

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

SCHEDULE 13D

Under the Securities Exchange Act of 1934

(Amendment No. 6)\*

Dicerna Pharmaceuticals, Inc.  
(Name of Issuer)

Common Stock, par value \$0.0001 per share  
(Title of Class of Securities)

253031108  
(CUSIP Number)

RA Capital Management, LLC  
20 Park Plaza, Suite 1200  
Boston, MA 02116  
Telephone: 617.778.2512  
Attn: Peter Kolchinsky  
(Name, Address and Telephone Number of Person Authorized to  
Receive Notices and Communications)

October 30, 2018  
(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.   |   |
|    | <b>RA Capital Management, LLC</b>   |   |
| 2  | Check the Appropriate Box if a Member of a Group (See Instructions)   |   |
|    | (a)   | <input type="checkbox"/>                  |
|    | (b)   | <input type="checkbox"/>                  |
| 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):                          |   |
|    | <input type="checkbox"/>  |   |
| 6  | Citizenship or Place of Organization. <b>Massachusetts</b>  |   |
|    | Number of Shares Beneficially Owned by Each Reporting Person With   |   |
|    | 7   | Sole Voting Power <b>0</b>                |
|    | 8   | Shared Voting Power <b>3,324,989</b>      |
|    | 9   | Sole Dispositive Power <b>0</b>           |
|    | 10  | Shared Dispositive Power <b>3,324,989</b> |
| 11 | Aggregate Amount Beneficially Owned by Each Reporting Person  |   |
|    | <b>3,324,989</b>  |   |
| 12 | Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/> |   |
| 13 | Percent of Class Represented by Amount in Row (11)  |   |
|    | <b>5.4%<sup>1</sup></b>   |   |
| 14 | Type of Reporting Person (See Instructions)   |   |
|    | <b>IA, OO (Limited Liability Company)</b>   |   |

<sup>1</sup> Represents 3,324,989 shares of the common stock (the "Common Stock") of Dicerna Pharmaceuticals, Inc. (the "Issuer") which constitutes approximately 5.4% of the class outstanding. The percentage calculation assumes that there are currently 61,806,905 outstanding shares of the Common Stock of the Issuer, based on the Issuer's Prospectus as filed with the Securities and Exchange Commission ("SEC") on September 10, 2018.

|    |   |   |
|----|---|---|
| 1  | Names of Reporting Persons.   |   |
|    | <b>Peter Kolchinsky</b>   |   |
| 2  | Check the Appropriate Box if a Member of a Group (See Instructions)   |   |
|    | (a)   | <input type="checkbox"/>                  |
|    | (b)   | <input type="checkbox"/>                  |
| 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):                          |   |
|    | <input type="checkbox"/>  |   |
| 6  | Citizenship or Place of Organization. <b>United States</b>  |   |
|    | Number of Shares Beneficially Owned by Each Reporting Person With   |   |
|    | 7   | Sole Voting Power <b>0</b>                |
|    | 8   | Shared Voting Power <b>3,324,989</b>      |
|    | 9   | Sole Dispositive Power <b>0</b>           |
|    | 10  | Shared Dispositive Power <b>3,324,989</b> |
| 11 | Aggregate Amount Beneficially Owned by Each Reporting Person  |   |
|    | <b>3,324,989</b>  |   |
| 12 | Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/> |   |
| 13 | Percent of Class Represented by Amount in Row (11)  |   |
|    | <b>5.4%<sup>2</sup></b>   |   |
| 14 | Type of Reporting Person (See Instructions)   |   |
|    | <b>HC, IN</b>   |   |

<sup>2</sup> Represents 3,324,989 shares of the common stock (the "Common Stock") of Dicerna Pharmaceuticals, Inc. (the "Issuer") which constitutes approximately 5.4% of the class outstanding. The percentage calculation assumes that there are currently 61,806,905 outstanding shares of the Common Stock of the Issuer, based on the Issuer's Prospectus as filed with the Securities and Exchange Commission ("SEC") on September 10, 2018.

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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**

|   |    |                          |                  |
|---|----|--------------------------|------------------|
| Number of Shares Beneficially Owned by Each Reporting Person With | 7  | Sole Voting Power        | <b>0</b>         |
|   | 8  | Shared Voting Power      | <b>2,913,506</b> |
|   | 9  | Sole Dispositive Power   | <b>0</b>         |
|   | 10 | Shared Dispositive Power | <b>2,913,506</b> |

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11 Aggregate Amount Beneficially Owned by Each Reporting Person  
**2,913,506**

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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)  
**4.7%<sup>3</sup>**

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

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<sup>3</sup> Represents 2,913,506 shares of the common stock (the "Common Stock") of Dicerna Pharmaceuticals, Inc. (the "Issuer") which constitutes approximately 4.7% of the class outstanding. The percentage calculation assumes that there are currently 61,806,905 outstanding shares of the Common Stock of the Issuer, based on the Issuer's Prospectus as filed with the Securities and Exchange Commission ("SEC") on September 10, 2018.

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### Explanatory Note

This Amendment No. 6 to Schedule 13D (this "Amendment No. 6") amends and supplements the Statement on Schedule 13D filed with the United States Securities and Exchange Commission on February 5, 2014, as amended to date (the "Statement") by (i) RA Capital Management, LLC (the "RA Capital"), (ii) Peter Kolchinsky and (iii) RA Capital Healthcare Fund, L.P. ("Fund" and together with each of the foregoing, the "Reporting Persons"), relating to the Common Stock (the "Common Stock") of Dicerna Pharmaceuticals, Inc. (the "Issuer"). Capitalized terms used herein without definition shall have the meaning set forth in the Statement.

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

Item 5(a)-(b) of the Statement is hereby amended and restated in its entirety as follows:

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

Item 5(c) of the Statement is hereby amended and supplemented by adding the following:

(c) From the date of the most recent amendment to this Schedule 13D through November 1, 2018, the Reporting Persons disposed of 608,500 shares of Common Stock in a series of open market transactions on the Nasdaq Global Market. Details by date of the transactions are as follows:

| Transaction | Date        | No. Shares          | Price     |
|-------------|-------------|---------------------|-----------|
| Sell        | 30-Oct-2018 | 219,072* and 30,928 | \$13.8603 |
| Sell        | 31-Oct-2018 | 156,330* and 22,070 | \$13.4619 |
| Sell        | 1-Nov-2018  | 157,820* and 22,280 | \$13.3757 |

Shares marked with an \* were acquired by the Fund. The remaining shares were acquired for the Account.

(d) None.

(e) As a result of the transactions described herein, the Fund no longer beneficially owns more than 5% of the outstanding Common Stock and therefore, upon the filing of this amendment, will no longer be a Reporting Person.

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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: November 1, 2018

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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