

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

**SCHEDULE 13G**  
**Under the Securities Exchange Act of 1934**  
**(Amendment No.   )\***

aTyr Pharma, Inc.  
(Name of Issuer)

Common Stock, \$0.001 par value per share  
(Title of Class of Securities)

002120103  
(CUSIP Number)

December 31, 2017  
(Date of Event Which Requires Filing of this Statement)

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).

(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	2,594,339
(7)	Sole Dispositive Power	0
(8)	Shared Dispositive Power	2,594,339
(9)	Aggregate Amount Beneficially Owned by Each Reporting Person	2,594,339
(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)	8.52%
(12)	Type of Reporting Person (See Instructions)	IA,OO

(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	2,594,339
(7)	Sole Dispositive Power	0
(8)	Shared Dispositive Power	2,594,339
(9)	Aggregate Amount Beneficially Owned by Each Reporting Person	2,594,339
(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)	8.52%
(12)	Type of Reporting Person (See Instructions)	IN,HC

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**Item 1(a). Name of Issuer:**

aTyr Pharma, Inc.

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

3545 John Hopkins Court, Suite #250  
San Diego, California 92121

**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:**

Reference is made to Item 4 of pages 2–3 of this Schedule 13G (this "Schedule"), which Items are incorporated by reference herein.

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

Common Stock, \$.001 par value per share

**Item 2(e). CUSIP Number:**

002120103

**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);

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- (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.<sup>1</sup>**

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

<sup>1</sup> Redmile Group, LLC's beneficial ownership of the common stock is comprised of 1,886,792 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 warrants to purchase an aggregate of 707,547 shares of common stock, which shares of common stock may also be deemed beneficially owned by Redmile Group, LLC as investment manager of such private investment vehicles and separately managed accounts.

**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.**

Not Applicable.

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

If a parent holding company or control person has filed this schedule, pursuant to Rule 13d-1(b)(1)(ii)(G), so indicate under Item 3(g) and attach an exhibit stating the identity and the Item 3 classification of the relevant subsidiary. If a parent holding company or control person has filed this schedule pursuant to Rule 13d-1(c) or Rule 13d-1(d), attach an exhibit stating the identification of the relevant subsidiary.

See Exhibit B attached hereto.

**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 the undersigned certify that, to the best of their knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and 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: March 8, 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 March 8, 2018, relating to the common stock, par value \$0.001, of aTyr Pharma, Inc., shall be filed on behalf of the undersigned.

Dated: March 8, 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.