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

SCHEDULE 13D

Under the Securities Exchange Act of 1934
(Amendment No. __)*

Fate Therapeutics, Inc.

(Name of Issuer)

Common Stock, \$0.001 par value per share

(Title of Class of Securities)

31189P102

(CUSIP Number)

Redmile Group, LLC

Jeremy C. Green

One Letterman Drive, Bldg D, Ste D3-300

San Francisco, CA 94129

Attention: Legal Department

(415) 489-9980

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

July 31, 2018

(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 which is the subject of this Schedule 13D, and is filing this schedule because of §§ 240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

NOTE: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See § 13d-7(b) for other parties to whom copies are to be sent.

* 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 on the remainder of this cover page shall not be deemed to be "filed" for 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 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.	SOURCE OF FUNDS (SEE INSTRUCTIONS) OO (1)	
5.	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) OR 2(e) <input type="checkbox"/>	
6.	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7.	SOLE VOTING POWER 0
	8.	SHARED VOTING POWER 6,655,962 (2)
	9.	SOLE DISPOSITIVE POWER 0
	10.	SHARED DISPOSITIVE POWER 6,655,962 (2)
11.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 6,655,962 (2)	
12.	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)	
13.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 12.6% (3)	
14.	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) IA, OO	

(1) The source of funds was working capital of the Redmile Affiliates (as defined in footnote (2) below).

(2) The aggregate amount of shares of common stock, \$0.001 par value per share, of the Issuer (the “Common Stock”) that may be deemed beneficially owned by the Reporting Persons is comprised of the following: (i) 479,459 shares of Common Stock held by Redmile Capital Fund, L.P., (ii) 1,298,710 shares of Common Stock held by Redmile Capital Offshore Fund, Ltd., (iii) 57,054 shares of Common Stock held by Redmile Capital Offshore Fund (ERISA), Ltd., (iv) 2,261,628 shares of Common Stock held by Redmile Capital Offshore Fund II, Ltd., (v) 584,145 shares of Common Stock held by Redmile Strategic Master Fund, LP, (vi) 1,190,476 shares of Common Stock held by Redmile Biopharma Investments I, L.P., (vii) 198,697 shares of Common Stock held by P Redmile Ltd., (viii) 202,593 shares of Common Stock held by Map 20 Segregated Portfolio, a segregated portfolio of LMA SPC, and (ix) 383,200 shares of Common Stock held by a separately managed account. Redmile Group, LLC is the investment manager/adviser to each of the private investment vehicles and separately managed accounts listed in items (i) through (ix) (collectively, the “Redmile Affiliates”) and, in such capacity, exercises sole voting and investment power over all of the shares held by the Redmile Affiliates and may be deemed to be the beneficial owner of these shares. Jeremy C. Green serves as the managing member of Redmile Group, LLC and also may be deemed to be the beneficial owner of these shares. Redmile Group, LLC and Mr. Green each disclaim beneficial ownership of these shares, except to the extent of its or his pecuniary interest in such shares, if any.

Subject to the Beneficial Ownership Blocker (as defined below), the Reporting Persons may also be deemed to beneficially own shares of Common Stock issuable upon conversion of the following: (i) 223,663 shares of the Issuer’s non-voting Class A Convertible Preferred Stock (“Class A Preferred Stock”) held by Redmile Capital Fund, L.P., (ii) 302,862 shares of Class A Preferred Stock held by Redmile Capital Offshore Fund, Ltd., (iii) 33,441 shares of Class A Preferred Stock held by Redmile Capital Offshore Fund (ERISA), Ltd., (iv) 1,712,110 shares of Class A Preferred Stock held by Redmile Capital Offshore Fund II, Ltd., (v) 55,747 shares of Class A Preferred Stock held by Redmile Strategic Master Fund, LP, (vi) 342,422 shares of Class A Preferred Stock held by Redmile Biopharma Investments I, L.P., (vii) 30,121 shares of Class A Preferred Stock held by P Redmile Ltd., and (viii) 119,183 shares of the Class A Preferred Stock held by Map 20 Segregated Portfolio, a segregated portfolio of LMA SPC. The Class A Preferred Stock is initially convertible into shares of Common Stock on a one-for-five basis. Pursuant to the Certificate of Designation of Preferences, Rights and Limitations of Class A Convertible Preferred Stock (the “Certificate of Designation”), the Issuer may not effect any conversion of the Class A Preferred Stock, and a holder of the Class A Preferred Stock does not have the right to convert any portion of the Class A Preferred Stock held by such holder, to the extent that, after giving effect to the attempted conversion set forth in a notice of conversion, such holder, together with such holder’s affiliates and any other person whose beneficial ownership of Common Stock would be aggregated with such holder’s for purposes of Section 13(d) or Section 16 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and the applicable regulations of the Securities and Exchange Commission (the “SEC”), including any “group” of which such holder is a member, would beneficially own a number of shares of Common Stock in excess of the Beneficial Ownership Limitation (the “Beneficial Ownership Blocker”). The “Beneficial Ownership Limitation” is 9.99% of the shares of Common Stock then issued and outstanding, which percentage may be changed at a holder’s election upon 61 days’ notice to the Issuer. Because the percentage of shares of Common Stock collectively held directly by the Redmile Affiliates currently exceeds 9.99%, the conversion of the Class A Preferred Stock held by the Redmile Affiliates is currently limited in its entirety by the Beneficial Ownership Blocker and the Reporting Persons therefore cannot be deemed to have beneficial ownership over any of the shares of Common Stock issuable upon conversion of the Class A Preferred Stock and such shares have not been included in the aggregate amount of shares of Common Stock beneficially owned as reported in the table above.

(3) Percent of class calculated based on 52,858,446 shares of Common Stock issued and outstanding as of May 7, 2018, as reported by the Issuer in its Quarterly Report on Form 10-Q for the fiscal period ended March 31, 2018 filed with the SEC on May 10, 2018 (the “Form 10-Q”).

1.	NAME OF REPORTING PERSON 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.	SOURCE OF FUNDS (SEE INSTRUCTIONS) OO (1)	
5.	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) OR 2(e) <input type="checkbox"/>	
6.	CITIZENSHIP OR PLACE OF ORGANIZATION United Kingdom	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7.	SOLE VOTING POWER 0
	8.	SHARED VOTING POWER 6,655,962 (2)
	9.	SOLE DISPOSITIVE POWER 0
	10.	SHARED DISPOSITIVE POWER 6,655,962 (2)
11.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 6,655,962 (2)	
12.	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)	
13.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 12.6% (3)	
14.	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) IN, HC	

(1) The source of funds was working capital of the Redmile Affiliates.

(2) The aggregate amount of shares of Common Stock that may be deemed beneficially owned by the Reporting Persons is comprised of the following: (i) 479,459 shares of Common Stock held by Redmile Capital Fund, L.P., (ii) 1,298,710 shares of Common Stock held by Redmile Capital Offshore Fund, Ltd., (iii) 57,054 shares of Common Stock held by Redmile Capital Offshore Fund (ERISA), Ltd., (iv) 2,261,628 shares of Common Stock held by Redmile Capital Offshore Fund II, Ltd., (v) 584,145 shares of Common Stock held by Redmile Strategic Master Fund, LP, (vi) 1,190,476 shares of Common Stock held by Redmile Biopharma Investments I, L.P., (vii) 198,697 shares of Common Stock held by P Redmile Ltd., (viii) 202,593 shares of Common Stock held by Map 20 Segregated Portfolio, a segregated portfolio of LMA SPC, and (ix) 383,200 shares of Common Stock held by a separately managed account. Redmile Group, LLC is the investment manager/adviser to each of the Redmile Affiliates and, in such capacity, exercises sole voting and investment power over all of the shares held by the Redmile Affiliates and may be deemed to be the beneficial owner of these shares. Jeremy C. Green serves as the managing member of Redmile Group, LLC and also may be deemed to be the beneficial owner of these shares. Redmile Group, LLC and Mr. Green each disclaim beneficial ownership of these shares, except to the extent of its or his pecuniary interest in such shares, if any.

Subject to the Beneficial Ownership Blocker, the Reporting Persons may also be deemed to beneficially own shares of Common Stock issuable upon conversion of the following: (i) 223,663 shares of Class A Preferred Stock held by Redmile Capital Fund, L.P., (ii) 302,862 shares of Class A Preferred Stock held by Redmile Capital Offshore Fund, Ltd., (iii) 33,441 shares of Class A Preferred Stock held by Redmile Capital Offshore Fund (ERISA), Ltd., (iv) 1,712,110 shares of Class A Preferred Stock held by Redmile Capital Offshore Fund II, Ltd., (v) 55,747 shares of Class A Preferred Stock held by Redmile Strategic Master Fund, LP, (vi) 342,422 shares of Class A Preferred Stock held by Redmile Biopharma Investments I, L.P., (vii) 30,121 shares of Class A Preferred Stock held by P Redmile Ltd., and (viii) 119,183 shares of the Class A Preferred Stock held by Map 20 Segregated Portfolio, a segregated portfolio of LMA SPC. The Class A Preferred Stock is initially convertible into shares of Common Stock on a one-for-five basis. Pursuant to the Certificate of Designation, the Issuer may not effect any conversion of the Class A Preferred Stock, and a holder of the Class A Preferred Stock does not have the right to convert any portion of the Class A Preferred Stock held by such holder, if the Beneficial Ownership Blocker applies. Because the percentage of shares of Common Stock collectively held directly by the Redmile Affiliates currently exceeds 9.99%, the conversion of the Class A Preferred Stock held by the Redmile Affiliates is currently limited in its entirety by the Beneficial Ownership Blocker and the Reporting Persons therefore cannot be deemed to have beneficial ownership over any of the shares of Common Stock issuable upon conversion of the Class A Preferred Stock and such shares have not been included in the aggregate amount of shares of Common Stock beneficially owned as reported in the table above.

(3) Percent of class calculated based on 52,858,446 shares of Common Stock issued and outstanding as of May 7, 2018, as reported by the Issuer in the Form 10-Q.

ITEM 1. Security and Issuer.

The security to which this Schedule 13D relates is the common stock, \$0.001 par value per share ("Common Stock"), of Fate Therapeutics, Inc., a Delaware corporation (the "Issuer"). The principal executive offices of the Issuer are located at 3535 General Atomics Court, Suite 200, San Diego, CA 92121.

ITEM 2. Identity and Background.

(a), (b), (c) and (f). This Schedule 13D is being filed jointly by Redmile Group, LLC, a Delaware limited liability company ("Redmile"), and Jeremy C. Green, a citizen of the United Kingdom (together with Redmile, the "Reporting Persons"), pursuant to the provisions of Rule 13d-1(k)(1) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), as separate persons and not as members of a group. See Exhibit 99.1 to this Schedule 13D for their Joint Filing Agreement.

Redmile Group, LLC

Redmile Group, LLC is a Delaware limited liability company whose principal business is to serve as investment manager/adviser to certain private investment funds and separately managed accounts, including Redmile Capital Fund, L.P., Redmile Capital Offshore Fund, Ltd., Redmile Capital Offshore Fund (ERISA), Ltd., Redmile Capital Offshore Fund II, Ltd., Redmile Strategic Master Fund, LP, Redmile Biopharma Investments I, L.P., P Redmile Ltd. and Map 20 Segregated Portfolio, a segregated portfolio of LMA SPC. The business address of Redmile is One Letterman Drive, Bldg D, Ste D3-300, San Francisco, CA 94129. Information relating to the managing member of Redmile is set forth below.

Jeremy C. Green

The principal occupation of Jeremy C. Green is managing member of Redmile Group, LLC. The business address of Jeremy C. Green is One Letterman Drive, Bldg D, Ste D3-300, San Francisco, CA 94129. Jeremy C. Green is a citizen of the United Kingdom.

(d) and (e). During the last five years, none of the Reporting Persons has been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and, as a result of such proceeding, was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws. During the last five years, none of the Reporting Persons has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

ITEM 3. Source and Amount of Funds or Other Consideration.

The source of funds was working capital of the entities for which Redmile Group, LLC is the investment manager/adviser listed in items (i) through (ix) of Item 5(a) below.

ITEM 4. Purpose of Transaction.

The Reporting Persons acquired the Common Stock covered by this Schedule 13D for investment purposes, in the ordinary course of business.

The Reporting Persons will routinely monitor a wide variety of investment considerations, including, without limitation, current and anticipated future trading prices for the Common Stock, the Issuer's operations, assets, prospects, business development, markets and capitalization, the Issuer's management and personnel, Issuer-related competitive and strategic matters, general economic, financial market and industry conditions, as well as other investment considerations. The Reporting Persons expect to discuss their investment in the Issuer and the foregoing investment considerations with the Issuer's Board of Directors ("Board of Directors"), management, other investors, industry analysts and others. These considerations, these discussions and other factors may result in the Reporting Persons' consideration of various alternatives with respect to their investment, including possible changes in the present Board of Directors and/or management of the Issuer or other alternatives to increase stockholder value. The Reporting Persons may also enter into confidentiality or similar agreements with the Issuer and, subject to such an agreement or otherwise, exchange information with the Issuer. In addition, the Reporting Persons may acquire additional Issuer securities in the public markets, in privately negotiated transactions or otherwise (including through the conversion of shares of the Issuer's non-voting Class A Convertible Preferred Stock (the "Class A Preferred Stock") that may be deemed to be beneficially owned by the Reporting Persons) or may determine to sell, trade or otherwise dispose of all or some holdings in the Issuer in the public markets, in privately negotiated transactions or otherwise, or take any other lawful action they deem to be in their best interests. The Reporting Persons may also terminate or settle the swap agreements discussed under the heading "Swap Agreements" in Item 6 below.

On July 31, 2018, the Issuer's Board of Directors appointed Michael S. Lee, a managing director of Redmile, to serve as a Class II director to serve until the Issuer's 2021 Annual Meeting of Stockholders and until his successor has been duly elected and qualified, or until his earlier death, resignation or removal. In connection with Mr. Lee's appointment to the Issuer's Board of Directors, Mr. Lee and the Issuer entered into an Indemnification Agreement in the same form as the Issuer's standard form of indemnification agreement with its other directors.

In addition, Mr. Lee is entitled to cash and equity compensation pursuant to the Issuer's Amended and Restated Non-Employee Director Compensation Policy (the "Policy"). Pursuant to the Policy, Mr. Lee is entitled to receive an annual cash retainer of \$40,000 to be paid quarterly, in arrears. If Mr. Lee serves on any committees of the Issuer's Board of Directors, he will be entitled to receive additional cash compensation. Under the Policy, non-employee directors receive \$7,500 annually for serving on the audit committee (\$15,000 annually for the chairperson), \$5,000 annually for serving on the compensation committee (\$10,000 annually for the chairperson), and \$3,500 annually for serving on the nominating and corporate governance committee (\$7,000 annually for the chairperson).

Upon his appointment to the Issuer's Board of Directors, Mr. Lee received an option to purchase 24,000 shares of the Issuer's common stock at an exercise price of \$8.93. The shares subject to the option will vest in equal monthly installments during the thirty-six months following the grant date, subject to Mr. Lee's continued service on the Board of Directors of the Issuer through each vesting date. Pursuant to the Policy, Mr. Lee will also be entitled to receive an option to purchase 16,000 shares of the Issuer's common stock on the date of each annual meeting of stockholders of the Issuer, which option will vest on the earlier of the one-year anniversary of the grant and the date of Issuer's next annual meeting of stockholders, subject to Mr. Lee's continued service on the Board of Directors of the Issuer through the applicable vesting date.

Pursuant to the policies of Redmile, any stock options or other equity awards granted to Mr. Lee in connection with his service on the Issuer's Board of Directors will be held by him as a nominee on behalf, and for the sole benefit, of Redmile and Mr. Lee will assign all economic, pecuniary and voting rights in respect of any such equity awards to Redmile. Mr. Lee disclaims beneficial ownership of such securities, and the filing of this Schedule 13D shall not be deemed an admission that Mr. Lee is the beneficial owner of such securities for any purpose. The Reporting Persons disclaim beneficial ownership of all such securities except to the extent of their pecuniary interest therein, and this Schedule 13D shall not be deemed an admission that the Reporting Persons are the beneficial owner of such securities any purpose.

Pursuant to the policies of Redmile, all cash compensation that Mr. Lee receives in connection with his service on the Issuer's Board of Directors will be paid by the Issuer directly to Redmile.

Except as set forth in this Item 4, no Reporting Person has any present plans or proposals that relate to or would result in: (a) the acquisition by any person of additional securities of the Issuer, or the disposition of securities of the Issuer; (b) an extraordinary corporate transaction, such as a merger, reorganization or liquidation, involving the Issuer or any of its subsidiaries; (c) a sale or transfer of a material amount of assets of the Issuer or of any of its subsidiaries; (d) any change in the present board of directors or management of the Issuer, including any plans or proposals to change the number or term of such directors or to fill any existing vacancies on such board; (e) any material change in the present capitalization or dividend policy of the Issuer; (f) any other material change in the Issuer's business or corporate structure; (g) changes in the Issuer's charter, by-laws or instruments corresponding thereto or other actions that may impede the acquisition of control of the Issuer by any person; (h) causing a class of securities of the Issuer to be delisted from a national securities exchange or to cease to be authorized to be quoted in an inter-dealer quotation system of a registered national securities association; (i) a class of equity securities of the Issuer becoming eligible for termination of registration pursuant to Section 12(g)(4) of the Exchange Act; or (j) any action similar to any of those enumerated in subparagraphs (a)-(i) above. There is no assurance that the Reporting Persons will develop any plans or proposals with respect to any of these matters. However, the Reporting Persons reserve the right to formulate plans or proposals which would relate to or result in the transactions described in subparagraphs (a) through (j) of this Item 4.

ITEM 5. Interest in Securities of the Issuer.

(a) The aggregate amount of shares of Common Stock that may be deemed beneficially owned by the Reporting Persons is comprised of the following: (i) 479,459 shares of Common Stock held by Redmile Capital Fund, L.P., (ii) 1,298,710 shares of Common Stock held by Redmile Capital Offshore Fund, Ltd., (iii) 57,054 shares of Common Stock held by Redmile Capital Offshore Fund (ERISA), Ltd., (iv) 2,261,628 shares of Common Stock held by Redmile Capital Offshore Fund II, Ltd., (v) 584,145 shares of Common Stock held by Redmile Strategic Master Fund, LP, (vi) 1,190,476 shares of Common Stock held by Redmile Biopharma Investments I, L.P., (vii) 198,697 shares of Common Stock held by P Redmile Ltd., (viii) 202,593 shares of Common Stock held by Map 20 Segregated Portfolio, a segregated portfolio of LMA SPC, and (ix) 383,200 shares of Common Stock held by a separately managed account. Redmile Group, LLC is the investment manager/adviser to each of the private investment vehicles and separately managed accounts listed in items (i) through (ix) (collectively, the “Redmile Affiliates”) and, in such capacity, exercises sole voting and investment power over all of the shares held by the Redmile Affiliates and may be deemed to be the beneficial owner of these shares. Jeremy C. Green serves as the managing member of Redmile Group, LLC and also may be deemed to be the beneficial owner of these shares. Redmile Group, LLC and Mr. Green each disclaim beneficial ownership of these shares, except to the extent of its or his pecuniary interest in such shares, if any.

Subject to the Beneficial Ownership Blocker (as defined below), the Reporting Persons may also be deemed to beneficially own shares of Common Stock issuable upon conversion of the following: (i) 223,663 shares of the Issuer’s non-voting Class A Convertible Preferred Stock (“Class A Preferred Stock”) held by Redmile Capital Fund, L.P., (ii) 302,862 shares of Class A Preferred Stock held by Redmile Capital Offshore Fund, Ltd., (iii) 33,441 shares of Class A Preferred Stock held by Redmile Capital Offshore Fund (ERISA), Ltd., (iv) 1,712,110 shares of Class A Preferred Stock held by Redmile Capital Offshore Fund II, Ltd., (v) 55,747 shares of Class A Preferred Stock held by Redmile Strategic Master Fund, LP, (vi) 342,422 shares of Class A Preferred Stock held by Redmile Biopharma Investments I, L.P., (vii) 30,121 shares of Class A Preferred Stock held by P Redmile Ltd., and (viii) 119,183 shares of the Class A Preferred Stock held by Map 20 Segregated Portfolio, a segregated portfolio of LMA SPC. The Class A Preferred Stock is initially convertible into shares of Common Stock on a one-for-five basis. Pursuant to the Certificate of Designation of Preferences, Rights and Limitations of Class A Convertible Preferred Stock (the “Certificate of Designation”), the Issuer may not effect any conversion of the Class A Preferred Stock, and a holder of the Class A Preferred Stock does not have the right to convert any portion of the Class A Preferred Stock held by such holder, to the extent that, after giving effect to the attempted conversion set forth in a notice of conversion, such holder, together with such holder’s affiliates and any other person whose beneficial ownership of Common Stock would be aggregated with such holder’s for purposes of Section 13(d) or Section 16 of the Exchange Act and the applicable regulations of the Securities and Exchange Commission (the “SEC”), including any “group” of which such holder is a member, would beneficially own a number of shares of Common Stock in excess of the Beneficial Ownership Limitation (the “Beneficial Ownership Blocker”). The “Beneficial Ownership Limitation” is 9.99% of the shares of Common Stock then issued and outstanding, which percentage may be changed at a holder’s election upon 61 days’ notice to the Issuer. Because the percentage of shares of Common Stock collectively held directly by the Redmile Affiliates currently exceeds 9.99%, the conversion of the Class A Preferred Stock held by the Redmile Affiliates is currently limited in its entirety by the Beneficial Ownership Blocker and the Reporting Persons therefore cannot be deemed to have beneficial ownership over any of the shares of Common Stock issuable upon conversion of the Class A Preferred Stock and such shares have not been included in the aggregate amount of shares of Common Stock beneficially owned as reported in Section 4(b) below.

For purposes of this Schedule 13D, the percent of class was calculated based on an aggregate of 52,858,446 shares of Common Stock issued and outstanding as of May 7, 2018, as reported by the Issuer in its Quarterly Report on Form 10-Q for the fiscal period ended March 31, 2018 filed with the SEC on May 10, 2018 (the “Form 10-Q”).

(b) Redmile Group, LLC:

- (1) Sole Voting Power: 0
- (2) Shared Voting Power: 6,655,962
- (3) Sole Dispositive Power: 0
- (4) Shared Dispositive Power: 6,655,962

Jeremy C. Green:

- (1) Sole Voting Power: 0
- (2) Shared Voting Power: 6,655,962
- (3) Sole Dispositive Power: 0
- (4) Shared Dispositive Power: 6,655,962

(c) The information in Item 6 below is incorporated herein by reference.

(d) Not applicable.

(e) Not applicable.

ITEM 6. Contracts, Arrangements, Understandings or Relationship with Respect to the Securities of the Issuer.

Preferred Stock Private Placement

On November 21, 2016, the Issuer entered into a Securities Purchase Agreement (the "Securities Purchase Agreement") for a private placement (the "Private Placement") with a select group of institutional investors, including the Redmile Affiliates. Pursuant to the Securities Purchase Agreement, on November 23, 2016, the Redmile Affiliates purchased an aggregate of 2,819,549 shares of Class A Preferred Stock at a price of \$13.30 per share. The Class A Preferred Stock is convertible into shares of Common Stock on a one-for-five basis. Redmile Group, LLC is the investment manager/adviser to each of the Redmile Affiliates and, in such capacity, exercises sole voting and investment power over all of the shares held by such vehicles and accounts and may be deemed to be the beneficial owner of these shares. Jeremy C. Green serves as the managing member of Redmile Group, LLC and also may be deemed to be the beneficial owner of these shares. Redmile Group, LLC and Mr. Green each disclaim beneficial ownership of these shares, except to the extent of its or his pecuniary interest in such shares, if any.

In connection with the issuance and sale of Class A Preferred Stock, on November 21, 2016, the Issuer and certain of the participants in the Private Placement, including the Redmile Affiliates, also entered into a registration rights agreement (the "Registration Rights Agreement"). Pursuant to the Registration Rights Agreement, the Issuer agreed, among other things, to prepare and file a registration statement with the SEC registered for resale the shares of Common Stock issued or issuable pursuant to the Private Placement (the "Shares") within 60 days of the closing of the Private Placement, and to use commercially reasonable efforts to have the registration statement declared effective within 135 days if there is no review by the SEC, and within 160 days in the event of such review. In accordance with the Registration Rights Agreement, the Issuer filed a registration statement on Form S-3 (File No. 333-215460) (the "Form S-3") registering the Shares for resale on January 6, 2017, and the Form S-3 was declared effective by the SEC on January 25, 2017.

In addition, on November 21, 2016, pursuant to a letter agreement entered into by and among the Issuer, Redmile and certain of the Redmile Affiliates (the "Letter Agreement"), Redmile received the right to designate an individual to attend all meetings of the Board in a non-voting observer capacity, which right is non-assignable and shall terminate upon the earlier of (i) November 21, 2019, or (ii) the date upon which Redmile's total ownership no longer exceeds 15% of the Common Stock on an as-converted basis.

The Certificate of Designation, filed with the office of the Secretary of State of the State of Delaware on November 22, 2016, sets forth the rights, preferences, privileges, and restrictions applicable to the Class A Preferred Stock. Certain of the material rights, preferences, privileges, and restrictions applicable to the Class A Preferred Stock are described below.

Conversion. Each share of the Class A Preferred Stock will initially be convertible into five shares of Common Stock. The conversion rate of the Class A Preferred Stock is subject to proportionate adjustments for stock splits, reverse stock splits and similar events, but is not subject to price-based anti-dilution adjustments.

Dividends. Holders of Class A Preferred Stock are entitled to receive dividends on such shares equal (on an as-if-converted-to-Common Stock basis) to, and in the same form as, dividends actually paid on shares of Common Stock when, as and if such dividends are paid on shares of the Common Stock.

Voting Rights. Except as required by applicable law, the Class A Preferred Stock shall have no voting rights. However, as long as any shares of Class A Preferred Stock are outstanding, the Issuer shall not, without the affirmative vote of the holders of a majority of the then outstanding shares of the Class A Preferred Stock, (i) alter or change adversely the powers, preferences or rights given to the Class A Preferred Stock or alter or amend the Certificate of Designation, amend or repeal any provision of, or add any provision to, the Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation") or bylaws of the Issuer, or file any articles of amendment, certificate of designations, preferences, limitations and relative rights of any series of preferred stock, if such action would adversely alter or change the preferences, rights, privileges or powers of, or restrictions provided for the benefit of the Class A Preferred Stock in a manner materially different than the effect on Common Stock, regardless of whether any of the foregoing actions shall be by means of amendment to the Certificate of Incorporation or by merger, consolidation or otherwise, (ii) issue further shares of Class A Preferred Stock or increase or decrease (other than by conversion) the number of authorized shares of Class A Preferred Stock, or (iii) enter into any agreement with respect to any of the foregoing.

Liquidation Rights. Upon any liquidation, dissolution or winding-up of the Issuer, whether voluntary or involuntary (a "Liquidation"), the assets of the Corporation available for distribution to its stockholders shall be distributed *pari passu* among the holders of the shares of Common Stock and Class A Preferred Stock, pro rata based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to Common Stock pursuant to the terms of the Certificate of Incorporation (without regard to the Beneficial Ownership Limitation) immediately prior to such Liquidation.

Beneficial Ownership Limitation. The Issuer may not effect any conversion of the Class A Preferred Stock, and a holder does not have the right to convert any portion of the Class A Preferred Stock held by the holder, to the extent that, after giving effect to the attempted conversion set forth in a notice of conversion, such holder, together with such holder's affiliates and any other person whose beneficial ownership of Common Stock would be aggregated with such holder's for purposes of Section 13(d) or Section 16 of the Exchange Act and the applicable regulations of the SEC, including any "group" of which such holder is a member, would beneficially own a number of shares of Common Stock in excess of the Beneficial Ownership Limitation. The "Beneficial Ownership Limitation" shall initially be 9.99% of the shares of Common Stock then issued and outstanding, which percentage may be changed at a holder's election upon 61 days' notice to the Issuer. Such changed percentage may not exceed 19.99% of the shares of Common Stock then issued and outstanding.

Fundamental Transaction. If, at any time while any shares of the Class A Preferred Stock are outstanding, (i) the Issuer, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Issuer with or into another person, (ii) the Issuer, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition, of all or substantially all of its assets in one or a series of related transactions, (iii) any direct or indirect, purchase offer, tender offer or exchange offer (whether by the Issuer or another person) is completed pursuant to which holders of Common Stock are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 35% or more of the outstanding Common Stock, (iv) the Issuer, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of Common Stock or any compulsory share exchange pursuant to which the Common Stock is effectively converted into or exchanged for other securities, cash or property, or (v) the Issuer, directly or indirectly, in one or more related transactions consummates a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another person whereby such other person acquires more than 50% of the outstanding shares of Common Stock (not including any shares of Common Stock held by the other person or other persons making or party to, or associated or affiliated with the other persons making or party to, such stock or share purchase agreement or other business combination and excluding shares acquired upon conversion of any currently outstanding convertible securities in accordance with the terms thereof) (each a “Fundamental Transaction”), then upon the effective date and time of the Fundamental Transaction, each outstanding share of Class A Preferred Stock shall, without any further action on the part of the holder, automatically convert into shares of Common Stock at the applicable conversion ratio.

The foregoing summaries of the Securities Purchase Agreement, the Registration Rights Agreement, the Certificate of Designation and the Letter Agreement are not intended to be complete and are qualified in their entirety by reference to the full texts of such documents, which are filed as Exhibit 99.2, 99.3, 99.4 and 99.5 to this Schedule 13D, respectively, and are incorporated herein by reference.

Swap Agreements

Redmile Strategic Master Fund, L.P. and a separately managed account for which Redmile Group, LLC is the investment manager/adviser have entered into cash-settled swap agreements with respect to 550,000 and 9,100 shares of Common Stock, respectively. Collectively, the swap agreements entered into by these Redmile Affiliates represent economic exposure comparable to an interest in approximately 1.1% of the shares of Common Stock outstanding as of May 7, 2018, as reported by the Issuer in the Form 10-Q. The Reporting Persons have the right to terminate and close out each swap agreement at any time. The reference price associated with such swap agreements is \$3.02. Upon settlement of each swap agreement, either (i) the counterparty will pay to the applicable Redmile Affiliate an amount in cash determined in part by reference to any increase between the reference price and the market value of the notional number of shares of Common Stock subject to the swap agreement, or (ii) the applicable Redmile Affiliate will pay to the counterparty an amount in cash determined in part by reference to any decrease between the reference price and the market value of the notional number of shares of Common Stock subject to the swap agreement. The swap agreements do not give the applicable Redmile Affiliate or the Reporting Persons direct or indirect voting, investment or dispositive control over any securities of the Issuer and do not require the counterparties thereto to acquire, hold, vote or dispose of any securities of the Issuer. Accordingly, the Reporting Persons disclaim beneficial ownership in securities to which such swap agreements relate. The counterparties to the swap agreements are unaffiliated third party financial institutions.

Appointment of Michael Lee to the Board of Directors

On July 31, 2018, the Issuer’s Board of Directors appointed Michael S. Lee, a managing director of Redmile, to serve as a Class II director to serve until the Issuer’s 2021 Annual Meeting of Stockholders and until his successor has been duly elected and qualified, or until his earlier death, resignation or removal. In connection with Mr. Lee’s appointment to the Issuer’s Board of Directors, Mr. Lee and the Issuer entered into an Indemnification Agreement in the same form as the Issuer’s standard form of indemnification agreement with its other directors.

In addition, Mr. Lee is entitled to cash and equity compensation pursuant to the Policy. Pursuant to the Policy, Mr. Lee is entitled to receive an annual cash retainer of \$40,000 to be paid quarterly, in arrears. If Mr. Lee serves on any committees of the Issuer’s Board of Directors, he will be entitled to receive additional cash compensation. Under the Policy, non-employee directors receive \$7,500 annually for serving on the audit committee (\$15,000 annually for the chairperson), \$5,000 annually for serving on the compensation committee (\$10,000 annually for the chairperson), and \$3,500 annually for serving on the nominating and corporate governance committee (\$7,000 annually for the chairperson).

Upon his appointment to the Issuer's Board of Directors, Mr. Lee received an option to purchase 24,000 shares of the Issuer's common stock at an exercise price of \$8.93. The shares subject to the option will vest in equal monthly installments during the thirty-six months following the grant date, subject to Mr. Lee's continued service on the Board of Directors of the Issuer through each vesting date. Pursuant to the Policy, Mr. Lee will also be entitled to receive an option to purchase 16,000 shares of the Issuer's common stock on the date of each annual meeting of stockholders of the Issuer, which option will vest on the earlier of the one-year anniversary of the grant and the date of Issuer's next annual meeting of stockholders, subject to Mr. Lee's continued service on the Board of Directors of the Issuer through the applicable vesting date.

Pursuant to the policies of Redmile, any stock options or other equity awards granted to Mr. Lee in connection with his service on the Issuer's Board of Directors will be held by him as a nominee on behalf, and for the sole benefit, of Redmile and Mr. Lee will assign all economic, pecuniary and voting rights in respect of any such equity awards to Redmile. Mr. Lee disclaims beneficial ownership of such securities, and the filing of this Schedule 13D shall not be deemed an admission that Mr. Lee is the beneficial owner of such securities for any purpose. The Reporting Persons disclaim beneficial ownership of all such securities except to the extent of their pecuniary interest therein, and this Schedule 13D shall not be deemed an admission that the Reporting Persons are the beneficial owner of such securities any purpose.

Pursuant to the policies of Redmile, all cash compensation that Mr. Lee receives in connection with his service on the Issuer's Board of Directors will be paid by the Issuer directly to Redmile.

Except as described above, no contracts, arrangements, understandings, or relationships (legal or otherwise) exist between any Reporting Person and any person with respect to any securities of the Issuer, including, but not limited to, transfer or voting of any of the securities, finder's fees, joint ventures, loan or option arrangements, puts or calls, guarantees of profits, divisions of profits or loss, or the giving or withholding of proxies. Except as described above, none of the Reporting Persons is a party to any arrangement whereby securities of the Issuer are pledged or are otherwise subject to a contingency the occurrence of which would give another person voting power or investment power over such securities.

ITEM 7. Material to Be Filed as Exhibits.

Exhibit Number	Description
Exhibit 99.1	Joint Filing Agreement, dated as of August 2, 2018, between Redmile Group, LLC and Jeremy C. Green.
Exhibit 99.2	Securities Purchase Agreement by and among Fate Therapeutics, Inc. and the Buyers set forth therein dated November 21, 2016 (incorporated by reference to Exhibit 10.1 to the Issuer's Current Report on Form 8-K filed on November 22, 2016).
Exhibit 99.3	Registration Rights Agreement by and between Fate Therapeutics, Inc. and the buyers listed on the Schedule of Buyers thereto, dated November 21, 2016 (incorporated by reference to Exhibit 10.2 to the Issuer's Current Report on Form 8-K filed on November 22, 2016).
Exhibit 99.4	Certificate of Designation of Preferences, Rights and Limitations of Class A Convertible Preferred Stock of Fate Therapeutics, Inc., dated November 21, 2016 (incorporated by reference to Exhibit 3.1 to the Issuer's Current Report on Form 8-K filed on November 29, 2016).
Exhibit 99.5	Letter Agreement by and among Fate Therapeutics, Inc., Redmile Group, LLC and certain private investment vehicles and separately managed accounts for which Redmile Group, LLC is the investment manager/adviser, dated November 21, 2016.

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.

Dated: August 2, 2018

REDMILE GROUP, LLC

/s/ Jeremy C. Green

Name: Jeremy C. Green

Title: Managing Member

Dated: August 2, 2018

/s/ Jeremy C. Green

JEREMY C. GREEN

Joint Filing Agreement

In accordance with Rule 13d-1(k)(1) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), the undersigned hereby agree to the joint filing on behalf of each of them of a Statement on Schedule 13D (including any and all amendments thereto, the "Schedule 13D") relating to the common stock, \$0.001 par value per share, of Fate Therapeutics, Inc., which may be deemed necessary pursuant to Regulation 13D or 13G promulgated under the Exchange Act.

The undersigned further agree that each party hereto is responsible for the timely filing of the Schedule 13D, and for the accuracy and completeness of the information concerning such party contained therein; provided, however, that no party is responsible for the accuracy or completeness of the information concerning any other party, unless such party knows or has a reason to believe that such information is inaccurate.

It is understood and agreed that a copy of this Joint Filing Agreement shall be attached as an exhibit to the Schedule 13D, filed on behalf of each of the parties hereto.

IN WITNESS WHEREOF, each of the undersigned has executed this Joint Filing Agreement as of the 2nd day of August, 2018.

REDMILE GROUP, LLC

/s/ Jeremy C. Green

Name: Jeremy C. Green

Title: Managing Member

/s/ Jeremy C. Green

JEREMY C. GREEN

FATE THERAPEUTICS, INC.
3535 General Atomics Court, Suite 200
San Diego, CA 92121

NOVEMBER 21, 2016

Redmile Group, LLC

One Letterman Drive, Building D, Suite D3-300
San Francisco, CA 94129

Re: Board Observation Rights

Ladies and Gentlemen:

This letter will confirm our agreement with you in connection with your purchase of shares of common stock and Class A preferred stock of Fate Therapeutics, Inc. (the “**Company**”). In connection with the sale of the Company’s common stock and Class A preferred stock pursuant to the Securities Purchase Agreement of even date herewith among the Company, affiliates of and funds managed by Redmile Group, LLC (the “**Investor**”) and certain other purchasers (the “**Purchase Agreement**”), the Investor will be entitled to the following contractual rights, in addition to the other rights specifically provided to all stockholders.

1. The Investor shall at all times have the right to appoint one observer, including any successor to the observer (the “**Observer**”), who is reasonably satisfactory to the Company’s Board of Directors (the “**Board**”), who the Company shall invite as a representative of the Investor, to attend all meetings of the Board, and if requested by the Investor, all committees thereof. The Observer shall attend such meetings in a nonvoting capacity, but the Company shall give such representative copies of all notices, minutes, consents and other material that it provides to its directors; *provided, however*, that the Company reserves the right to exclude such representative from access to any material or meeting or portion thereof if the Board reasonably determines in good faith, upon the advice of counsel, that such exclusion is necessary in order to (i) preserve the attorney-client or other legal privilege, (ii) comply with applicable laws or regulations or (iii) is reasonably expected to involve a conflict of interest with the Observer. In the event the Observer is excluded from a meeting of the Board, the Company shall inform the Observer of the general nature of the subject matter discussed and explain the Board’s rationale for the decision to exclude the Observer. The Observer may participate in discussions of matters brought to the Board of Directors.

2. The Investor agrees, and the Observer and any other representative of the Investor will agree, to hold in confidence and trust and not use or disclose any confidential information provided to or learned by it in connection with its rights under this letter, except to the Investor and its employees, managers, directors, officers, members, affiliates, consultants, attorneys, accountants, bankers and other advisers (including, without limitation, financial advisors), and agents who have a need to know such information for the purpose of monitoring Investor’s investment in the Company (the “**Redmile Recipients**”), all of whom shall keep such information confidential and shall use such information solely in order to assist Investor in monitoring its investment in the Company. The Observer and the Investor shall be required to execute a customary confidentiality agreement and shall comply with all applicable securities laws. Notwithstanding the foregoing, if the Observer or the Redmile Recipients are required or requested to make any disclosure required by law or regulation or by any order of a court of competent jurisdiction, save where giving notice to the Company is prohibited by law or regulation, it shall give the Company written notice of such requirement or request as soon as reasonably practicable and shall consult with and afford the Company a reasonable opportunity to contest the necessity of disclosing such information or seek an appropriate protective order, at the Company’s expense. If, in the absence of a protective order, the Observer or the Redmile Recipients are compelled to disclose such information, such party may disclose only that portion of the requested information which, on the written advice of such party’s counsel, such party is legally required to disclose; provided, that, if permitted by applicable law or regulation, such party shall give the Company written notice of the confidential information to be disclosed as far in advance of its disclosure as practicable and use commercially reasonable efforts, at the Company’s expense, to obtain assurances that confidential treatment will be accorded to such confidential information.

3. The rights described in this letter are non-assignable and shall terminate upon the earlier to occur of (i) three years from the date of the Purchase Agreement or (ii) the date upon which the Investor's total ownership (including its ownership of the Company's Class A preferred stock on an as-converted to common stock basis) no longer exceeds 15% of the Company's total shares of common stock on an as-converted basis. The confidentiality provisions of this letter will survive any such termination.

[Signature Page Follows]

Agreed to by Fate Therapeutics, Inc.

/s/ Scott Wolchko

Scott Wolchko
President and Chief Executive Officer

AGREED AND ACCEPTED:

Redmile Capital Fund, LP

By: /s/ Jeremy Green
Jeremy Green
Title: Managing Member of the General Partner and the Investment
Manager

Redmile Capital Offshore Fund, Ltd.

By: /s/ Jeremy Green
Jeremy Green
Title: Managing Member of the Investment Manager

Redmile Capital Offshore Fund II, Ltd.

By: /s/ Jeremy Green
Jeremy Green
Title: Managing Member of the Investment Manager

Redmile Special Opportunities Fund, Ltd.

By: /s/ Jeremy Green
Jeremy Green
Title: Managing Member of the Investment Manager

Redmile Capital Offshore Fund (ERISA), Ltd.

By: /s/ Jeremy Green
Jeremy Green
Title: Managing Member of the Investment Manager

Redmile Biopharma Investments I, L.P.

By: /s/ Jeremy Green
Jeremy Green
Title: Managing Member of the General Partner and/or Management Company

P Redmile, Ltd.

By: /s/ Jeremy Green
Jeremy Green
Title: Managing Member of Redmile Group, LLC, Investment Adviser to P Redmile, Ltd.

LMA SPC for and o/b/o MAP20 Segregated Portfolio

By: /s/ Jeremy Green
Jeremy Green
Title: Managing Member of Redmile Group, LLC, Investment Adviser to LMA SPC for and o/b/o MAP20 Segregated Portfolio
