

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

Schedule 13G/A

Under the Securities Exchange Act of 1934

(Amendment No. 1)*

Mast Therapeutics, Inc.

(Name of Issuer)

Common Stock

(Title of Class of Securities)

576314108

(CUSIP Number)

December 31, 2013

(Date of Event which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

Rule 13d-1(b)

Rule 13d-1(c)

Rule 13d-1(d)

*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 the disclosures provided in a prior cover page.

The information required in 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).

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

1. NAMES OF REPORTING PERSONS

Great Point Partners, LLC

I.R.S. IDENTIFICATION NO. OF ABOVE PERSON (ENTITIES ONLY):

37-1475292

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP(a) (b) **3. SEC USE ONLY****4. CITIZENSHIP OR PLACE OF ORGANIZATION**

USA

5. SOLE VOTING POWER

0

NUMBER OF SHARES

6. SHARED VOTING POWER

BENEFICIALLY

4,194,934¹

OWNED BY EACH

7. SOLE DISPOSITIVE POWER

REPORTING PERSON

0

WITH

8. SHARED DISPOSITIVE POWER4,194,934¹**9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON**4,194,934¹**10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)****11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)**3.97%^{1, 2}**12. TYPE OF REPORTING PERSON (See Instructions)**

IA

¹ Includes 2,900,000 shares of Common Stock issuable upon exercise of warrants owned by Biomedical Value Fund, LP, Biomedical Offshore Value Fund, Ltd., Biomedical Institutional Value Fund, LP, Class D Series of GEF-PS, LP, David J. Morrison, and WS Investments II, LLC.

² Based on a total of 102,710,286 shares of Common Stock outstanding, as reported by the Issuer on a Form 10-Q filed with the SEC on November 4, 2013.

1. NAMES OF REPORTING PERSONS

Dr. Jeffrey R. Jay, M.D.

I.R.S. IDENTIFICATION NO. OF ABOVE PERSON (ENTITIES ONLY):

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

(a) £

(b) £

3. SEC USE ONLY**4. CITIZENSHIP OR PLACE OF ORGANIZATION**

USA

5. SOLE VOTING POWER

0

NUMBER OF SHARES**6. SHARED VOTING POWER**

BENEFICIALLY

4,194,934¹

OWNED BY EACH

7. SOLE DISPOSITIVE POWER

REPORTING PERSON

0

WITH

8. SHARED DISPOSITIVE POWER4,194,934¹**9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON**4,194,934¹**10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)**

£

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)3.97%^{1, 2}**12. TYPE OF REPORTING PERSON (See Instructions)**

IN

1. NAMES OF REPORTING PERSONS

Mr. David Kroin

I.R.S. IDENTIFICATION NO. OF ABOVE PERSON (ENTITIES ONLY):

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

(a) £

(b) £

3. SEC USE ONLY**4. CITIZENSHIP OR PLACE OF ORGANIZATION**

USA

5. SOLE VOTING POWER

0

NUMBER OF SHARES**6. SHARED VOTING POWER****BENEFICIALLY**4,194,934¹**OWNED BY EACH****7. SOLE DISPOSITIVE POWER****REPORTING PERSON**

0

WITH**8. SHARED DISPOSITIVE POWER**4,194,934¹**9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON**4,194,934¹**10. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)**

£

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)3.97%^{1, 2}**12. TYPE OF REPORTING PERSON (See Instructions)**

IN

Item 1.

- (a) Name of Issuer
Mast Therapeutics, Inc.
- (b) Address of Issuer's Principal Executive Offices
12390 El Camino Real, Suite 150, San Diego, CA 92130

Item 2.

- (a) Name of Person Filing
Great Point Partners, LLC
Dr. Jeffrey R. Jay, M.D.
Mr. David Kroin

The Reporting Persons have entered into a Joint Filing Agreement, dated February 14, 2014, a copy of which is filed with this Schedule 13G/A as Exhibit A, pursuant to which the Reporting Persons have agreed to file this statement jointly in accordance with the provisions of Rule 13d-1(k)(1) under the Act.

- (b) Address of Principal Business Office, or if none, Residence
The address of the principal business office of each of the Reporting Persons is
165 Mason Street, 3rd Floor
Greenwich, CT 06830

- (c) Citizenship

Great Point Partners, LLC is a limited liability company organized under the laws of the State of Delaware. Dr. Jeffrey R. Jay, M.D. is a citizen of the United States. Mr. David Kroin is a citizen of the United States.

- (d) Title of Class of Securities
Common Stock
- (e) CUSIP Number
576314108

Item 3. If this statement is filed pursuant to §240.13d-1(b) or 240.13d.2(b) or (c), check whether the person filing is a:

Not Applicable.

- (a) Broker or dealer registered under Section 15 of the Act (15 U.S.C. 78o)
- (b) Bank as defined in Section 3(a)(6) of the Act (15 U.S.C. 78c).
- (c) Insurance company as defined in Section 3(a)(19) of the Act (15 U.S.C. 78c).
- (d) Investment Company registered under Section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a-8).
- (e) An investment adviser in accordance with §240.13d-1(b)(1)(ii)(E).
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- (f) £ An employee benefit plan or endowment fund in accordance with §240.13d-1(b)(1)(ii)(F).
- (g) £ A parent holding company or control person in accordance with §240.13d-1(b)(1)(ii)(G).
- (h) £ A savings associations as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813).
- (i) £ A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3).
- (j) £ Group, in accordance with §240.13d-1(b)(1)(ii)(J).

Item 4. Ownership

Biomedical Value Fund, L.P. (“BVF”) is the record owner of 501,562 shares of Common Stock (the “BVF Shares”). Great Point Partners, LLC (“Great Point”) is the investment manager of BVF, and by virtue of such status may be deemed to be the beneficial owner of the BVF Shares. Each of Dr. Jeffrey R. Jay, M.D. (“Dr. Jay”), as senior managing member of Great Point, and Mr. David Kroin (“Mr. Kroin”), as special managing member of Great Point, has voting and investment power with respect to the BVF Shares, and therefore may be deemed to be the beneficial owner of the BVF Shares. In addition, BVF is the record owner of warrants to purchase 1,113,748 shares of Common Stock.

Biomedical Offshore Value Fund, Ltd. (“BOVF”) is the record owner of 295,038 shares of Common Stock (the “BOVF Shares”). Great Point is the investment manager of BOVF, and by virtue of such status may be deemed to be the beneficial owner of the BOVF Shares. Each of Dr. Jay, as senior managing member of Great Point, and Mr. Kroin, as special managing member of Great Point, has voting and investment power with respect to the BOVF Shares, and therefore may be deemed to be the beneficial owner of the BOVF Shares. In addition, BOVF is the record owner of warrants to purchase 685,475 shares of Common Stock.

Biomedical Institutional Value Fund, L.P. (“BIVF”) is the record owner 186,855 shares of Common Stock (the “BIVF Shares”). Great Point is the investment manager of BIVF, and by virtue of such status may be deemed to be the beneficial owner of the BIVF Shares. Each of Dr. Jay, as senior managing member of Great Point, and Mr. Kroin, as special managing member of Great Point, has voting and investment power with respect to the BIVF Shares, and therefore may be deemed to be the beneficial owner of the BIVF Shares. In addition, BIVF is the record owner of warrants to purchase 403,221 shares of Common Stock.

Class D Series of GEF-PS, LP (“GEF-PS”) is the record owner of 255,310 shares of Common Stock (the “GEF-PS Shares”). Great Point is the investment manager of GEF-PS, and by virtue of such status may be deemed to be the beneficial owner of the GEF-PS Shares. Each of Dr. Jay, as senior managing member of Great Point, and Mr. Kroin, as special managing member of Great Point, has voting and investment power with respect to the GEF-PS Shares, and therefore may be deemed to be the beneficial owner of the GEF-PS Shares. In addition, GEF-PS is the record owner of warrants to purchase 571,768 shares of Common Stock.

WS Investments II, LLC (“WS”) is the record owner of 45,956 shares of Common Stock (the “WS Shares”). Great Point is the investment manager with respect to the WS Shares, and by virtue of such status may be deemed to be the beneficial owner of the WS Shares. Each of Dr. Jay, as senior managing member of Great Point, and Mr. Kroin, as special managing member of Great Point, has voting and investment power with respect to the WS Shares, and therefore may be deemed to be the beneficial owner of the WS Shares. In addition, WS is the record owner of warrants to purchase 102,918 of Common Stock.

David J. Morrison ("Morrison") is the record owner of 10,213 shares of Common Stock (the "Morrison Shares"). Great Point is the investment manager with respect to the Morrison Shares, and by virtue of such status may be deemed to be the beneficial owner of the Morrison Shares. Each of Dr. Jay, as senior managing member of Great Point, and Mr. Kroin, as special managing member of Great Point, has voting and investment power with respect to the Morrison Shares, and therefore may be deemed to be the beneficial owner of the Morrison Shares. In addition, Morrison is the record owner of warrants to purchase 22,871 shares of Common Stock.

Notwithstanding the above, Great Point, Dr. Jay and Mr. Kroin disclaim beneficial ownership of the BVF Shares, the BOVF Shares, the BIVF Shares, the GEF-PS Shares, the Morrison Shares, the WS Shares, and the shares of Common Stock underlying warrants described above, except to the extent of their respective pecuniary interests.

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

1. **Great Point Partners, LLC**

- (a) Amount beneficially owned: 4,194,934³
- (b) Percent of class: 3.97%^{3, 4}
- (c) Number of shares as to which the person has:
 - (i) Sole power to vote or to direct the vote: - 0 -
 - (ii) Shared power to vote or to direct the vote: 4,194,934³
 - (iii) Sole power to dispose or to direct the disposition of: - 0 -.
 - (iv) Shared power to dispose or to direct the disposition of: 4,194,934³

2. **Dr. Jeffrey R. Jay, M.D.**

- (a) Amount beneficially owned: 4,194,934³
- (b) Percent of class: 3.97%^{3,4}
- (c) Number of shares as to which the person has:
 - (i) Sole power to vote or to direct the vote: 0.
 - (ii) Shared power to vote or to direct the vote: 4,194,934³
 - (iii) Sole power to dispose or to direct the disposition of: 0.
 - (iv) Shared power to dispose or to direct the disposition of: 4,194,934³

³ Includes 2,900,000 shares of Common Stock issuable upon exercise of warrants owned by Biomedical Value Fund, LP, Biomedical Offshore Value Fund, Ltd., Biomedical Institutional Value Fund, LP, Class D Series of GEF-PS, LP, David J. Morrison, and WS Investments II, LLC.

⁴ Based on a total of 102,710,286 shares of Common Stock outstanding, as reported by the Issuer on a Form 10-Q filed with the SEC on November 4, 2013.

3. **Mr. David Kroin**

- (a) Amount beneficially owned: 4,194,934³
- (b) Percent of class: 3.97%^{3,4}
- (c) Number of shares as to which the person has:
 - (i) Sole power to vote or to direct the vote: 0.
 - (ii) Shared power to vote or to direct the vote: 4,194,934³
 - (iii) Sole power to dispose or to direct the disposition of: 0.
 - (iv) Shared power to dispose or to direct the disposition of: 4,194,934³

Item 5. Ownership of Five Percent or Less of a Class

If this statement is being filed to report the fact that as of the date hereof each of the Reporting Persons has ceased to be the beneficial owner of more than five percent of the class of securities, check the following [X].

Item 6. Ownership of More than Five Percent on Behalf of Another Person:

See Item 4.

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company

Not Applicable.

Item 8. Identification and Classification of Members of the Group

Not Applicable.

Item 9. Notice of Dissolution of Group

Not Applicable.

Item 10. Certification

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as participant in any transaction having that purpose or effect.

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.

Date: February 14, 2014

GREAT POINT PARTNERS, LLC

By: /s/ Dr. Jeffrey R. Jay, M.D.

Dr. Jeffrey R. Jay, M.D.,
as senior managing member

/s/ Dr. Jeffrey R. Jay, M.D.

DR. JEFFREY R. JAY, M.D.

/s/ Mr. David Kroin

MR. DAVID KROIN

AGREEMENT REGARDING THE JOINT FILING OF SCHEDULE 13G/A

The undersigned hereby agree as follows:

(i) Each of them is individually eligible to use the Schedule 13G/A to which this Exhibit is attached, and such Schedule 13G/A is filed on behalf of each of them; and

(ii) Each of them is responsible for the timely filing of such Schedule 13G/A and any amendments thereto, and for the completeness and accuracy of the information concerning such person contained therein; but none of them is responsible for the completeness or accuracy of the information concerning the other persons making the filing, unless such person knows or has reason to believe that such information is inaccurate.

Date: February 14, 2014

GREAT POINT PARTNERS, LLC

By: /s/ Dr. Jeffrey R. Jay, M.D.
Dr. Jeffrey R. Jay, M.D.,
as senior managing member

/s/ Dr. Jeffrey R. Jay, M.D.
DR. JEFFREY R. JAY, M.D.

/s/ Mr. David Kroin
MR. DAVID KROIN
