

RXI PHARMACEUTICALS CORP  
Form SC 13G/A  
February 03, 2010

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549  
SCHEDULE 13G  
UNDER THE SECURITIES EXCHANGE ACT OF 1934  
(Amendment No. 1)\*  
RXi Pharmaceuticals Corporation**

(Name of Issuer)  
Common Stock, \$0.0001 par value per share

(Title of Class of Securities)  
74978T109

(CUSIP Number)  
December 31, 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 not be subject  
to all other  
provisions of the Act  
(however, see the  
Notes).

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**1** NAMES OF REPORTING PERSONS.  
CytRx Corporation

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

**2**  
(a)   
(b)

**3** SEC USE ONLY

**4** CITIZENSHIP OR PLACE OF ORGANIZATION  
Delaware

	<b>5</b>	SOLE VOTING POWER
NUMBER OF		5,768,881
SHARES	<b>6</b>	SHARED VOTING POWER
BENEFICIALLY		0
OWNED BY		
EACH	<b>7</b>	SOLE DISPOSITIVE POWER
REPORTING		5,768,881
PERSON		
WITH	<b>8</b>	SHARED DISPOSITIVE POWER
		0

**9** AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON.  
5,768,881

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES

**10**

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

35.6%

TYPE OF REPORTING PERSON

**12**

CO

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**Item 1(a). Name of Issuer.**

The name of the issuer is RXi Pharmaceuticals Corporation (the Issuer ).

**Item 1(b). Address of Issuer's Principal Executive Offices.**

The address of the Issuer's principal executive office is One Innovation Drive Worcester, Massachusetts 01605.

**Item 2(a). Name of Person Filing.**

CytRx Corporation ( CytRx or the Reporting Person ).

**Item 2(b). Address of Principal Business Office, or, if None, Residence.**

The business address of CytRx is 11726 San Vicente Boulevard, Suite 650, Los Angeles, California.

**Item 2(c). Citizenship.**

CytRx is a Delaware corporation.

**Item 2(d). Title of Class of Securities.**

The title of the class of securities to which this statement relates is the common stock of the Issuer, \$0.0001 par value per share (the Common Stock ).

**Item 2(e). CUSIP No.**

The CUSIP number is 74978T109.

**Item 3. If This Statement is Filed Pursuant to Rule 13d-1(b) or 13d-2(b), Check Whether the Person Filing is a:**

- (a)  Broker or dealer registered under Section 15 of the Act
  - (b)  Bank as defined in Section 3(a)(6) of the Act
  - (c)  Insurance Company as defined in Section 3(a)(19) of the Act
  - (d)  Investment Company registered under Section 8 of the Investment Company Act of 1940
  - (e)  Investment Adviser registered under section 203 of the Investment Advisers Act of 1940
  - (f)  Employee Benefit Plan, Pension Fund which is subject to the provisions of the Employee Retirement Income Security Act of 1974 or Endowment Fund; see Rule 13d-1(b)(1)(ii)(F)
  - (g)  Parent Holding Company, in accordance with Rule 13d-1(b)(1)(ii)(G) (Note: See Item 7)
  - (h)  Group, in accordance with Rule 13d-1(b)(1)(ii)(H).
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**Item 4. Ownership.**

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

As of December 31, 2009, CytRx was the beneficial owner of 5,768,881 shares of Common Stock, which represents approximately 35.6% of the shares of Common Stock outstanding as reported in the Issuer's quarterly report on Form 10-Q for the period ended September 30, 2009. CytRx has the sole power to vote, or to direct the vote of, and to dispose of, or to direct the disposition of, these shares. On September 23, 2009, CytRx sold 500,000 shares of the Issuer's Common Stock.

**Item 5. Ownership of Five Percent or Less of a Class.**

If this Schedule 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.**

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. Certifications.**

Not applicable.

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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.

Dated: February 3, 2010

CYTRX CORPORATION

By: /s/ Steven A. Kriegsman

Name: Steven A. Kriegsman

Title: Chief Executive Officer