

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

SCHEDULE 13G

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT
TO Sec. 240.13d-1(a) AND AMENDMENTS THERETO FILED PURSUANT TO
Sec. 240.13d-2(a)

(Amendment No. 4)

FATE THERAPEUTICS, INC.

(Name of Issuer)

Common Stock, Par Value \$0.001

(Title of Class of Securities)

31189P102

(CUSIP Number)

December 31, 2017

(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 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 (however, see the Notes).

(1)	Names of Reporting Persons.	Redmile Group, LLC
(2)	Check the Appropriate Box if a Member of a Group (See Instructions)	(a) <input type="checkbox"/> (b) <input type="checkbox"/>
(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
(6)	Shared Voting Power	6,655,962 ¹
(7)	Sole Dispositive Power	0
(8)	Shared Dispositive Power	6,655,962 ¹
(9)	Aggregate Amount Beneficially Owned by Each Reporting Person	6,655,962 ¹
(10)	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)	<input type="checkbox"/>
(11)	Percent of Class Represented by Amount in Row (9)	12.6% ²
(12)	Type of Reporting Person (See Instructions)	IA, OO

¹Redmile Group, LLC's beneficial ownership of the Issuer's common stock ("Common Stock") is comprised of 6,655,962 shares of Common Stock owned by certain private investment vehicles and separately managed accounts managed by Redmile Group, LLC, which shares of Common Stock may be deemed beneficially owned by Redmile Group, LLC as investment manager of such private investment vehicles and separately managed accounts. Certain private investment vehicles and separately managed accounts managed by Redmile Group, LLC also hold an aggregate of 2,819,549 shares of Class A Convertible Preferred Stock, which are convertible into an aggregate of 14,097,745 shares of Common Stock. The terms of the Class A Convertible Preferred Stock provide that the holder may not convert any shares of Class A Convertible Preferred Stock if, after giving effect to the attempted conversion, the holder and its affiliates would collectively beneficially own more than 9.99% of the number of shares of Common Stock outstanding after giving effect to such attempted conversion. Accordingly, as Redmile Group, LLC and its affiliates are the beneficial owners of greater than 9.99% of the number of shares of Common Stock

currently outstanding, the shares of Class A Convertible Preferred Stock are not currently convertible and therefore the shares of Common Stock issuable upon conversion thereof are not deemed beneficially owned by Redmile Group, LLC or included in this figure.

²Percentage based on (a) 41,685,695 shares of Common Stock outstanding as of October 31, 2017, as disclosed in the Issuer's Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2017 filed with the Securities and Exchange Commission on November 1, 2017 (the "Form 10-Q"), plus (b) 10,953,750 shares of the Common Stock issued pursuant to an underwritten public offering of Common Stock (which includes 1,428,750 shares that were issued pursuant to the full exercise of the underwriters' option to purchase additional shares) that closed on December 15, 2017.

(1)	Names of Reporting Persons.	Jeremy C. Green
(2)	Check the Appropriate Box if a Member of a Group (See Instructions)	(a) <input type="checkbox"/> (b) <input type="checkbox"/>
(3)	SEC Use Only	
(4)	Citizenship or Place of Organization	UNITED KINGDOM
	NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	
	(5) Sole Voting Power	0
	(6) Shared Voting Power	6,655,962 ³
	(7) Sole Dispositive Power	0
	(8) Shared Dispositive Power	6,655,962 ³
(9)	Aggregate Amount Beneficially Owned by Each Reporting Person	6,655,962 ³
(10)	Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)	<input type="checkbox"/>
(11)	Percent of Class Represented by Amount in Row (9)	12.6% ⁴
(12)	Type of Reporting Person (See Instructions)	IN, HC

³Jeremy C. Green's beneficial ownership of Common Stock is comprised of 6,655,962 shares of Common Stock owned by certain private investment vehicles and separately managed accounts managed by Redmile Group, LLC, which shares of Common Stock may be deemed beneficially owned by Redmile Group, LLC as investment manager of such private investment vehicles and separately managed accounts. The reported securities may also be deemed beneficially owned by Jeremy C. Green as the principal of Redmile Group, LLC. Certain private investment vehicles and separately managed accounts managed by Redmile Group, LLC also hold an aggregate of 2,819,549 shares of Class A Convertible Preferred Stock, which are convertible into an aggregate of 14,097,745 shares of Common Stock. The terms of the Class A Convertible Preferred Stock provide that the holder may not convert any shares of Class A Convertible Preferred Stock if, after giving effect to the attempted conversion, the holder and its affiliates would collectively beneficially own more than 9.99% of the number of shares of Common Stock outstanding after giving effect to such attempted conversion. Accordingly, as Redmile Group, LLC and its affiliates are the beneficial owners of greater than 9.99% of the number of shares of Common Stock currently outstanding, the shares of Class A Convertible Preferred Stock are not currently convertible and therefore the shares of Common Stock issuable upon conversion thereof are not deemed beneficially owned by Jeremy C. Green or included in this figure.

⁴Percentage based on (a) 41,685,695 shares of Common Stock outstanding as of October 31, 2017, as disclosed in the Form 10-Q, plus (b) 10,953,750 shares of the Common Stock issued pursuant to an underwritten public offering of Common Stock (which includes 1,428,750 shares that were issued pursuant to the full exercise of the underwriters' option to purchase additional shares) that closed on December 15, 2017.

Item 1(a). Name of Issuer:

Fate Therapeutics, Inc.

Item 1(b). Address of Issuer's Principal Executive Offices:

3535 General Atomics Court, Suite 200
San Diego, CA 92121
United States of America

Item 2(a). Names of Persons Filing:

Redmile Group, LLC
Jeremy C. Green

Item 2(b). Address of Principal Business Office or, if None, Residence:

The principal business address of each reporting person is One Letterman Drive, Bldg D, Ste D3-300, San Francisco, CA 94129.

Item 2(c). Citizenship:

Redmile Group, LLC: Delaware
Jeremy C. Green: United Kingdom

Item 2(d). Title of Class of Securities:

Common Stock, \$0.001 par value per share.

Item 2(e). CUSIP Number:

31189P102

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:

- (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);
- (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.

Reference is hereby made to Items 5-9 and 11 of this Schedule above, which Items are incorporated by reference herein.

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 the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following [].

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

N/A

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

See Exhibit B attached hereto.

Item 8. Identification and Classification of Members of the Group

N/A.

Item 9. Notice of Dissolution of Group

N/A.

Item 10. Certifications

By signing below the undersigned certify that, to the best of their 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 my knowledge and belief, the undersigned certifies that the information set forth in this statement is true, complete and correct.

Dated: February 14, 2018

REDMILE GROUP, LLC

By: /s/ Jeremy C. Green
Name: Jeremy C. Green
Title: Managing Member

JEREMY C. GREEN

By: /s/ Jeremy C. Green
Jeremy C. Green

Exhibit A

The undersigned agree that this Schedule 13G, dated February 14, 2018, relating to the common stock, par value \$0.001, of Fate Therapeutics, Inc., shall be filed on behalf of the undersigned.

Dated: February 14, 2018

REDMILE GROUP, LLC

By: /s/ Jeremy C. Green
Name: Jeremy C. Green
Title: Managing Member

JEREMY C. GREEN

By: /s/ Jeremy C. Green
Jeremy C. Green

Exhibit B

Redmile Group, LLC is the relevant entity for which Jeremy C. Green may be considered a control person.