (1) for any breach of the director's duty of loyalty to the Registrant or its stockholders, (2) for acts or omissions not in good faith or which involve intentional misconduct or knowing violation of law, (3) under Section 174 of the DGCL or (4) for any transaction from which a director derived an improper personal benefit. Each such agreement also provides an indemnification to each party to the agreement against damages and expenses arising from claims against such party for a breach of such party's fiduciary duty to the Registrant or its stockholders.

ITEM 7. EXEMPTION FROM REGISTRATION CLAIMED.

The information required by Item 7 is not applicable to this registration statement.

ITEM 8. EXHIBITS.

EXHIBIT NUMBER -----	DESCRIPTION -----
4.1+	Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Registrant's Registration Statement on Form S-1 (No. 333-96469), originally filed on February 9, 2000 (the "Registration Statement")).
4.2+	Restated Bylaws (incorporated by reference to Exhibit 3.2 to the Registration Statement).
5.1*	Opinion of Andrews & Kurth L.L.P.
23.1*	Consent of Andrews & Kurth L.L.P. (included in Exhibit 5.1).
23.2*	Consent of Arthur Andersen LLP
24.1*	Power of Attorney (set forth on the signature page contained in Part II of this Registration Statement).
99.1+	Lexicon Genetics Incorporated 2000 Equity Incentive Plan (incorporated by reference to Exhibit 10.7 to the Registration Statement).

99.2+ Lexicon Genetics Incorporated Non-Employee Directors' Stock Option Plan (incorporated by reference to Exhibit 10.8 to the Registration Statement).

- -----
+ Incorporated herein by reference.

* Filed herewith.

ITEM 9. UNDERTAKINGS.

(a) The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of this registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

Provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed by the Registrant pursuant to Section 13 or Section 15(d) of the Exchange Act that are incorporated by reference in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Exchange Act, each filing of the Registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act that is incorporated by reference in this Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in The Woodlands, in the State of Texas, on July 14, 2000.

LEXICON GENETICS INCORPORATED

By: /s/ ARTHUR T. SANDS, M.D., PH.D.

Arthur T. Sands, M.D., Ph.D.,
President and Chief Executive Officer

POWER OF ATTORNEY

The person whose signature appears below appoints Arthur T. Sands, M.D., Ph.D., Julia P. Gregory and Jeffrey L. Wade, and each of them, any of whom may act without the joinder of the other, as his true and lawful attorneys-in-fact and agents with full power of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement and any Registration Statement (including any amendment thereto) for this offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he might or would do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them or their or his substitute and substitutes, may lawfully do or cause to be done by virtue hereof.

PURSUANT TO THE REQUIREMENTS OF THE SECURITIES ACT OF 1933, AS AMENDED, THIS REGISTRATION STATEMENT HAS BEEN SIGNED BELOW BY THE FOLLOWING PERSONS IN THE CAPACITIES AND ON THE DATES INDICATED BELOW.

SIGNATURE -----	TITLE -----	DATE -----
/s/ ARTHUR T. SANDS, M.D., PH.D. ----- Arthur T. Sands, M.D., Ph.D.	President, Chief Executive Officer and Director (principal executive officer)	July 14, 2000
/s/ JULIA P. GREGORY ----- Julia P. Gregory	Executive Vice President and Chief Financial Officer (principal financial and accounting officer)	July 14, 2000
/s/ THOMAS CASKEY, M.D. ----- Thomas Caskey, M.D.	Chairman of the Board of Directors	July 14, 2000
/s/ STEPHEN J. BANKS ----- Stephen J. Banks	Director	July 14, 2000

/s/ SAM L. BARKER, Ph.D. ----- Sam L. Barker, Ph.D.	Director	July 14, 2000
/s/ GORDON A. CAIN ----- Gordon A. Cain	Director	July 14, 2000
/s/ PATRICIA M. CLOHERTY ----- Patricia M. Cloherty	Director	July 14, 2000
/ _____ / ----- Paul Haycock, M.D.	Director	July 14, 2000
/s/ WILLIAM A. McMINN ----- William A. McMinn	Director	July 14, 2000

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+ Incorporated herein by reference.

* Filed herewith.

July 14, 2000

Board of Directors
Lexicon Genetics Incorporated
4000 Research Forest Drive
The Woodlands, Texas 77381

Ladies and Gentlemen:

We have acted as counsel to Lexicon Genetics Incorporated (the "Company") in connection with the Company's Registration Statement on Form S-8 (the "Registration Statement") relating to the registration under the Securities Act of 1933, as amended, of the issuance of up to (i) 11,250,000 shares (the "Equity Incentive Plan Shares") of the Company's common stock, par value \$0.001 per share (the "Common Stock"), pursuant to the Company's 2000 Equity Incentive Plan (the "Equity Incentive Plan"); and (ii) 600,000 shares (the "Director Plan Shares" and, together with the Equity Incentive Plan Shares, the "Shares") of Common Stock, pursuant to the Company's 2000 Non-Employee Directors' Stock Option Plan (the "Director Plan" and, together with the Equity Incentive Plan, the "Plans").

In connection herewith, we have examined copies of such statutes, regulations, corporate records and documents, certificates of public and corporate officials and other agreements, contracts, documents and instruments as we have deemed necessary as a basis for the opinion hereafter expressed. In such examination, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals and the conformity with the original documents of all documents submitted to us as copies. We have also relied, to the extent we deem such reliance proper, on information supplied by officers and employees of the Company with respect to various factual matters material to our opinion.

Based on the foregoing and having due regard for such legal considerations as we deem relevant, we are of the opinion that the Shares have been duly authorized, and that such Shares will, when issued in accordance with the terms of the Plans, be duly authorized, fully paid and validly issued.

This opinion is limited in all respects to the General Corporation Law of the State of Delaware and the laws of the United States of America insofar as such laws are applicable.

We hereby consent to the use of this opinion as an exhibit to the Registration Statement. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Securities and Exchange Commission thereunder.

Very truly yours,

ANDREWS & KURTH L.L.P.

CONSENT OF INDEPENDENT PUBLIC ACCOUNTANTS

As independent public accountants, we hereby consent to the incorporation by reference in this registration statement of our report dated February 4, 2000 included in the Registration Statement on Form S-1 of Lexicon Genetics Incorporated (No. 333-96469), originally filed with the Securities and Exchange Commission on February 9, 2000, and to all references to our Firm included in this registration statement.

ARTHUR ANDERSEN LLP

Houston, Texas
July 12, 2000