

Leheny A. Rachel
 Form 4
 September 24, 2010

FORM 4 UNITED STATES SECURITIES AND EXCHANGE COMMISSION
 Washington, D.C. 20549

OMB APPROVAL

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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person *
 Leheny A. Rachel

2. Issuer Name and Ticker or Trading Symbol
 Anthera Pharmaceuticals Inc
 [ANTH]

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

(Last) (First) (Middle)

3. Date of Earliest Transaction (Month/Day/Year)
 09/24/2010

Director 10% Owner
 Officer (give title below) Other (specify below)

C/O ANTHERA
 PHARMACEUTICALS,
 INC., 25801 INDUSTRIAL
 BOULEVARD, SUITE B

(Street)

4. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)

Form filed by One Reporting Person
 Form filed by More than One Reporting Person

HAYWARD, CA 94545

(City) (State) (Zip)

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)	4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)	5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Ownership (Instr. 4)
				Code V	Amount		
Common Stock	09/24/2010		P		\$ 3 1,423,896 ⁽²⁾ ₍₃₎	I	See footnotes ⁽²⁾ ₍₃₎

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

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SEC 1474 (9-02)

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Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned
(e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)	5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)	6. Date Exercisable and Expiration Date (Month/Day/Year)	7. Title and Amount of Underlying Securities (Instr. 3 and 4)
				Code	V (A) (D)	Date Exercisable Expiration Date	Title Amount Number Shares
Stock Purchase Warrant	\$ 3.3	09/24/2010		P	100,000	09/24/2010 09/24/2015	Common Stock 100,000

Reporting Owners

Reporting Owner Name / Address

Relationships

Director 10% Owner Officer Other

Leheny A. Rachel
C/O ANTHERA PHARMACEUTICALS, INC.
25801 INDUSTRIAL BOULEVARD, SUITE B
HAYWARD, CA 94545

X

Signatures

/s/ Mitzi Chang, by power of attorney for A. Rachel Leheny,
Ph.D.

09/24/2010

**Signature of Reporting Person

Date

Explanation of Responses:

* If the form is filed by more than one reporting person, see Instruction 4(b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Represents a price per unit purchased in connection with a private offering under the terms of that certain Securities Purchase Agreement, (1) dated September 20, 2010, between the Issuer and certain investors identified therein. Each unit consisted of one (1) share of common stock of the Issuer and a warrant to purchase 0.40 shares of common stock of the Issuer.

(2) These securities are held by Caxton Advantage Life Sciences Fund, L.P. The Reporting Person is (i) a Managing Director of Caxton Advantage Venture Partners, L.P., which is the General Partner of Caxton Advantage Life Sciences Fund, L.P. and (ii) a member of Advantage Life Sciences Partners LLC. Caxton Advantage Venture Partners, L.P. has voting and investment power with respect to such shares. Decisions by Caxton Advantage Venture Partners, L.P. with respect to such shares are made by Advantage Life Sciences Partners, LLC, the Managing General Partner of Caxton Advantage Venture Partners, L.P., together with the investment committee of Caxton Advantage Venture Partners, L.P. (continued in Footnote 3)

(3) The Reporting Person has the authority to take action on behalf of Advantage Life Sciences Partners, LLC as a member of Advantage Life Sciences Partners, LLC. The Reporting Person disclaims beneficial ownership, except to the extent of her proportionate pecuniary interest, either directly, or indirectly through Caxton Advantage Venture Partners, L.P. (or through any other entity which is a limited partner in Caxton Advantage Life Sciences Fund, L.P.), in Caxton Advantage Life Sciences Fund, L.P.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

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