
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

SCHEDULE 13G

**Under the Securities Exchange Act of 1934
(Amendment No. 1)***

Rubius Therapeutics, Inc.
(Name of Issuer)

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

78116T 10 3
(CUSIP Number)

December 31, 2020
(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).

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Flagship VentureLabs IV LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" 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 5,000,000
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 5,000,000
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 5,000,000	
10	CHECK BOX 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 6.2%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Flagship Ventures Fund IV, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" 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 20,323,593
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 20,323,593
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 20,323,593	
10	CHECK BOX 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 25.1%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) PN	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Flagship Ventures Fund IV-Rx, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" 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 3,830,402
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 3,830,402
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,830,402	
10	CHECK BOX 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 4.7%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) PN	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Flagship Ventures Fund IV General Partner LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" 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 24,153,995
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 24,153,995
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 24,153,995	
10	CHECK BOX 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 29.8%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Flagship V VentureLabs Rx Fund, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" 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 5,789,414
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 5,789,414
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 5,789,414	
10	CHECK BOX 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 7.2%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) PN	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Flagship Ventures Fund V, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" 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 5,789,414
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 5,789,414
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 5,789,414	
10	CHECK BOX 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 7.2%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) PN	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Flagship Ventures Fund V General Partner LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION United States of America Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH:	5	SOLE VOTING POWER 0
	6	SHARED VOTING POWER 11,578,828
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 11,578,828
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 11,578,828	
10	CHECK BOX 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 14.3%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Flagship Ventures Opportunities Fund I, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" 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 2,563,703
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 2,563,703
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 2,563,703	
10	CHECK BOX 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 3.2%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) PN	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Flagship Ventures Opportunities Fund I General Partner LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" 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 2,563,703
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 2,563,703
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 2,563,703	
10	CHECK BOX 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 3.2%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) Noubar B. Afeyan, Ph.D.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION United States of America	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH:	5	SOLE VOTING POWER 43,750 (1)
	6	SHARED VOTING POWER 38,296,526
	7	SOLE DISPOSITIVE POWER 43,750 (1)
	8	SHARED DISPOSITIVE POWER 38,296,526
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 38,340,276 (1)	
10	CHECK BOX 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 47.4%	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) IN	

(1) Includes options to purchase 43,750 shares of Common Stock that are exercisable within 60 days of December 31, 2020.

Item 1(a). Name of Issuer:

Rubius Therapeutics, Inc. (the “Issuer”)

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

399 Binney Street, Suite 300, Cambridge, MA 02139

Item 2(a). Names of Persons Filing:

The names of the persons filing this report (collectively, the “Reporting Persons”) are:

Flagship VentureLabs IV LLC (“VentureLabs IV”)

Flagship Ventures Fund IV, L.P. (“Flagship IV Fund”)

Flagship Ventures Fund IV-Rx, LP (“Flagship IV-Rx Fund”)

Flagship Ventures Fund IV General Partner LLC (“Flagship IV GP”)

Flagship V VentureLabs Rx Fund, L.P. (“VentureLabs Rx V”)

Flagship Ventures Fund V, L.P. (“Flagship V Fund”)

Flagship Ventures Fund V General Partner LLC (“Flagship V GP”)

Flagship Ventures Opportunities Fund I, L.P. (“Flagship Opportunities I”)

Flagship Ventures Opportunities Fund I General Partner LLC (“Flagship Opportunities GP”)

Noubar B. Afeyan, Ph.D. (“Dr. Afeyan”)

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

The address of the principal business office of each of the Reporting Persons is:

c/o Flagship Pioneering Inc.
55 Cambridge Parkway, Suite 800E
Cambridge, Massachusetts 02142

Item 2(c). Citizenship:

VentureLabs IV	Delaware
Flagship IV Fund	Delaware
Flagship IV-Rx Fund	Delaware
Flagship IV GP	Delaware
VentureLabs Rx V	Delaware
Flagship V Fund	Delaware
Flagship V GP	Delaware
Flagship Opportunities I	Delaware
Flagship Opportunities GP	Delaware
Dr. Afeyan	United States of America

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

Common Stock, \$0.001 par value per share (“Common Stock”).

Item 2(e). CUSIP Number:

78116T 10 3

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.

Item 4. Ownership.

The information required by this item with respect to each Reporting Person is set forth in Rows 5 through 9 and 11 of the cover page to this Schedule 13G. The ownership percentages reported are based on 80,923,945 shares of outstanding Common Stock as of October 30, 2020, as reported in the Issuer's 10-Q filed on December 4, 2020.

Flagship IV Fund is the manager of VentureLabs IV and, as such, may be deemed to beneficially own the shares held by VentureLabs IV.

Flagship IV GP is the general partner of each of Flagship IV Fund and Flagship IV-Rx Fund, and, as such, may be deemed to beneficially own the shares beneficially owned by Flagship IV Fund and Flagship IV-Rx Fund.

Flagship V GP is the general partner of each of Flagship V Fund and VentureLabs Rx V, and, as such, may be deemed to beneficially own the shares beneficially owned by Flagship V Fund and VentureLabs Rx V.

Flagship Opportunities GP is the general partner of Flagship Opportunities I, and, as such, may be deemed to beneficially own the shares held by Flagship Opportunities I.

Dr. Afeyan is the sole manager of Flagship Fund IV GP, Flagship Fund V GP and Flagship Opportunities GP, and as such, may be deemed to beneficially own the shares beneficially owned by VentureLabs IV, Flagship IV Fund, Flagship IV-Rx Fund, Flagship V Fund, VentureLabs Rx V Fund and Flagship Opportunities I.

Effective May 11, 2020, Edwin M. Kania, Jr. retired from both Flagship Pioneering, Inc. and as a manager of Flagship Fund IV.

Each of the Reporting Persons expressly disclaims beneficial ownership of the shares reported in this Schedule 13G except to the extent of its or his pecuniary interest in such shares.

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 Persons have 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 or Control Person.

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.

Not applicable.

Material Filed as Exhibits.

Exhibit 1 – Agreement regarding filing of joint Schedule 13G.

SIGNATURE

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

Date: February 16, 2021

FLAGSHIP VENTURELABS IV LLC

By: Flagship Ventures Fund IV, L.P.
Manager

By: Flagship Ventures Fund IV General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND IV, L.P.

By: Flagship Ventures Fund IV General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND IV-RX, L.P.

By: Flagship Ventures Fund IV General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND IV GENERAL
PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP V VENTURLABS RX FUND, L.P.

By: Flagship Ventures Fund V General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND V, L.P.

By: Flagship Ventures Fund V General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.

Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND V GENERAL
PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES OPPORTUNITIES FUND I, L.P.

By: Flagship Ventures Opportunities Fund I General
Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.

Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES OPPORTUNITIES FUND I
GENERAL PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph.D.

Noubar B. Afeyan, Ph.D.
Manager

/s/ Noubar B. Afeyan, Ph.D.

NOUBAR B. AFEYAN, PH.D.

AGREEMENT

The persons below hereby agree that the Schedule 13G to which this agreement is attached as an exhibit, as well as all future amendments to such Schedule 13G, shall be filed on behalf of each of them. This agreement is intended to satisfy the requirements of Rule 13d-1(k)(1)(iii) under the Securities Exchange Act of 1934.

Date: February 16, 2021

FLAGSHIP VENTURELABS IV LLC

By: Flagship Ventures Fund IV, L.P.
Manager

By: Flagship Ventures Fund IV General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND IV, L.P.

By: Flagship Ventures Fund IV General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND IV-RX, L.P.

By: Flagship Ventures Fund IV General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND IV GENERAL
PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP V VENTURLABS RX FUND, L.P.

By: Flagship Ventures Fund V General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND V, L.P.

By: Flagship Ventures Fund V General Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES FUND V GENERAL
PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES OPPORTUNITIES FUND I, L.P.

By: Flagship Ventures Opportunities Fund I General
Partner LLC
General Partner

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

FLAGSHIP VENTURES OPPORTUNITIES FUND I
GENERAL PARTNER LLC

By: /s/ Noubar B. Afeyan, Ph.D.
Noubar B. Afeyan, Ph.D.
Manager

/s/ Noubar B. Afeyan, Ph.D.
NOUBAR B. AFEYAN, PH.D.