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

SCHEDULE 13G

UNDER THE SECURITIES EXCHANGE ACT OF 1934
(Amendment No. __)*

NEUROCRINE BIOSCIENCES, INC.

(Name of Issuer)

COMMON STOCK
(Title of Class of Securities)

64125C109
(CUSIP Number)

DECEMBER 22, 2009
(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).

1	NAME OF REPORTING PERSONS Venrock Healthcare Capital Partners, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input checked="" type="checkbox"/> ¹ (b) <input type="checkbox"/>	
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 4,044,789
	6	SHARED VOTING POWER 0
	7	SOLE DISPOSITIVE POWER 4,044,789
	8	SHARED DISPOSITIVE POWER 0
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,044,789	
10	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 9.2% ²	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) PN	

¹ Venrock Healthcare Capital Partners, L.P., Venrock Co-Investment Holdings, LLC, VHCP Management, LLC, Anders Hove and Bryan Roberts are members of a group for purposes of this Schedule 13G.

² This percentage is calculated based upon the sum of (i) 39,206,876 shares of the Issuer's common stock outstanding as of October 27, 2009, as set forth in the Issuer's quarterly report on Form 10-Q filed with the Securities and Exchange Commission on October 29, 2009, and (ii) 4,784,689 shares of the Issuer's common stock issued on December 22, 2009.

1	NAME OF REPORTING PERSONS Venrock Co-Investment Holdings, LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input checked="" type="checkbox"/> ¹ (b) <input type="checkbox"/>	
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 739,900
	6	SHARED VOTING POWER 0
	7	SOLE DISPOSITIVE POWER 739,900
	8	SHARED DISPOSITIVE POWER 0
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 739,900	
10	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 1.7% ²	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO	

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² This percentage is calculated based upon the sum of (i) 39,206,876 shares of the Issuer's common stock outstanding as of October 27, 2009, as set forth in the Issuer's quarterly report on Form 10-Q filed with the Securities and Exchange Commission on October 29, 2009, and (ii) 4,784,689 shares of the Issuer's common stock issued on December 22, 2009.

1	NAME OF REPORTING PERSONS VHCP Management, LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input checked="" type="checkbox"/> ¹ (b) <input type="checkbox"/>	
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 0
	6	SHARED VOTING POWER 4,784,689 ²
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 4,784,689 ²
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,784,689 ²	
10	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 10.9% ³	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) OO	

¹ Venrock Healthcare Capital Partners, L.P., Venrock Co-Investment Holdings, LLC, VHCP Management, LLC, Anders Hove and Bryan Roberts are members of a group for purposes of this Schedule 13G.

² Consists of 4,044,789 shares of common stock owned by Venrock Healthcare Capital Partners, L.P. and 739,900 shares of common stock owned by Venrock Co-Investment Holdings, LLC. VHCP Management, LLC is the general partner of Venrock Healthcare Capital Partners, L.P. and the manager of Venrock Co-Investment Holdings, LLC.

³ This percentage is calculated based upon the sum of (i) 39,206,876 shares of the Issuer's common stock outstanding as of October 27, 2009, as set forth in the Issuer's quarterly report on Form 10-Q filed with the Securities and Exchange Commission on October 29, 2009, and (ii) 4,784,689 shares of the Issuer's common stock issued on December 22, 2009.

1	NAME OF REPORTING PERSONS Hove, Anders	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input checked="" type="checkbox"/> ¹ (b) <input type="checkbox"/>	
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 0
	6	SHARED VOTING POWER 4,784,689 ²
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 4,784,689 ²
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,784,689 ²	
10	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 10.9% ³	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) IN	

¹ Venrock Healthcare Capital Partners, L.P., Venrock Co-Investment Holdings, LLC, VHCP Management, LLC, Anders Hove and Bryan Roberts are members of a group for purposes of this Schedule 13G.

² Consists of 4,044,789 shares of common stock owned by Venrock Healthcare Capital Partners, L.P. and 739,900 shares of common stock owned by Venrock Co-Investment Holdings, LLC. VHCP Management, LLC is the general partner of Venrock Healthcare Capital Partners, L.P. and the manager of Venrock Co-Investment Holdings, LLC. Messrs. Hove and Roberts are the managing members of VHCP Management, LLC.

³ This percentage is calculated based upon the sum of (i) 39,206,876 shares of the Issuer's common stock outstanding as of October 27, 2009, as set forth in the Issuer's quarterly report on Form 10-Q filed with the Securities and Exchange Commission on October 29, 2009, and (ii) 4,784,689 shares of the Issuer's common stock issued on December 22, 2009.

1	NAME OF REPORTING PERSONS Roberts, Bryan	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (SEE INSTRUCTIONS) (a) <input checked="" type="checkbox"/> ¹ (b) <input type="checkbox"/>	
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 0
	6	SHARED VOTING POWER 4,784,689 ²
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 4,784,689 ²
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,784,689 ²	
10	CHECK IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS)	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 10.9% ³	
12	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS) IN	

¹ Venrock Healthcare Capital Partners, L.P., Venrock Co-Investment Holdings, LLC, VHCP Management, LLC, Anders Hove and Bryan Roberts are members of a group for purposes of this Schedule 13G.

² Consists of 4,044,789 shares of common stock owned by Venrock Healthcare Capital Partners, L.P. and 739,900 shares of common stock owned by Venrock Co-Investment Holdings, LLC. VHCP Management, LLC is the general partner of Venrock Healthcare Capital Partners, L.P. and the manager of Venrock Co-Investment Holdings, LLC. Messrs. Hove and Roberts are the managing members of VHCP Management, LLC.

³ This percentage is calculated based upon the sum of (i) 39,206,876 shares of the Issuer's common stock outstanding as of October 27, 2009, as set forth in the Issuer's quarterly report on Form 10-Q filed with the Securities and Exchange Commission on October 29, 2009, and (ii) 4,784,689 shares of the Issuer's common stock issued on December 22, 2009.

Introductory Note: This Statement on Schedule 13G is filed on behalf of Venrock Healthcare Capital Partners, L.P., a limited partnership organized under the laws of the State of Delaware (“VHCP LP”), Venrock Co-Investment Holdings, LLC, a limited liability company organized under the laws of the State of Delaware (“Venrock Co-Investment”), Venrock Management, LLC, a limited liability company organized under the laws of the State of Delaware (“VHCP Management” and collectively with VHCP LP and Venrock Co-Investment, the “Venrock Entities”), Anders Hove and Bryan Roberts in respect of Common Stock of Neurocrine Biosciences, Inc.

Item 1.

- (a) Name of Issuer
Neurocrine Biosciences, Inc.
- (b) Address of Issuer’s Principal Executive Offices
12780 El Camino Real
San Diego, CA 92130

Item 2.

- (a) Name of Person Filing
Venrock Healthcare Capital Partners, L.P.
Venrock Co-Investment Holdings, LLC
VHCP Management, LLC
Anders Hove
Bryan Roberts
- (b) Address of Principal Business Office or, if none, Residence

New York Office:

30 Rockefeller Plaza
Suite 5508
New York, NY 10112

Palo Alto Office:

3340 Hillview Avenue
Palo Alto, CA 94306

Cambridge Office:

55 Cambridge Parkway
Suite 100
Cambridge, MA 02142

- (c) Citizenship
All entities were organized in Delaware. The individuals are all United States citizens.
- (d) Title of Class of Securities
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

(a) Amount Beneficially Owned:

Venrock Healthcare Capital Partners, L.P.	4,044,789(1)
Venrock Co-Investment Holdings, LLC	739,900(2)
VHCP Management, LLC	4,784,689(3)
Anders Hove	4,784,689(3)
Bryan Roberts	4,784,689(3)

Percent of Class:

Venrock Healthcare Capital Partners, L.P.	9.4%
Venrock Co-Investment Holdings, LLC	1.9%
VHCP Management, LLC	10.9%
Anders Hove	10.9%
Bryan Roberts	10.9%

Number of shares as to which the person has:

(i) Sole power to vote or to direct the vote

Venrock Healthcare Capital Partners, L.P.	4,044,789(1)
Venrock Co-Investment Holdings, LLC	739,900(2)
VHCP Management, LLC	0
Anders Hove	0
Bryan Roberts	0

(ii) Shared power to vote or to direct the vote

Venrock Healthcare Capital Partners, L.P.	0
Venrock Co-Investment Holdings, LLC	0
VHCP Management, LLC	4,784,689(3)
Anders Hove	4,784,689(3)
Bryan Roberts	4,784,689(3)

(iii) Sole power to dispose or to direct the disposition of

Venrock Healthcare Capital Partners, L.P.	4,044,789(1)
Venrock Co-Investment Holdings, LLC	739,900(2)
VHCP Management, LLC	0
Anders Hove	0
Bryan Roberts	0

(iv) Shared power to dispose or to direct the disposition of

Venrock Healthcare Capital Partners, L.P.	0
Venrock Co-Investment Holdings, LLC	0
VHCP Management, LLC	4,784,689(3)
Anders Hove	4,784,689(3)
Bryan Roberts	4,784,689(3)

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- (1) These shares are owned directly by Venrock Healthcare Capital Partners, L.P. VHCP Management, LLC is the general partner of Venrock Healthcare Capital Partners, L.P.
 - (2) These shares are owned directly by Venrock Co-Investment Holdings, LLC. VHCP Management, LLC is the manager of Venrock Co-Investment Holdings, LLC.
 - (3) These shares are owned directly as follows: 4,044,789 shares by Venrock Healthcare Capital Partners, L.P.; and 739,900 by Venrock Co-Investment Holdings, LLC. VHCP Management, LLC is the general partner of Venrock Healthcare Capital Partners, L.P. and the manager of Venrock Co-Investment Holdings, LLC. Messrs. Hove and Anders are the managing members of VHCP Management, LLC.

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 o.

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

The identities of each of the Venrock Entities and Messrs. Hove and Roberts are stated in Item 2(a).

Item 9. Notice of Dissolution of a Group

Not Applicable

Item 10. Certification

By signing below I 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.

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.

Dated: January 4, 2010

Venrock Healthcare Capital Partners, L.P.

By: VHCP Management, LLC,
its General Partner

By: /s/ David L. Stepp
Name: David L. Stepp
Title: Authorized Signatory

VHCP Management, LLC

By: /s/ David L. Stepp
Name: David L. Stepp
Title: Authorized Signatory

/s/ David L. Stepp, as attorney-in-fact
Anders Hove

/s/ David L. Stepp, as attorney-in-fact
Bryan Roberts

Venrock Co-Investment Holdings, LLC

By: VHCP Management, LLC,
its Manager

By: /s/ David L. Stepp
Name: David L. Stepp
Title: Authorized Signatory

EXHIBITS

- A: Joint Filing Agreement
- B: Power of Attorney for Anders Hove (incorporated by reference to Exhibit 24.1 to Form 3/A filed on January 5, 2010)
- C: Power of Attorney for Bryan Roberts (incorporated by reference to Exhibit 24.1 to Form 3/A filed on January 5, 2010)

EXHIBIT A

JOINT FILING AGREEMENT

In accordance with Rule 13d-1(k) under the Securities Exchange Act of 1934, as amended, the undersigned agree to the joint filing on behalf of each of them of a statement on Schedule 13G (including amendments thereto) with respect to the Common Stock of Neurocrine Biosciences, Inc. and further agree that this agreement be included as an exhibit to such filing. Each party to the agreement expressly authorizes each other party to file on its behalf any and all amendments to such statement. Each party to this agreement agrees that this joint filing agreement may be signed in counterparts.

In evidence whereof, the undersigned have caused this Agreement to be executed on their behalf this 4th day of January, 2010.

Venrock Healthcare Capital Partners, L.P.

By: VHCP Management, LLC,
its General Partner

By: /s/ David L. Stepp
Name: David L. Stepp
Title: Authorized Signatory

Venrock Co-Investment Holdings, LLC

By: VHCP Management, LLC,
its Manager

By: /s/ David L. Stepp
Name: David L. Stepp
Title: Authorized Signatory

VHCP Management, LLC

By: /s/ David L. Stepp
Name: David L. Stepp
Title: Authorized Signatory

/s/ David L. Stepp, as attorney-in-fact

Anders Hove

/s/ David L. Stepp, as attorney-in-fact

Bryan Roberts