

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

SCHEDULE 13G
(Rule 13d-102)

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT
TO RULES 13d-1(b), (c), AND (d) AND AMENDMENTS THERETO FILED
PURSUANT TO RULE 13d-2(b)

(Amendment No. 1)¹

Assembly Biosciences, Inc.

(Name of Issuer)

Common Stock, \$0.001 par value

(Title of Class of Securities)

045396108

(CUSIP Number)

December 31, 2014

(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)

¹ 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*).

| | | |
|--|---|---|
| 1 | NAME OF REPORTING PERSON EcoR1 Capital Fund, L.P. | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="radio"/> (b) <input type="radio"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 shares |
| | 6 | SHARED VOTING POWER 383,729 |
| | 7 | SOLE DISPOSITIVE POWER 0 shares |
| | 8 | SHARED DISPOSITIVE POWER 383,729 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 383,729 | |
| 10 | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 3.6% | |
| 12 | TYPE OF REPORTING PERSON PN | |

| | | |
|--|---|---|
| 1 | NAME OF REPORTING PERSON EcoR1 Capital Fund Qualified, L.P. | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="radio"/> (b) <input type="radio"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 shares |
| | 6 | SHARED VOTING POWER 626,023 |
| | 7 | SOLE DISPOSITIVE POWER 0 shares |
| | 8 | SHARED DISPOSITIVE POWER 626,023 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 626,023 | |
| 10 | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 5.9% | |
| 12 | TYPE OF REPORTING PERSON PN | |

| | | |
|--|---|---|
| 1 | NAME OF REPORTING PERSON EcoR1 Capital, LLC | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="radio"/> (b) <input type="radio"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 shares |
| | 6 | SHARED VOTING POWER 1,009,752 |
| | 7 | SOLE DISPOSITIVE POWER 0 shares |
| | 8 | SHARED DISPOSITIVE POWER 1,009,752 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,009,752 | |
| 10 | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 9.5% | |
| 12 | TYPE OF REPORTING PERSON OO | |

| | | |
|--|---|---|
| 1 | NAME OF REPORTING PERSON Oleg Nodelman | |
| 2 | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="radio"/> (b) <input type="radio"/> | |
| 3 | SEC USE ONLY | |
| 4 | CITIZENSHIP OR PLACE OF ORGANIZATION United States | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 5 | SOLE VOTING POWER 0 shares |
| | 6 | SHARED VOTING POWER 1,009,752 |
| | 7 | SOLE DISPOSITIVE POWER 0 shares |
| | 8 | SHARED DISPOSITIVE POWER 1,009,752 |
| 9 | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,009,752 | |
| 10 | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/> | |
| 11 | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 9.5% | |
| 12 | TYPE OF REPORTING PERSON IN | |

Item 1(a). Name of Issuer:
Assembly Biosciences, Inc., a Delaware corporation (the "Issuer").

Item 1(b). Address of Issuer's Principal Executive Offices:
99 Hudson Street, 5th Floor
New York, New York 10013

Item 2(a). Name of Person Filing
Item 2(b). Address of Principal Business Office or, if None, Residence
Item 2(c). Citizenship

EcoR1 Capital Fund, L.P. ("Capital Fund")
409 Illinois Street
San Francisco, California 94158
Citizenship: Delaware

EcoR1 Capital Fund Qualified, L.P. ("Qualified Fund")
409 Illinois Street
San Francisco, California 94158
Citizenship: Delaware

EcoR1 Capital, LLC ("EcoR1")
409 Illinois Street
San Francisco, California 94158
Citizenship: Delaware

Oleg Nodelman
409 Illinois Street
San Francisco, California 94158
Citizenship: United States

Each of the foregoing is referred to as a "Reporting Person" and collectively as the "Reporting Persons."

Item 2(d). Title of Class of Securities:
Common Stock, \$0.001 par value (the "Common Stock")

Item 2(e). CUSIP Number:
045396108

Item 3. If This Statement is Filed Pursuant to Rule 13d-1(b), or 13d-2(b) or (c), Check Whether the Person Filing is a:

- /x/ Not applicable.
- (a) // Broker or dealer registered under Section 15 of the Exchange Act.
- (b) // Bank as defined in Section 3(a)(6) of the Exchange Act.

- (c) // Insurance company as defined in Section 3(a)(19) of the Exchange Act.
- (d) // Investment company registered under Section 8 of the Investment Company Act.
- (e) // An investment adviser in accordance with Rule 13d-1(b)(1)(ii)(E).
- (f) // An employee benefit plan or endowment fund in accordance with Rule 13d-1(b)(1)(ii)(F).
- (g) // A parent holding company or control person in accordance with Rule 13d-1(b)(1)(ii)(G).
- (h) // A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act.
- (i) // A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act.
- (j) // Group, in accordance with Rule 13d-1(b)(1)(ii)(J).
- (k) // Group, in accordance with Rule 240.13d-1(b)(1)(ii)(K). If filing as a non-U.S. institution in accordance with Rule 240.13d-1(b)(1)(ii)(J), please specify the type of institution: _____

Item 4. Ownership

- (a) Amount beneficially owned:

As of the close of business on December 31, 2014, Capital Fund directly owned 383,729 shares of Common Stock and Qualified Fund directly owned 626,023 shares of Common Stock. EcoR1, as the general partner of each of Capital Fund and Qualified Fund, may be deemed to beneficially own the 1,009,752 shares of Common Stock owned in the aggregate by Capital Fund and Qualified Fund. Mr. Nodelman, as the Manager of EcoR1, may be deemed to beneficially own the 1,009,752 shares of Common Stock owned in the aggregate by Capital Fund and Qualified Fund.

The foregoing should not be construed in and of itself as an admission by any Reporting Person as to beneficial ownership of any shares of Common Stock owned by another Reporting Person. Each of EcoR1 and Mr. Nodelman disclaims beneficial ownership of the shares of Common Stock directly owned by each of Capital Fund and Qualified Fund and the filing of this statement shall not be construed as an admission that any such person or entity is the beneficial owner of any such securities.

- (b) Percent of class:

The following percentages are based on 10,647,059 shares of Common Stock outstanding as of November 24, 2014 based on the Issuer's Registration Statement filed on Form S-3 with the Securities and Exchange Commission on November 26, 2014.

As of the close of business on December 31, 2014, Capital Fund directly owned approximately 3.6% of the outstanding shares of Common Stock, Qualified Fund directly owned approximately 5.9% of the outstanding shares of Common Stock and each of EcoR1 and Mr. Nodelman may be deemed to beneficially own approximately 9.5% of the outstanding shares of Common Stock.

- (c) Number of shares as to which such person has:
 - (i) Sole power to vote or to direct the vote
See Cover Pages Items 5-9.
 - (ii) Shared power to vote or to direct the vote
See Cover Pages Items 5-9.
 - (iii) Sole power to dispose or to direct the disposition of
See Cover Pages Items 5-9.
 - (iv) Shared power to dispose or to direct the disposition of
See Cover Pages Items 5-9.

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

Not Applicable.

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

Not Applicable.

Item 7. Identification and Classification of the Subsidiary That Acquired the Security Being Reported on by the Parent Holding Company or Control Person.

Not Applicable.

Item 8. Identification and Classification of Members of the Group.

See Exhibit 99.1 to the Schedule 13G filed by the Reporting Persons with the Securities and Exchange Commission on October 8, 2014.

Item 9. Notice of Dissolution of Group.

Not Applicable.

Item 10. Certifications.

By signing below each of the undersigned certifies that, to the best of its 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 a participant in any transaction having that purpose or effect.

SIGNATURE

After reasonable inquiry and to the best of his knowledge and belief, each of the undersigned certifies that the information set forth in this statement is true, complete and correct.

Dated: February 17, 2015

EcoR1 Capital Fund, L.P.

By: EcoR1 Capital, LLC
General Partner

By: /s/ Oleg Nodelman

Name: Oleg Nodelman
Title: Manager

EcoR1 Capital Fund Qualified, L.P.

By: EcoR1 Capital, LLC
General Partner

By: /s/ Oleg Nodelman

Name: Oleg Nodelman
Title: Manager

EcoR1 Capital, LLC

By: /s/ Oleg Nodelman

Name: Oleg Nodelman
Title: Manager

/s/ Oleg Nodelman

Oleg Nodelman

