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

SCHEDULE 13D

Under the Securities Exchange Act of 1934  
(Amendment No. 6)\*

**Wave Life Sciences Ltd.**

(Name of Issuer)

**\$0 Par Value Ordinary Shares**

(Title of Class of Securities)

**Y95308105**

(CUSIP Number)

**RA Capital Management, L.P.**  
**200 Berkeley Street, 18th Floor**  
**Boston, MA 02116**  
**Attn: Peter Kolchinsky**  
**Telephone: 617.778.2500**

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

**September 27, 2024**

(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)
- 
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  
**Delaware**
- 
- |   |   |
|---|---|
| Number of<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | 7. Sole Voting Power<br><b>0</b>                  |
|   | 8. Shared Voting Power<br><b>25,414,165</b>       |
|   | 9. Sole Dispositive Power<br><b>0</b>             |
|   | 10. Shared Dispositive Power<br><b>25,414,165</b> |
- 
11. Aggregate Amount Beneficially Owned by Each Reporting Person  
**25,414,165**
- 
12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)
- 
13. Percent of Class Represented by Amount in Row (11)  
**16.0%**
- 
14. Type of Reporting Person (See Instructions)  
**IA, PN**
-

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<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | 7. Sole Voting Power<br><b>0</b>                  |
|   | 8. Shared Voting Power<br><b>25,414,165</b>       |
|   | 9. Sole Dispositive Power.<br><b>0</b>            |
|   | 10. Shared Dispositive Power<br><b>25,414,165</b> |
- 
11. Aggregate Amount Beneficially Owned by Each Reporting Person  
**25,414,165**
- 
12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions)
- 
13. Percent of Class Represented by Amount in Row (11)  
**16.0%**
- 
14. Type of Reporting Person (See Instructions)  
**HC, IN**
-

1. Names of Reporting Persons  
**Rajeev Shah**

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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  
**United States**

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Number of Shares Beneficially Owned by Each Reporting Person With	7. Sole Voting Power <b>0</b>
	8. Shared Voting Power <b>25,414,165</b>
	9. Sole Dispositive Power <b>0</b>
	10. Shared Dispositive Power <b>25,414,165</b>

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11. Aggregate Amount Beneficially Owned by Each Reporting Person  
**25,414,165**

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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)  
**16.0%**

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14. Type of Reporting Person (See Instructions)  
**HC, IN**

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1. Names of Reporting Persons  
**RA Capital Healthcare Fund, 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)  
**WC**

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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</b>
	8. Shared Voting Power <b>25,295,665</b>
	9. Sole Dispositive Power <b>0</b>
	10. Shared Dispositive Power <b>25,295,665</b>

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11. Aggregate Amount Beneficially Owned by Each Reporting Person  
**25,295,665**

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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)  
**15.9%**

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14. Type of Reporting Person (See Instructions)  
**PN**

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**Item 1. Security and Issuer**

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

This Amendment No. 6 (this “Amendment No. 6” or this “Schedule 13D/A”) 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, Amendment No. 4 filed on November 12, 2021 and Amendment No. 5 filed on June 21, 2022 (the “Statement”) by the Reporting Persons with respect to the Ordinary Shares (the “Ordinary Shares”) of Wave Life Sciences Ltd. (the “Issuer”). Unless otherwise defined herein, capitalized terms used in this Amendment No. 6 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 Schedule 13D/A is being filed on behalf of RA Capital Management, L.P. (“RA Capital”), Peter Kolchinsky, Rajeev Shah, and RA Capital Healthcare Fund, L.P. (the “Fund”). RA Capital, Dr. Kolchinsky, Mr. Shah and the Fund are collectively referred to herein as the “Reporting Persons.” The agreement among the Reporting Persons to file this Schedule 13D/A jointly in accordance with Rule 13d-1(k) of the Securities Exchange Act of 1934, as amended, (the “Act”), is attached hereto as Exhibit 1.

The Reporting Persons’ beneficial ownership of the Issuer’s Ordinary Shares consists of (i) 18,202,009 Ordinary Shares directly held by the Fund; (ii) 7,093,656 Ordinary Shares issuable upon exercise of pre-funded warrants (“Pre-Funded Warrants”) directly held by the Fund, which are immediately exercisable in full as of the date hereof; and (iii) a total of 118,500 vested share options (right to buy) held by Dr. Kolchinsky for the benefit of RA Capital.

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 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 its portfolio, including the shares of the Issuer’s Ordinary Shares reported herein. Because the Fund has divested itself of voting and investment power over the reported securities it holds and may not revoke that delegation on less than 61 days’ notice, the Fund disclaims beneficial ownership of the securities it holds for purposes of Section 13(d) of the Act and therefore disclaims 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/A other than for the purpose of determining their obligations under Section 13(d) of the Act, and the filing of this Schedule 13D/A 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.

- (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 each 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.
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**Item 4. Purpose of Transaction**

Item 4 of the Statement is hereby amended and restated as follows:

The Reporting Persons acquired the Ordinary Shares reported herein for investment purposes and not with an intent, purpose or effect of changing control of the Issuer. Although the Reporting Persons currently have no plan or proposal to acquire any additional Issuer securities or to dispose of any of the Issuer securities reported herein, the Reporting Persons may, from time to time, acquire additional equity securities or debt securities of the Issuer, which debt securities may be convertible or non-convertible, secured or unsecured, and could involve the monetization of potential revenue streams deriving from development-stage or commercial programs of the Issuer, or dispose of Issuer securities they beneficially own, on the open market or in private transactions or otherwise (including by means of 10b5-1 programs), consistent with their investment purposes and in amounts, on such terms and at such times as to be determined by the Reporting Persons based upon a number of factors, including, without limitation, their ongoing assessment of the Issuer's business prospects, the availability of Issuer securities at prices that would make the purchase or sale of such securities desirable, prevailing market conditions, the availability of other investment opportunities, and/or other considerations.

In addition, consistent with their investment purpose, the Reporting Persons may engage in communications with persons associated with the Issuer, including shareholders of the Issuer, officers of the Issuer, members of the board of directors of the Issuer, and/or other third parties, to discuss matters regarding the Issuer, including but not limited to its operations, strategic direction, governance or capitalization, and potential business combinations or dispositions involving the Issuer or certain of its businesses. Dr. Kolchinsky currently serves as a director of the Issuer and therefore will engage in regular discussions with the Issuer's board of directors and management as part of his duties as a director.

Neither Dr. Kolchinsky (other than in his capacity as a director) nor the Reporting Persons have any present plans or proposals that relate to, or could result in, any of the matters referred to in paragraphs (a) through (j), inclusive, of the instructions to Item 4 of Schedule 13D.

Depending on various factors including, without limitation, the Issuer's financial position, results and strategic direction, actions taken by the Issuer's management and Board, other investment opportunities available to RA Capital, the price levels of the Issuer securities, conditions in the securities markets and general economic and industry conditions, the Reporting Persons may change their purpose and formulate and implement plans or proposals with respect to the Issuer at any time and from time to time. Any such action may be made by the Reporting Persons alone or in conjunction with other shareholders, potential acquirers, financing sources and/or other third parties and could include one or more purposes, plans or proposals that relate to or would result in actions required to be reported herein in accordance with Item 4 of Schedule 13D.

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

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

- (a) The information set forth in rows 11 and 13 of the cover pages to this Schedule 13D/A is incorporated by reference. The percentage set forth in row 13 is based upon the sum of: (i) 124,737,862 Ordinary Shares outstanding as of August 7, 2024, as reported in the Issuer's Quarterly Report on Form 10-Q filed with the SEC on August 8, 2024; (ii) 26,875,001 Ordinary Shares issued in the underwritten offering which closed on September 27, 2024, as reported in the Issuer's prospectus supplement dated September 25, 2024 filed with the SEC on September 27, 2024; (iii) 7,093,656 Ordinary Shares issuable upon the exercise of Pre-Funded Warrants; and (iv) 118,500 Ordinary Shares issuable upon the exercise of share options within 60 days.
- (b) The information set forth in rows 7 through 10 of the cover pages to this Schedule 13D/A and Item 2 above is incorporated by reference.
- (c) Schedule A sets forth all transactions with respect to the Ordinary Shares effected during the past sixty days by any Reporting Person and is incorporated herein by reference.
- (d) No person (other than the Reporting Persons) is known to have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, the Ordinary Shares subject to this Schedule 13D/A.
- (e) Not applicable.

**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](#)

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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: October 1, 2024

**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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## SCHEDULE A

<b>Transaction</b>	<b>Purchaser</b>	<b>Date</b>	<b>No. Shares</b>	<b>Price</b>
Vest Stock Option (Right to Buy)	RA Capital	08/06/2024	45,000	(1)

(1) This option represents a right to purchase a total of 45,000 Ordinary Shares, which vested in full on August 6, 2024 and has an exercise price of \$4.58.

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**JOINT FILING AGREEMENT**

This Joint Filing Agreement, dated as of October 1, 2024, 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 \$0 Par Value Ordinary Shares of 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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