

RXI PHARMACEUTICALS CORP  
 Form 4  
 September 25, 2009

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

OMB APPROVAL

OMB Number: 3235-0287  
 Expires: January 31, 2005  
 Estimated average burden hours per response... 0.5

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 \*  
 CYTRX CORP

2. Issuer Name and Ticker or Trading Symbol  
 RXI PHARMACEUTICALS CORP  
 [RXii]

5. Relationship of Reporting Person(s) to Issuer  
 (Check all applicable)

(Last) (First) (Middle)  
 11726 SAN VICENTE  
 BOULEVARD, SUITE 650  
 (Street)

3. Date of Earliest Transaction  
 (Month/Day/Year)  
 09/23/2009

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

LOS ANGELES, CA 90049

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

6. Individual or Joint/Group Filing(Check Applicable Line)  
 \_\_\_X\_\_\_ Form filed by One Reporting Person  
 \_\_\_\_ Form filed by More than One Reporting Person

(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 (D) Price   |   |  |                                   |
| Common Stock                    | 09/23/2009                           |  | S                              | 500,000 D \$ 2.5  | 5,768,881   | D  |                                   |

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

**Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.**

SEC 1474  
 (9-02)

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

