

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

SCHEDULE 13G  
Under the Securities Exchange Act of 1934

(Amendment No. 2)\*

ALCOBRA LTD.

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(Name of Issuer)

Ordinary Shares

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(Title of Class of Securities)

M2239P109

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(CUSIP Number)

October 13, 2016

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(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).

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1. Names of Reporting Persons.  
I.R.S. Identification Nos. of above persons (entities only).

**RA Capital Management, LLC**

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

3. SEC Use Only

4. Citizenship or Place of Organization **Massachusetts**

Number of Shares Beneficially Owned by Each Reporting Person With	5. Sole Voting Power	<b>0 shares</b>
	6. Shared Voting Power	<b>1,308,234 shares</b>
	7. Sole Dispositive Power	<b>0 shares</b>
	8. Shared Dispositive Power	<b>1,308,234 shares</b>

9. Aggregate Amount Beneficially Owned by Each Reporting Person  
**1,308,234 shares**

Check if the Aggregate Amount in Row (9) Excludes

10. Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)  
**4.7%<sup>1</sup>**

12. Type of Reporting Person (See Instructions)  
**IA**

<sup>1</sup> The reporting person is the beneficial owner of 1,308,234 ordinary shares of the Issuer which constitute approximately 4.7% of the Issuer's outstanding ordinary shares. The percentage calculation assumes that there are currently 27,560,920 outstanding ordinary shares of the Issuer, based on the Issuer's Form 20-F as filed with the Securities and Exchange Commission ("SEC") on March 4, 2016.

1. Names of Reporting Persons.  
I.R.S. Identification Nos. of above persons (entities only).

**Peter Kolchinsky**

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

3. SEC Use Only

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

Number of Shares Beneficially Owned by Each Reporting Person With	5. Sole Voting Power	<b>0 shares</b>
	6. Shared Voting Power	<b>1,308,234 shares</b>
	7. Sole Dispositive Power	<b>0 shares</b>
	8. Shared Dispositive Power	<b>1,308,234 shares</b>

9. Aggregate Amount Beneficially Owned by Each Reporting Person  
**1,308,234 shares**

Check if the Aggregate Amount in Row (9) Excludes

10. Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)  
**4.7%<sup>2</sup>**

12. Type of Reporting Person (See Instructions)  
**IN**

<sup>2</sup> The reporting person is the beneficial owner of 1,308,234 ordinary shares of the Issuer which constitute approximately 4.7% of the Issuer's outstanding ordinary shares. The percentage calculation assumes that there are currently 27,560,920 outstanding ordinary shares of the Issuer, based on the Issuer's Form 20-F as filed with the Securities and Exchange Commission ("SEC") on March 4, 2016.

1. Names of Reporting Persons.  
I.R.S. Identification Nos. of above persons (entities only).

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

Number of Shares Beneficially Owned by Each Reporting Person With	5. Sole Voting Power	<b>0 shares</b>
	6. Shared Voting Power	<b>1,084,349 shares</b>
	7. Sole Dispositive Power	<b>0 shares</b>
	8. Shared Dispositive Power	<b>1,084,349 shares</b>

9. Aggregate Amount Beneficially Owned by Each Reporting Person  
**1,084,349 shares**

Check if the Aggregate Amount in Row (9) Excludes

10. Certain Shares (See Instructions)

11. Percent of Class Represented by Amount in Row (9)  
**3.9%<sup>3</sup>**

12. Type of Reporting Person (See Instructions)  
**PN (Limited Partnership)**

<sup>3</sup> The reporting person is the beneficial owner of 1,084,349 ordinary shares of the Issuer which constitute approximately 3.9% of the Issuer's outstanding ordinary shares. The percentage calculation assumes that there are currently 27,560,920 outstanding ordinary shares of the Issuer, based on the Issuer's Form 20-F as filed with the Securities and Exchange Commission ("SEC") on March 4, 2016.

## Explanatory Note

This Amendment No. 2 to the Schedule 13G originally filed on July 6, 2015 is being filed to report that certain of the reporting persons' beneficial ownership has decreased by more than five percent of a class of equity securities of the Issuer.

### Item 1.

- (a) **Name of Issuer:** ALCOBRA LTD. (the "Issuer").
- (b) **Address of the Issuer's Principal Executive Offices:** Amot Investment Building, 2 Weizman Street, 9<sup>th</sup> Floor, Tel Aviv 6423902 Israel.

### Item 2.

- (a) **Name of Person Filing:** This joint statement on Schedule 13G is being filed by RA Capital Management, LLC ("Capital"), Peter Kolchinsky and RA Capital Healthcare Fund, L.P. (the "Fund"). Capital, Mr. Kolchinsky and the Fund are collectively referred to herein as the "Reporting Persons." Capital is the general partner of the Fund and serves as investment adviser for a separately managed account (the "Account"). Mr. Kolchinsky is the manager of Capital. As the investment adviser to the Fund and the Account, Capital 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 owned by the Fund or the Account. As the manager of Capital, Mr. Kolchinsky may be deemed a beneficial owner, for purposes of Section 13(d) of the Act, of any securities of the Issuer beneficially owned by Capital. Capital is a registered investment adviser within the meaning of Rule 13d-1(b)(1)(ii)(E) and Rule 16a-1(a)(v), and Mr. Kolchinsky is a parent or control person of Capital within the meaning of Rule 13d-1(b)(1)(ii)(G) and Rule 16a-1(a)(1)(vii). Capital and Mr. Kolchinsky disclaim beneficial ownership of the securities reported in this Schedule 13G Statement (the "Statement") other than for the purpose of determining their obligations under Section 13(d) of the Act, and neither the filing of the Statement nor the filing of this Amendment shall be deemed an admission that either Capital or Mr. Kolchinsky is or was the beneficial owner of such securities for any other purpose.
- (b) **Address of Principal Business Office:** The principal business office of the Reporting Persons is c/o RA Capital Management, LLC, 20 Park Plaza, Suite 1200, Boston, MA 02116.
- (c) **Citizenship:** Capital is a Massachusetts limited liability company. The Fund is a Delaware limited partnership. Mr. Kolchinsky is a United States citizen.
- (d) **Title and Class of Securities:** Ordinary Shares
- (e) **CUSIP Number:** M2239P109

### 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.

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**Item 4. Ownership:**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount Beneficially Owned:  
See the response(s) to Item 9 on the attached cover page(s).
- (b) Percent of Class:  
See the response(s) to Item 11 on the attached cover page(s).
- (c) Number of shares as to which such person has:
  - (i) sole power to vote or to direct the vote:  
See the response(s) to Item 5 on the attached cover page(s).
  - (ii) shared power to vote or to direct the vote  
See the response(s) to Item 6 on the attached cover page(s).
  - (iii) sole power to dispose or to direct the disposition of  
See the response(s) to Item 7 on the attached cover page(s).
  - (iv) shared power to dispose or to direct the disposition of  
See the response(s) to Item 8 on the attached cover page(s).

**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 [X].

**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.

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

Not applicable.

**Item 10. Certification:**

By signing below I hereby certify that, to the best of my knowledge and belief, the securities referred to above 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.

Exhibits

- 1 Joint Filing Agreement by and among the Reporting Persons is incorporated herein by reference to Exhibit 1 to the Schedule 13G filed by the Reporting Persons with the Securities and Exchange Commission on July 6, 2015.
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**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.

DATE: October 21, 2016

RA CAPITAL MANAGEMENT, LLC

By: /s/ Rajeev Shah

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Rajeev Shah  
Authorized Signatory

PETER KOLCHINSKY

/s/ Peter Kolchinsky

RA CAPITAL HEALTHCARE FUND, L.P.

By: RA Capital Management, LLC  
Its: General Partner

By: /s/ Rajeev Shah

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Rajeev Shah  
Authorized Signatory

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