

SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

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SCHEDULE 13G/A

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Under the Securities Exchange Act of 1934

(Amendment No. 1)\*

Axsome Therapeutics, Inc.

(Name of Issuer)

Common Stock, par value \$0.0001 per share

(Title of Class of Securities)

05464T104

(CUSIP Number)

December 31, 2023

(Date of event which requires filing of this statement)

Check the appropriate box to designate the rule pursuant to which this Schedule 13G/A is filed:

- Rule 13d-1(b)  
 Rule 13d-1(c)  
 Rule 13d-1(d)

(Page 1 of 7 Pages)

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\* 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 (the "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).

<b>1</b>	NAMES OF REPORTING PERSONS RTW Investments, LP	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
<b>3</b>	SEC USE ONLY	
<b>4</b>	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	<b>5</b>	SOLE VOTING POWER - 0 -
	<b>6</b>	SHARED VOTING POWER 4,489,596 Shares
	<b>7</b>	SOLE DISPOSITIVE POWER - 0 -
	<b>8</b>	SHARED DISPOSITIVE POWER 4,489,596 Shares
<b>9</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,489,596 Shares	
<b>10</b>	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
<b>11</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 9.5%	
<b>12</b>	TYPE OF REPORTING PERSON PN, IA	

<b>1</b>	NAMES OF REPORTING PERSONS Roderick Wong, M.D.	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
<b>3</b>	SEC USE ONLY	
<b>4</b>	CITIZENSHIP OR PLACE OF ORGANIZATION United States	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	<b>5</b>	SOLE VOTING POWER - 0 -
	<b>6</b>	SHARED VOTING POWER 4,489,596 Shares
	<b>7</b>	SOLE DISPOSITIVE POWER - 0 -
	<b>8</b>	SHARED DISPOSITIVE POWER 4,489,596 Shares
<b>9</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,489,596 Shares	
<b>10</b>	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
<b>11</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 9.5%	
<b>12</b>	TYPE OF REPORTING PERSON IN, HC	

**Item 1(a). NAME OF ISSUER:**

The name of the issuer is Axsome Therapeutics, Inc. (the "Company").

**Item 1(b). ADDRESS OF ISSUER'S PRINCIPAL EXECUTIVE OFFICES:**

The Company's principal executive offices are located at One World Trade Center, 22<sup>nd</sup> Floor, New York, New York 10007.

**Item 2(a). NAME OF PERSON FILING:**

This statement is filed by:

- (i) RTW Investments, LP ("RTW Investments"), a Delaware limited partnership, and the investment adviser to certain funds (the "RTW Funds"), with respect to the Shares (as defined in Item 2(d) below) directly held by the RTW Funds; and
- (ii) Roderick Wong, M.D. ("Dr. Wong"), the Managing Partner and Chief Investment Officer of RTW Investments, with respect to the Shares directly held by the RTW Funds.

The foregoing persons are hereinafter sometimes collectively referred to as the "Reporting Persons."

The filing of this statement should not be construed as an admission that any of the foregoing persons or any Reporting Person is, for the purposes of Section 13 of the Act, the beneficial owner of the Shares reported herein.

**Item 2(b). ADDRESS OF PRINCIPAL BUSINESS OFFICE OR, IF NONE, RESIDENCE:**

The address of the business office of each of the Reporting Persons is 40 10<sup>th</sup> Avenue, Floor 7, New York, New York 10014.

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

RTW Investments is a Delaware limited partnership. Dr. Wong is a citizen of the United States.

**Item 2(d). TITLE OF CLASS OF SECURITIES:**

Common Stock, par value \$0.0001 per share (the "Shares").

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

05464T104

**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:**

- (a)  Broker or dealer registered under Section 15 of the Act (15 U.S.C. 78o);
- (b)  Bank as defined in Section 3(a)(6) of the Act (15 U.S.C. 78c);
- (c)  Insurance company as defined in Section 3(a)(19) of the Act (15 U.S.C. 78c);
- (d)  Investment company registered under Section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a-8);
- (e)  Investment adviser in accordance with Rule 13d-1(b)(1)(ii)(E);
- (f)  Employee benefit plan or endowment fund in accordance with Rule 13d-1(b)(1)(ii)(F);
- (g)  Parent holding company or control person in accordance with Rule 13d-1(b)(1)(ii)(G);
- (h)  Savings association as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i)  Church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act (15 U.S.C. 80a-3);
- (j)  Non-U.S. institution in accordance with Rule 13d-1(b)(1)(ii)(J);
- (k)  Group, in accordance with Rule 13d-1(b)(1)(ii)(K).

If filing as a non-U.S. institution in accordance with Rule 13d-1(b)(1)(ii)(J), please specify the type of institution: \_\_\_\_\_

**Item 4. OWNERSHIP:**

The information required by Items 4(a) - (c) is set forth in Rows 5 - 11 of the cover page for each of the Reporting Persons and is incorporated herein by reference.

The percentages set forth herein are calculated based upon 47,319,547 Shares outstanding as of October 31, 2023, as reported in the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2023 with the Securities and Exchange Commission on November 6, 2023.

**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:**

See Item 2. The RTW Funds have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, the Shares reported herein. RTW Master Fund Ltd., a RTW Fund, has the right to receive or the power to direct the receipt of dividends or the proceeds from the sale of more than 5% of the Shares.

**Item 7. IDENTIFICATION AND CLASSIFICATION OF THE SUBSIDIARY WHICH ACQUIRED THE SECURITY BEING REPORTED ON BY THE PARENT HOLDING COMPANY:**

Not applicable.

**Item 8. IDENTIFICATION AND CLASSIFICATION OF MEMBERS OF THE GROUP:**

Not applicable.

**Item 9. NOTICE OF DISSOLUTION OF GROUP:**

Not applicable.

**Item 10. CERTIFICATION:**

Each of the Reporting Persons hereby makes the following certification:

By signing below each Reporting Person certifies that, to the best of his or its knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired 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.

