

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

OMB APPROVAL
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SCHEDULE 13D/A

Under the Securities Exchange Act of 1934

(Amendment No. 5)\*

Wave Life Sciences Ltd.  
(Name of Issuer)

Ordinary Shares  
(Title of Class of Securities)

Y95308105  
(CUSIP Number)

RA Capital Management, L.P.  
200 Berkeley Street, 18<sup>th</sup> Floor  
Boston, MA 02116  
Telephone: 617.778.2500  
Attn: Peter Kolchinsky  
(Name, Address and Telephone Number of Person Authorized to  
Receive Notices and Communications)

June 16, 2022  
(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 that 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 Rule 13d-7 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 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 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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1 Names of Reporting Persons.

**RA Capital Management, L.P.**

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2 Check the Appropriate Box if a Member of a Group (See Instructions)

(a)

(b)

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3 SEC Use Only

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4 Source of Funds (See Instructions):

AF

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5 Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e):

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6 Citizenship or Place of Organization. **Delaware**

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Number of Shares Beneficially Owned by Each Reporting Person With	7 Sole Voting Power <b>0 shares</b>
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8 Shared Voting Power <b>17,269,811 shares</b>
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9 Sole Dispositive Power <b>0 shares</b>
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10 Shared Dispositive Power <b>17,269,811 shares</b>
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11 Aggregate Amount Beneficially Owned by Each Reporting Person  
**17,269,811 shares**

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12 Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

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13 Percent of Class Represented by Amount in Row (11)

**19.99%<sup>1</sup>**

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<sup>1</sup> The reporting person is the beneficial owner of 17,202,009 shares of the Issuer's Ordinary Shares which constitute approximately 19.99% of the class outstanding. The percentage calculation reported on this cover page assumes that there are currently 86,324,451 outstanding shares of Ordinary Shares of the Issuer, based on the Issuer's Prospectus as filed with the Securities and Exchange Commission ("SEC") on June 14, 2022 and giving effect to 54,750 vested stock options (right to buy), an additional 5,250 stock options (right to buy) which will vest within 60 days held by Dr. Peter Kolchinsky for the benefit of RA Capital, and an additional 7,802 Ordinary Shares that the Reporting Persons beneficially own based on the right to acquire upon exercise of Pre-Funded Warrants subject to a Beneficial Ownership Blocker (as defined below).

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1 Names of Reporting Persons.

**Peter Kolchinsky**

2 Check the Appropriate Box if a Member of a Group (See Instructions)

(a)

(b)

3 SEC Use Only

4 Source of Funds (See Instructions):

AF

5 Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e):

6 Citizenship or Place of Organization. **United States**

Number of Shares Beneficially Owned by Each Reporting Person With	7 Sole Voting Power <b>0 shares</b>
	8 Shared Voting Power <b>17,269,811 shares</b>
	9 Sole Dispositive Power <b>0 shares</b>
	10 Shared Dispositive Power <b>17,269,811 shares</b>

11 Aggregate Amount Beneficially Owned by Each Reporting Person  
**17,269,811 shares**

12 Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13 Percent of Class Represented by Amount in Row (11)

**19.99%<sup>2</sup>**

14 Type of Reporting Person (See Instructions)

**HC, IN**

<sup>2</sup> The reporting person is the beneficial owner of 17,202,009 shares of the Issuer's Ordinary Shares which constitute approximately 19.99% of the class outstanding. The percentage calculation reported on this cover page assumes that there are currently 86,324,451 outstanding shares of Ordinary Shares of the Issuer, based on the Issuer's Prospectus as filed with the Securities and Exchange Commission ("SEC") on June 14, 2022 and giving effect to 54,750 vested stock options (right to buy), an additional 5,250 stock options (right to buy) which will vest within 60 days held by Dr. Peter Kolchinsky for the benefit of RA Capital, and an additional 7,802 Ordinary Shares that the Reporting Persons beneficially own based on the right to acquire upon exercise of Pre-Funded Warrants subject to a Beneficial Ownership Blocker (as defined below).

1 Names of Reporting Persons.

**Rajeev Shah**

2 Check the Appropriate Box if a Member of a Group (See Instructions)

(a)

(b)

3 SEC Use Only

4 Source of Funds (See Instructions):

AF

5 Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e):

6 Citizenship or Place of Organization. **United States**

Number of Shares Beneficially Owned by Each Reporting Person With	7 Sole Voting Power <b>0 shares</b>
	8 Shared Voting Power <b>17,269,811 shares</b>
	9 Sole Dispositive Power <b>0 shares</b>
	10 Shared Dispositive Power <b>17,269,811 shares</b>

11 Aggregate Amount Beneficially Owned by Each Reporting Person  
**17,269,811 shares**

12 Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13 Percent of Class Represented by Amount in Row (11)

**19.99%<sup>3</sup>**

14 Type of Reporting Person (See Instructions)

**HC, IN**

<sup>3</sup> The reporting person is the beneficial owner of 17,202,009 shares of the Issuer's Ordinary Shares which constitute approximately 19.99% of the class outstanding. The percentage calculation reported on this cover page assumes that there are currently 86,324,451 outstanding shares of Ordinary Shares of the Issuer, based on the Issuer's Prospectus as filed with the Securities and Exchange Commission ("SEC") on June 14, 2022 and giving effect to 54,750 vested stock options (right to buy), an additional 5,250 stock options (right to buy) which will vest within 60 days held by Dr. Peter Kolchinsky for the benefit of RA Capital, and an additional 7,802 Ordinary Shares that the Reporting Persons beneficially own based on the right to acquire upon exercise of Pre-Funded Warrants subject to a Beneficial Ownership Blocker (as defined below).

1 Names of Reporting Persons.

**RA Capital Healthcare Fund, L.P.**

2 Check the Appropriate Box if a Member of a Group (See Instructions)

(a)

(b)

3 SEC Use Only

4 Source of Funds (See Instructions):

AF

5 Check if disclosure of legal proceedings is required pursuant to Items 2(d) or 2(e):

6 Citizenship or Place of Organization. **United States**

Number of Shares Beneficially Owned by Each Reporting Person With	7 Sole Voting Power <b>0 shares</b>
	8 Shared Voting Power <b>17,269,811 shares</b>
	9 Sole Dispositive Power <b>0 shares</b>
	10 Shared Dispositive Power <b>17,269,811 shares</b>

11 Aggregate Amount Beneficially Owned by Each Reporting Person  
**17,269,811 shares**

12 Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)

13 Percent of Class Represented by Amount in Row (11)

**19.99%<sup>4</sup>**

14 Type of Reporting Person (See Instructions)

**PN**

<sup>4</sup> The reporting person is the beneficial owner of 17,202,009 shares of the Issuer's Ordinary Shares which constitute approximately 19.99% of the class outstanding. The percentage calculation reported on this cover page assumes that there are currently 86,324,451 outstanding shares of Ordinary Shares of the Issuer, based on the Issuer's Prospectus as filed with the Securities and Exchange Commission ("SEC") on June 14, 2022 and giving effect to 54,750 vested stock options (right to buy), an additional 5,250 stock options (right to buy) which will vest within 60 days held by Dr. Peter Kolchinsky for the benefit of RA Capital, and an additional 7,802 Ordinary Shares that the Reporting Persons beneficially own based on the right to acquire upon exercise of Pre-Funded Warrants subject to a Beneficial Ownership Blocker (as defined below).

**SCHEDULE 13D**

**Item 1. Security and Issuer**

Item 1 of the Statement is amended and supplemented as follows:

This Amendment No. 5 amends and supplements the statement on Schedule 13D originally filed with the Securities and Exchange Commission (the “SEC”) on November 27, 2015, as amended by Amendment No. 1 filed on November 15, 2017, Amendment No. 2 filed on January 28, 2019, Amendment No. 3 filed on August 18, 2021 and Amendment No. 4 filed on November 12, 2021 (the “Statement”) by RA Capital Management, L.P., and Dr. Kolchinsky with respect to Ordinary Shares (the “Ordinary Shares”), of Wave Life Sciences Ltd., a Singapore public limited company (the “Issuer”). Unless otherwise defined herein, capitalized terms used in this Amendment No. 5 shall have the meanings ascribed to them in the Statement. Unless amended or supplemented below, the information in the Statement remains unchanged.

**Item 2. Identity and Background**

Item 2 of the Statement is hereby amended and restated as follows:

(a) This Amendment No. 5 to Schedule 13D is being filed on behalf of RA Capital Management, L.P. (“RA Capital”), RA Capital Healthcare Fund, L.P. (the “Fund”), Peter Kolchinsky, and Rajeev Shah. RA Capital, Dr. Kolchinsky, Mr. Shah, and the Fund are collectively referred to herein as the “Reporting Persons.”

The Ordinary Shares reported herein includes (1) 17,202,009 Ordinary Shares held by the Fund, (2) a total of 63,750 vested stock options (right to buy), (3) 5,250 stock options (right to buy) which shall vest within 60 days of this filing. The Fund also holds Pre-funded warrants (“Pre-Funded Warrants”) through which it has a right to acquire 7,093,656 Ordinary Shares. The Pre-Funded Warrants contain a provision (the “Beneficial Ownership Blocker”) which precludes exercise of the warrants to the extent that, following exercise, the Reporting Person, together with its affiliates and other attribution parties, would own more than 19.99% of the Ordinary Shares outstanding. RA Capital Healthcare Fund GP, LLC is the general partner of the Fund. The general partner of RA Capital is RA Capital Management GP, LLC, of which Dr. Kolchinsky and Mr. Shah are the controlling persons. RA Capital serves as investment adviser for the Fund and may be deemed a beneficial owner, for purposes of Section 13(d) of the Securities Exchange Act of 1934 (the “Act”), of any securities of the Issuer held by the Fund. The Fund has delegated to RA Capital the sole power to vote and the sole power to dispose of all securities held in the Fund’s portfolio, including the shares of the Issuer’s Ordinary Shares reported herein. Because the Fund has divested themselves of voting and investment power over the reported securities they hold and may not revoke that delegation on less than 61 days’ notice, the Fund disclaims beneficial ownership of the securities they hold for purposes of Section 13(d) of the Act and therefore disclaim any obligation to report ownership of the reported securities under Section 13(d) of the Act. As managers of RA Capital, Dr. Kolchinsky and Mr. Shah may be deemed beneficial owners, for purposes of Section 13(d) of the Act, of any securities of the Issuer beneficially owned by RA Capital. RA Capital, Dr. Kolchinsky, and Mr. Shah disclaim beneficial ownership of the securities reported in this Schedule 13D Statement (the “Statement”) other than for the purpose of determining their obligations under Section 13(d) of the Act, and the filing of the Statement shall not be deemed an admission that either RA Capital, Dr. Kolchinsky, or Mr. Shah is the beneficial owner of such securities for any other purpose.

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(b) The address of the principal business office of each of the Reporting Persons is 200 Berkeley Street, 18th Floor, Boston, MA 02116.

(c) The Fund is a private investment vehicle. RA Capital provides investment management services to the Fund. The principal occupation of Dr. Kolchinsky and Mr. Shah is investment management.

(d) During the last five years, none of the Reporting Persons has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

(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 of 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.

(f) See Item 6 of the cover pages.

### **Item 3. Source and Amount of Funds or Other Consideration**

Item 3 is hereby amended supplemented as follows:

The Reporting Persons acquired additional securities of the Issuer in the transactions described in Item 5(c) of this Amendment No. 5 for an aggregate of \$35,632,762. The purchases were for cash and were funded by the working capital of the Fund.

### **Item 4. Purpose of Transaction**

Item 4 is hereby supplemented as follows:

The Reporting Persons acquired the Ordinary Shares referred to in Item 3 for investment purposes and not with an intent, purpose or effect of changing control of the Issuer.

The Reporting Persons hold the securities of the Issuer for general investment purposes. The Reporting Persons reserve the right, based on all relevant factors and subject to applicable law or other restrictions, at any time and from time to time, to acquire additional Ordinary Shares or other securities of the Issuer, dispose of some or all of the Ordinary Shares or other securities of the Issuer that it may own from time to time, in each case in open market or private transactions, block sales or otherwise or pursuant to ordinary stock exchange transactions effected through one or more broker-dealers whether individually or utilizing specific pricing or other instructions (including by means of Rule 10b5-1 programs), and review or reconsider their position, change their purpose, take other actions or formulate and implement plans or proposals with respect to any of the foregoing.

The Reporting Persons intend to review their investment in the Issuer from time to time on the basis of various factors, including the Issuer's business, financial condition, results of operations and prospects, general economic and industry conditions, the securities markets in general and those for the Issuer's stock in particular, as well as other developments.

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**Item 5. Interest in Securities of the Issuer**

Item 5 of the Statement is amended and restated as follows:

(a) and (b) See Items 7-11 of the cover pages and Item 2 above.

(c) The following table lists the Reporting Persons' transactions in Common Stock that have not previously been reported during the sixty day period prior to the filing of this amended Schedule 13D:

Transaction	Purchaser	Date	No. Shares	Price
Purchase	The Fund	16-June-2022	9,480,052	\$2.15
Purchase**	The Fund	16-June-2022	7,093,656	\$2.1499

\*\* Pre-Funded Warrants subject to Beneficial Ownership Blocker as detailed above.

(d) Not applicable.

(e) Not applicable.

**Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer****Pre-Funded Warrants**

The Pre-Funded Warrants contain a Beneficial Ownership Blocker provision which precludes exercise of the warrants to the extent that, following exercise, the Reporting Person, together with its affiliates and other attribution parties, would own more than 19.99% of the Ordinary Shares outstanding. The exercise price of the Pre-Funded Warrants is \$0.0001 per share.

**Item 7. Material to Be Filed as Exhibits**

Item 7 of the Statement is hereby amended and supplemented as follows:

[Exhibit 1](#) [Joint Filing Agreement by and among the Reporting Persons, dated as of June 21, 2022 \(filed herewith\).](#)

[Exhibit 2](#) [Form of Pre-Funded Warrant \(incorporated by reference to Exhibit 4.1 to the Issuer's Current Report on Form 8-K filed with the SEC on June 14, 2022\)](#)

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CUSIP No. Y95308105

## SIGNATURES

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: June 21, 2022

RA CAPITAL MANAGEMENT, L.P.

By: /s/ Peter Kolchinsky

Name: Peter Kolchinsky

Title: Authorized Signatory

PETER KOLCHINSKY

/s/ Peter Kolchinsky

RAJEEV SHAH

/s/ Rajeev Shah

RA CAPITAL HEALTHCARE FUND, L.P.

By: RA Capital Healthcare Fund GP, LLC

Its: General Partner

By: /s/ Peter Kolchinsky

Name: Peter Kolchinsky

Title: Manager

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CUSIP No. Y95308105

Exhibit 1

### JOINT FILING AGREEMENT

This Joint Filing Agreement, dated as of June 21, 2022, is by and among RA Capital Management, L.P., Peter Kolchinsky, Rajeev Shah, and RA Capital Healthcare Fund, L.P. (the foregoing are collectively referred to herein as the "Filers").

Each of the Filers may be required to file with the United States Securities and Exchange Commission a statement on Schedule 13G and/or 13D with respect to Ordinary Shares, no par value Wave Life Sciences Ltd. beneficially owned by them from time to time.

Pursuant to and in accordance with Rule 13(d)(1)(k) promulgated under the Securities Exchange Act of 1934, as amended, the Filers hereby agree to file a single statement on Schedule 13G and/or 13D (and any amendments thereto) on behalf of each of such parties, and hereby further agree to file this Joint Filing Agreement as an exhibit to such statement, as required by such rule.

This Joint Filing Agreement may be terminated by any of the Filers upon one week's prior written notice or such lesser period of notice as the Filers may mutually agree.

Executed and delivered as of the date first above written.

RA CAPITAL MANAGEMENT, L.P.

By: /s/ Peter Kolchinsky

Name: Peter Kolchinsky

Title: Authorized Signatory

PETER KOLCHINSKY

/s/ Peter Kolchinsky

RAJEEV SHAH

/s/ Rajeev Shah

RA CAPITAL HEALTHCARE FUND, L.P.

By: RA Capital Healthcare Fund GP, LLC

Its: General Partner

By: /s/ Peter Kolchinsky

Name: Peter Kolchinsky

Title: Manager

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