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

SCHEDULE 13G  
Under the Securities Exchange Act of 1934

(Amendment No. \_\_\_\_\_)\*

NEUROCRINE BIOSCIENCES, INC.

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(Name of Issuer)

**Common Stock, par value \$0.001 per share**

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(Title of Class of Securities)

**64125C109**

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(CUSIP Number)

**December 13, 2007**

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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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<b>1</b>	NAMES OF REPORTING PERSONS RA Capital Management, LLC	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)  (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  1,955,000
	<b>6</b>	SHARED VOTING POWER  0
	<b>7</b>	SOLE DISPOSITIVE POWER  1,955,000
	<b>8</b>	SHARED DISPOSITIVE POWER  0
<b>9</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  1,955,000	
<b>10</b>	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)  <input type="checkbox"/>	
<b>11</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)  5.1%	
<b>12</b>	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)  IA	

<b>1</b>	NAMES OF REPORTING PERSONS Richard H. Aldrich	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)  (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
<b>3</b>	SEC USE ONLY	
<b>4</b>	CITIZENSHIP OR PLACE OF ORGANIZATION  USA	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH:	<b>5</b>	SOLE VOTING POWER  0
	<b>6</b>	SHARED VOTING POWER  1,955,000
	<b>7</b>	SOLE DISPOSITIVE POWER  0
	<b>8</b>	SHARED DISPOSITIVE POWER  1,955,000
<b>9</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  1,955,000	
<b>10</b>	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)  <input type="checkbox"/>	
<b>11</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)  5.1%	
<b>12</b>	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)  IN	

<b>1</b>	NAMES OF REPORTING PERSONS Peter Kolchinsky	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)  (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
<b>3</b>	SEC USE ONLY	
<b>4</b>	CITIZENSHIP OR PLACE OF ORGANIZATION  USA	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH:	<b>5</b>	SOLE VOTING POWER  0
	<b>6</b>	SHARED VOTING POWER  1,955,000
	<b>7</b>	SOLE DISPOSITIVE POWER  0
	<b>8</b>	SHARED DISPOSITIVE POWER  1,955,000
<b>9</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  1,955,000	
<b>10</b>	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)  <input type="checkbox"/>	
<b>11</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)  5.1%	
<b>12</b>	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)  IN	

<b>1</b>	NAMES OF REPORTING PERSONS RA Capital Biotech Fund, L.P.	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (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 1,929,585
	<b>6</b>	SHARED VOTING POWER 0
	<b>7</b>	SOLE DISPOSITIVE POWER 1,929,585
	<b>8</b>	SHARED DISPOSITIVE POWER 0
<b>9</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 1,929,585	
<b>10</b>	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/>	
<b>11</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 5.0%	
<b>12</b>	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) PN	

<b>1</b>	NAMES OF REPORTING PERSONS RA Capital Biotech Fund II, L.P.	
<b>2</b>	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS)  (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  25,415
	<b>6</b>	SHARED VOTING POWER  0
	<b>7</b>	SOLE DISPOSITIVE POWER  25,415
	<b>8</b>	SHARED DISPOSITIVE POWER  0
<b>9</b>	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON  25,415	
<b>10</b>	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)  <input type="checkbox"/>	
<b>11</b>	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)  .1%	
<b>12</b>	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)  PN	

**Item 1.**

- (a) **Name of Issuer:** Neurocrine Biosciences, Inc. (the “Issuer”).
- (b) **Address of the Issuer’s Principal Executive Offices:** 12790 El Camino Real, San Diego, CA 92130.

**Item 2.**

(a) **Name of Person Filing:** This joint statement on Schedule 13G is being filed by Richard H. Aldrich, Peter Kolchinsky, RA Capital Management, LLC, RA Capital Biotech Fund, L.P. and RA Capital Biotech Fund II, L.P., who are collectively referred to herein as the “Reporting Persons.” Mr. Aldrich and Mr. Kolchinsky (together, the “Managers”) are the managers of RA Capital Management, LLC (“Capital”), which is the sole general partner of each of RA Capital Biotech Fund, L.P. (“Fund I”) and RA Capital Biotech Fund II, L.P. (“Fund II”). The Reporting Persons have entered into a Joint Filing Agreement, dated as of the date hereof, a copy of which is filed with this Schedule 13G as Exhibit 1 (which is incorporated herein by reference), pursuant to which the Reporting Persons have agreed to file this statement jointly in accordance with the provisions of Rule 13d-1(k) under the Act.

- (b) **Address of Principal Business Office:** The principal business office of the Reporting Persons with respect to the shares reported hereunder is 111 Huntington Avenue, Suite 610, Boston, MA 02199.
- (c) **Citizenship:** Capital is a Massachusetts limited liability company. Each of Fund I and Fund II is a Delaware limited partnership. The Managers are U.S. citizens.
- (d) **Title and Class of Securities:** Common stock, par value \$0.001 per share (“Common Stock”)
- (e) **CUSIP Number:** 64125C109

**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

**Item 4. Ownership**

In the aggregate, the Reporting Persons beneficially own 1,955,000 shares of the Common Stock of the Issuer, representing approximately 5.1% of such class of securities. The beneficial ownership of each Reporting Person is as follows: (i) Fund I beneficially owns 1,929,585 shares of Common Stock representing approximately 5.0% of the class, (ii) Fund II beneficially owns 25,415 shares of Common Stock representing approximately .1% of the class and (iii) Capital, as the sole general partner of each of Fund I and Fund II, and Mr. Aldrich and Mr. Kolchinsky as the managers of Capital, each beneficially own 1,955,000 shares of Common Stock of the Issuer representing approximately 5.1% of the class. The percentage of the Common Stock beneficially owned by each Reporting Person is based on a total of 38,268,679 shares of Common Stock of

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the Issuer outstanding as of November 28, 2007, representing the number of shares outstanding as reported in the Final Prospectus filed on December 3, 2007 pursuant to Rule 424(b)(3) under the Securities Act of 1933, as amended.

Each of Fund I and Fund II has the power to vote and dispose of the shares of Common Stock beneficially owned by such entity (as described above). Capital, as the sole general partner of each of Fund I and Fund II, has the sole authority to vote and dispose of all of the shares of Common Stock reported in this Schedule 13G. The Managers, by virtue of their position as managers of Capital, have the shared authority to vote and dispose of all of the shares of Common Stock reported in this joint statement Schedule 13G.

**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**

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

**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.

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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: December 20, 2007

RA CAPITAL BIOTECH FUND, L.P.

By: /s/ Richard H. Aldrich

Richard H. Aldrich  
Manager

RA CAPITAL BIOTECH FUND II, L.P.

By: /s/ Richard H. Aldrich

Richard H. Aldrich  
Manager

RA CAPITAL MANAGEMENT, LLC

By: /s/ Richard H. Aldrich

Richard H. Aldrich  
Manager

RICHARD H. ALDRICH

/s/ Richard H. Aldrich

PETER KOLCHINSKY

/s/ Peter Kolchinsky

Exhibit 1

JOINT FILING AGREEMENT

Pursuant to Rule 13d-1(k)(1) under the Securities Exchange Act of 1934, as amended, the undersigned hereby agrees, as of December 20, 2007, that only one statement containing the information required by Schedule 13G, and each amendment thereto, need be filed with respect to the ownership by each of the undersigned of shares of Common Stock of Neurocrine Biosciences, Inc., and such statement to which this Joint Filing Agreement is attached as Exhibit 1 is filed on behalf of each of the undersigned.

RA CAPITAL BIOTECH FUND, L.P.

By: /s/ Richard H. Aldrich

Richard H. Aldrich  
Manager

RA CAPITAL BIOTECH FUND II, L.P.

By: /s/ Richard H. Aldrich

Richard H. Aldrich  
Manager

RA CAPITAL MANAGEMENT, LLC

By: /s/ Richard H. Aldrich

Richard H. Aldrich  
Manager

RICHARD H. ALDRICH

/s/ Richard H. Aldrich

PETER KOLCHINSKY

/s/ Peter Kolcinsky