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

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**SCHEDULE 13G**

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

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**Rapid Micro Biosystems, Inc.**  
(Name of Issuer)

Class A Common Stock, \$0.01 par value per share  
(Title of Class of Securities)

75340L104  
(CUSIP Number)

December 31, 2021  
(Date of Event which Requires Filing of this Statement)

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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 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).

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CUSIP No. 75340L104

1.	NAMES OF REPORTING PERSONS	
	Longitude Capital Partners II, 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
		4,042,547 (1)
	7.	SOLE DISPOSITIVE POWER
		0
	8.	SHARED DISPOSITIVE POWER
		4,042,547 (1)
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON	
	4,042,547 (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)	
	11.7% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)	
	OO	

- (1) All such shares are held of record by LVPII (as defined in Item 2(a) below). LCPII (as defined in Item 2(a) below) is the general partner of LVPII and may be deemed to have voting, investment and dispositive power with respect to these securities. Patrick G. Enright and Juliet Tammenoms Bakker are the managing members of LCPII and may each be deemed to share voting, investment and dispositive power with respect to these securities. David Hirsch, a member of the Issuer's board of directors, holds an interest in LCPII and may be deemed to share voting, investment and dispositive power with respect to these securities.
- (2) Based on 34,449,144 shares of Class A Common Stock outstanding as of November 1, 2021 as reported by the Issuer in its Form 10-Q for the quarter ended September 30, 2021, filed with the United States Securities and Exchange Commission on November 15, 2021 (the "Form 10-Q").

CUSIP No. 75340L104

1.	NAMES OF REPORTING PERSONS	
	Longitude Venture Partners II, 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
		4,042,547 (1)
	7.	SOLE DISPOSITIVE POWER
		0
	8.	SHARED DISPOSITIVE POWER
		4,042,547 (1)
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON	
	4,042,547 (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)	
	11.7% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)	
	PN	

- (1) All such shares are held of record by LVPII. LCPII is the general partner of LVPII and may be deemed to have voting, investment and dispositive power with respect to these securities. Patrick G. Enright and Juliet Tammenoms Bakker are the managing members of LCPII and may each be deemed to share voting, investment and dispositive power with respect to these securities. David Hirsch, a member of the Issuer's board of directors, holds an interest in LCPII and may be deemed to share voting, investment and dispositive power with respect to these securities.
- (2) Based on 34,449,144 shares of Class A Common Stock outstanding as of November 1, 2021 as reported by the Issuer in the Form 10-Q.

CUSIP No. 75340L104

1.	NAMES OF REPORTING PERSONS	
	Longitude Prime Partners, 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
		150,000 (1)
	7.	SOLE DISPOSITIVE POWER
		0
	8.	SHARED DISPOSITIVE POWER
		150,000 (1)
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON	
	150,000 (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)	
	0.4% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)	
	OO	

- (1) All such shares are held of record by LPP (as defined in Item 2(a) below). LPP (as defined in Item 2(a) below) is the general partner of LPP and may be deemed to have voting, investment and dispositive power with respect to these securities. Patrick G. Enright and Juliet Tammenoms Bakker are the managing members of LPP and may each be deemed to share voting, investment and dispositive power with respect to these securities.
- (2) Based on 34,449,144 shares of Class A Common Stock outstanding as of November 1, 2021 as reported by the Issuer in the Form 10-Q.

CUSIP No. 75340L104

1.	NAMES OF REPORTING PERSONS	
	Longitude Prime 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
		150,000 (1)
	7.	SOLE DISPOSITIVE POWER
		0
	8.	SHARED DISPOSITIVE POWER
		150,000 (1)
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON	
	150,000 (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)	
	0.4% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)	
	PN	

- (1) All such shares are held of record by LPF. LPP is the general partner of LPF and may be deemed to have voting, investment and dispositive power with respect to these securities. Patrick G. Enright and Juliet Tammenoms Bakker are the managing members of LPP and may each be deemed to share voting, investment and dispositive power with respect to these securities.
- (2) Based on 34,449,144 shares of Class A Common Stock outstanding as of November 1, 2021 as reported by the Issuer in the Form 10-Q.

CUSIP No. 75340L104

1.	NAMES OF REPORTING PERSONS	
	Patrick G. Enright	
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  0
	6.	SHARED VOTING POWER  4,192,547 (1)
	7.	SOLE DISPOSITIVE POWER  0
	8.	SHARED DISPOSITIVE POWER  4,192,547 (1)
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  4,192,547 (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)  12.2% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)  IN	

- (1) All such securities are held of record by LVPII and LPF. LCPII is the general partner of LVPII and may be deemed to have voting, investment and dispositive power with respect to the shares held by LVPII. LPP is the general partner of LPF and may be deemed to have voting, investment and dispositive power with respect to the securities held by LPF. Mr. Enright is a managing member of each of LCPII and LPP and may be deemed to share voting, investment and dispositive power with respect to these securities.
- (2) Based on 34,449,144 shares of Class A Common Stock outstanding as of November 1, 2021 as reported by the Issuer in the Form 10-Q.

CUSIP No. 75340L104

1.	NAMES OF REPORTING PERSONS	
	Juliet Tammenoms Bakker	
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
		0
	6.	SHARED VOTING POWER
		4,192,547 (1)
	7.	SOLE DISPOSITIVE POWER
		0
	8.	SHARED DISPOSITIVE POWER
		4,192,547 (1)
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON	
	4,192,547 (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)	
	12.2% (2)	
12.	TYPE OF REPORTING PERSON (see instructions)	
	IN	

- (1) All such securities are held of record by LVPII and LPF. LCPII is the general partner of LVPII and may be deemed to have voting, investment and dispositive power with respect to the shares held by LVPII. LPP is the general partner of LPF and may be deemed to have voting, investment and dispositive power with respect to the securities held by LPF. Ms. Bakker is a managing member of each of LCPII and LPP and may be deemed to share voting, investment and dispositive power with respect to these securities.
- (2) Based on 34,449,144 shares of Class A Common Stock outstanding as of November 1, 2021 as reported by the Issuer in the Form 10-Q.

CUSIP No. 75340L104

1.	NAMES OF REPORTING PERSONS	
	David Hirsch	
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  5,556 (1)
	6.	SHARED VOTING POWER  4,042,547(2)
	7.	SOLE DISPOSITIVE POWER  5,556 (1)
	8.	SHARED DISPOSITIVE POWER  4,042,547 (2)
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  4,048,103 (2)	
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)  11.8% (3)	
12.	TYPE OF REPORTING PERSON (see instructions)  IN	

- (1) Consists of 5,556 shares of Class A Common Stock underlying stock options granted to David Hirsch, in his capacity as a member of the Issuer's board of directors, which are exercisable within 60 days of the date hereof.
- (2) All such securities are held of record by LVPII. LCPII is the general partner of LVPII and may be deemed to have voting, investment and dispositive power with respect to these securities. Dr. Hirsch, a member of the Issuer's board of directors, is a member of LCPII and may be deemed to share voting, investment and dispositive power with respect to these securities.
- (3) Based on 34,449,144 shares of Class A Common Stock outstanding as of November 1, 2021 as reported by the Issuer in the Form 10-Q.

CUSIP No. 75340L104

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

Rapid Micro Biosystems, Inc. (the "Issuer").

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

1001 Pawtucket Boulevard West, Suite 280  
Lowell, MA 01854

**Item 2(a). Name of Person Filing:**

This joint statement on Schedule 13G is being filed by Longitude Capital Partners II, LLC ("LCPII"), Longitude Venture Partners II, L.P. ("LVPII"), Longitude Prime Partners, LLC ("LPP") and Longitude Prime Fund, L.P. ("LPF" and together with LCPII, LVPII and LPP, the "Reporting Entities") and Patrick G. Enright, Juliet Tammenoms Bakker and David Hirsch (together, the "Reporting Individuals"). The Reporting Entities and the Reporting Individuals are collectively referred to as the "Reporting Persons."

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

The address of the principal business office of each Reporting Person is 2740 Sand Hill Road, 2<sup>nd</sup> Floor, Menlo Park, CA 94025.

**Item 2(c). Citizenship:**

Each of LCPII and LPP is a limited liability company organized under the laws of the State of Delaware. Each of LVPII and LPF is a limited partnership organized under the laws of the State of Delaware. Each of the Reporting Individuals is a citizen of the United States of America.

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

Class A Common Stock, \$0.01 par value per share ("Class A Common Stock").

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

75340L104

**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.**

(a) Amount beneficially owned:

See Row 9 of the cover page for each Reporting Person.

LVPII is the record owner of 3,407,952 shares of Class A Common Stock and 634,595 Class A Common Stock Warrants (collectively, the "LVPII Shares"). As general partner of LVPII, LCPII may be deemed to beneficially own the LVPII Shares. Patrick G. Enright and Juliet Tammenoms Bakker are the managing members of LCPII and may be deemed to share voting, investment and dispositive power with respect to the LVPII Shares. David Hirsch, a member of the Issuer's board of directors, is a member of LCPII and may be deemed to share voting, investment and dispositive power with respect to the LVPII Shares.

LPF is the record owner of 150,000 shares of Class A Common Stock (the "LPF Shares"). As general partner of LPF, LPP may be deemed to beneficially own the LPF Shares. Patrick G. Enright and Juliet Tammenoms Bakker are the managing members of LPP and may be deemed to share voting, investment and dispositive power with respect to the LPF Shares.

(b) Percent of class:

See Row 11 of the cover page for each Reporting Person and the corresponding footnotes.\*

(c) Number of shares as to which the person has:

(i) Sole power to vote or to direct the vote

See Row 5 of the cover page for each Reporting Person and the corresponding footnotes.\*

(ii) Shared power to vote or to direct the vote

See Row 6 of the cover page for each Reporting Person and the corresponding footnotes.\*

(iii) Sole power to dispose or to direct the disposition of

See Row 7 of the cover page for each Reporting Person and the corresponding footnotes.\*

(iv) Shared power to dispose or to direct the disposition of

See Row 8 of the cover page for each Reporting Person and the corresponding footnotes.\*

\* Except to the extent of his or its pecuniary interest therein, each Reporting Person disclaims beneficial ownership of such shares of Class A Common Stock, except for the shares, if any, such Reporting Person holds of record.

**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.**

Under certain circumstances set forth in the limited partnership agreements of each of LVPII and LPF and the limited liability company agreement of each of LCPII and LPP, the general and limited partners or members, as the case may be, of each of such entities may be deemed to have the right to receive dividends from, or the proceeds from, the sale of securities of the Issuer owned by each such entity of which they are a partner or member, as the case may be.

**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.

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**Item 9. Notice of Dissolution of the Group.**

Not applicable.

**Item 10. Certifications.**

Not Applicable

Material to be Filed as Exhibits.

Exhibit 1 – Joint Filing Agreement.

CUSIP No. 75340L104

**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: February 14, 2022

LONGITUDE CAPITAL PARTNERS II, LLC

By: /s/ Cristiana Blauth Oliveira

Cristiana Blauth Oliveira

Its: Authorized Signatory

LONGITUDE VENTURE PARTNERS II, L.P.

By: Longitude Capital Partners II, LLC

Its: General Partner

By: /s/ Cristiana Blauth Oliveira

Cristiana Blauth Oliveira

Its: Authorized Signatory

LONGITUDE PRIME PARTNERS, LLC

By: /s/ Cristiana Blauth Oliveira

Cristiana Blauth Oliveira

Its: Authorized Signatory

LONGITUDE PRIME FUND, L.P.

By: Longitude Prime Partners, LLC

Its: General Partner

By: /s/ Cristiana Blauth Oliveira

Cristiana Blauth Oliveira

Its: Authorized Signatory

/s/ Patrick G. Enright

Patrick G. Enright

/s/ Juliet Tammenoms Bakker

Juliet Tammenoms Bakker

/s/ David Hirsch

David Hirsch

## JOINT FILING AGREEMENT

The undersigned hereby agree that the foregoing statement on Schedule 13G is filed on behalf of each of the undersigned, and any amendments thereto executed by the undersigned shall be filed on behalf of each of the undersigned without the necessity of filing any additional joint filing agreement. The undersigned acknowledge that each is responsible for the timely filing of such statement on Schedule 13G and any amendments thereto, and for the completeness and accuracy of the information concerning him, her or it contained therein, but shall not be responsible for the completeness or accuracy of the information concerning the others of the undersigned, except to the extent that he, she or it knows or has reason to believe that such information is inaccurate or incomplete. This Joint Filing Agreement may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument.

Dated: February 14, 2022

LONGITUDE CAPITAL PARTNERS II, LLC

By: /s/ Cristiana Blauth Oliveira

Cristiana Blauth Oliveira

Its: Authorized Signatory

LONGITUDE VENTURE PARTNERS II, L.P.

By: Longitude Capital Partners II, LLC

Its: General Partner

By: /s/ Cristiana Blauth Oliveira

Cristiana Blauth Oliveira

Its: Authorized Signatory

LONGITUDE PRIME PARTNERS, LLC

By: /s/ Cristiana Blauth Oliveira

Cristiana Blauth Oliveira

Its: Authorized Signatory

LONGITUDE PRIME FUND, L.P.

By: Longitude Prime Partners, LLC

Its: General Partner

By: /s/ Cristiana Blauth Oliveira

Cristiana Blauth Oliveira

Its: Authorized Signatory

/s/ Patrick G. Enright

Patrick G. Enright

/s/ Juliet Tammenoms Bakker

Juliet Tammenoms Bakker

/s/ David Hirsch

David Hirsch