

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

SCHEDULE 13D
(Amendment No. 3)

Under the Securities Exchange Act of 1934

LEXICON GENETICS INCORPORATED

(Name of Issuer)

Common Stock \$0.001 Par Value Per Share

(Title of Class of Securities)

528872 10 4

(CUSIP Number)

Mr. John Sullivan
Gordon Cain and Associates
8 Greenway Plaza, Suite 702
Houston, Texas 77046
Telephone: (713) 840-7896

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

January 12, 2005

(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 Rule 13d-1(e), Rule 13d-1(f) or Rule 13d-1(g), check the following box:

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.

1 Name of Reporting Person

Estate of Gordon A. Cain (01-6222478)

2 Check the Appropriate Box If A Member of a Group

(a)

(b)

3 SEC Use Only

4 Source of Funds

OO

5 Check Box If Disclosure of Legal Proceedings Is Required Pursuant to Item 2(d) or 2(e)

6 Citizenship or Place of Organization

Texas

7 Sole Voting Power

0

8 Shared Voting Power

0

9 Sole Dispositive Power

0

10 Shared Dispositive Power

0

11 Aggregate Amount Beneficially Owned by Reporting Person

0

12 Check Box If the Aggregate Amount in Row (11) Excludes Certain Shares

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

0.0%

14 Type of Reporting Person

OO

1 Name of Reporting Person

Mary H. Cain

2 Check the Appropriate Box If A Member of a Group

(a)

(b)

3 SEC Use Only

4 Source of Funds

OO

5 Check Box If Disclosure of Legal Proceedings Is Required Pursuant to Item 2(d) or 2(e)

6 Citizenship or Place of Organization

United States of America

7 Sole Voting Power

2,937,000*

8 Shared Voting Power

550,000*

9 Sole Dispositive Power

2,937,000*

10 Shared Dispositive Power

550,000*

11 Aggregate Amount Beneficially Owned by Reporting Person

3,487,000*

12 Check Box If the Aggregate Amount in Row (11) Excludes Certain Shares

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

5.5%

14 Type of Reporting Person

IN

* 1,468,500 of these shares are owned by the Mary H. Cain Marital Trust, of which Mary H. Cain is the trustee and beneficiary.

550,000 of these shares are owned by the Gordon and Mary Cain Foundation, of which Mary H. Cain is the Chairman.

1 Name of Reporting Person

James D. Weaver

2 Check the Appropriate Box If A Member of a Group

(a)

(b)

3 SEC Use Only

4 Source of Funds

OO

5 Check Box If Disclosure of Legal Proceedings Is Required Pursuant to Item 2(d) or 2(e)

6 Citizenship or Place of Organization

United States of America

7 Sole Voting Power

15,000

8 Shared Voting Power

550,000*

9 Sole Dispositive Power

15,000

10 Shared Dispositive Power

550,000*

11 Aggregate Amount Beneficially Owned by Reporting Person

565,000*

12 Check Box If the Aggregate Amount in Row (11) Excludes Certain Shares

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

0.9%

14 Type of Reporting Person

IN

* 550,000 of these shares are owned by the Gordon and Mary Cain Foundation, of which James D. Weaver is the President.

1 Name of Reporting Person

William A. McMinn

2 Check the Appropriate Box If A Member of a Group

(a)

(b)

3 SEC Use Only

4 Source of Funds

OO

5 Check Box If Disclosure of Legal Proceedings Is Required Pursuant to Item 2(d) or 2(e)

6 Citizenship or Place of Organization

United States of America

7 Sole Voting Power

1,059,091

8 Shared Voting Power

0

9 Sole Dispositive Power

1,059,091

10 Shared Dispositive Power

0

11 Aggregate Amount Beneficially Owned by Reporting Person

1,059,091

12 Check Box If the Aggregate Amount in Row (11) Excludes Certain Shares

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

1.7%

14 Type of Reporting Person

IN

STATEMENT ON SCHEDULE 13D

This Amendment No. 3 amends and supplements the Statement on Schedule 13D (the "Initial Statement") filed by the Estate of Gordon A. Cain, Mary H. Cain, James D. Weaver and William A. McMinn, on March 19, 2003, as amended by Amendment No. 1 filed on July 22, 2003 and Amendment No. 2 filed on January 2, 2004 (collectively, the "Amendments" and, with the Initial Statement, the "Statement"), relating to the shares of Common Stock, par value \$0.001 per share (the "Common Stock") of Lexicon Genetics Incorporated, a Delaware corporation (the "Issuer"). Capitalized terms used but not defined herein shall have the meanings provided therefore in the Statement.

The Initial Statement is hereby supplemented and amended to the extent set forth in this Amendment.

Item 4. Purpose of Transaction

Aside from the transaction described in Item 5(c), Ms. Cain has no plans or proposals with respect to the Shares which relate to or that would result in any of the actions or transactions specified in clauses (a) through (j) of Item 4 of Schedule 13D.

Item 5. Interest in Securities of the Issuer

(c) On September 30, 2004, the Estate and The Gordon and Mary Cain Foundation, sold 850,000 shares and 150,000 shares respectively in the open market at the price of \$6.25 per share. On January 12, 2005, the Estate distributed 1,468,500 shares to each of the Mary H. Cain Marital Trust and to Mary H. Cain, individually. These transfers resulted in the termination of the irrevocable voting proxy dated May 7, 1998 between Gordon A. Cain and William A. McMinn. On April 22, 2004, stock options held by the Estate, which were exercisable for 8,500 shares, expired.

(d) On January 12, 2005, each of the Estate, Mr. Weaver and Mr. McMinn ceased to be the beneficial owner of more than five percent of the Common Stock of the Issuer.

SIGNATURE

After reasonable inquiry and to the best of the undersigned's knowledge and belief, the undersigned hereby certifies that the information set forth in this Statement is true, complete and correct.

Dated: April 29, 2005

ESTATE OF GORDON A. CAIN

By: /s/ MARY H. CAIN

Mary H. Cain
Co-Executor

By: /s/ JAMES D. WEAVER

James D. Weaver
Co-Executor

/s/ MARY H. CAIN

Mary H. Cain

/s/ JAMES D. WEAVER

James D. Weaver

/s/ WILLIAM A. MCMINN

William A. McMinn

Each of the undersigned hereby agrees to be included in the filing of the Amendment No. 3 to the Schedule 13D dated April 29, 2005 with respect to the issued and outstanding Common Stock of Lexicon Genetics Incorporated beneficially owned by each of the undersigned, respectively.

Dated: April 29, 2005

ESTATE OF GORDON A. CAIN

By: /s/ MARY H. CAIN

Mary H. Cain
Co-Executor

By: /s/ JAMES D. WEAVER

James D. Weaver
Co-Executor

/s/ MARY H. CAIN

Mary H. Cain

/s/ JAMES D. WEAVER

James D. Weaver

/s/ WILLIAM A. MCMINN

William A. McMinn