Table of Contents

Table of Contents

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

FORM 10-Q

(Mark One)

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended June 30, 2009

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File number 001-33958

RXi Pharmaceuticals Corporation

(Exact name of registrant as specified in its charter)

Delaware	**20-8099512**
(State of incorporation)	(I.R.S. Employer Identification No.)

60 Prescott Street, Worcester, MA 01605
(Address of principal executive office) (Zip code)

Registrant's telephone number: **(508) 767-3861**

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on it corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter time that the registrant was required to submit and post such files).

Yes ☐ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☐	Accelerated filer ☐	Non-accelerated filer ☐ (Do not check if a smaller reporting company)	Smaller reporting company ☑

Indicate by checkmark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes ☐ No ☑

As of August 12, 2009, RXi Pharmaceuticals Corporation had 16,207,625 shares of common stock, $0.0001 par value, outstanding.

RXi PHARMACEUTICALS CORPORATION
FORM 10-Q — QUARTER ENDED JUNE 30, 2009

INDEX

PART I

ITEM 1. FINANCIAL STATEMENTS

RXi PHARMACEUTICALS CORPORATION
(A Development Stage Company)

CONDENSED BALANCE SHEETS
(Amounts in thousands, except share and per share data)
(Unaudited)

	June 30, 2009	December 31, 2008
ASSETS		
Current assets:		
Cash and cash equivalents	$ 4,362	$ 9,856
Prepaid expenses and other current assets	333	73
Total current assets	4,695	9,929
Equipment and furnishings, net	391	414
Deposits	16	16
Total assets	$ 5,102	$ 10,359
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 580	$ 394
Accrued expenses and other current liabilities	1,274	976
Current maturities of capital lease obligations	14	17
Total current liabilities	1,868	1,387
Capital lease obligations, net of current maturities	11	4
Total liabilities	1,879	1,391
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, $0.0001 par value; 5,000,000 shares authorized; no shares issued and outstanding	—	—
Common stock, $0.0001 par value; 50,000,000 shares authorized; 13,821,910 and 13,763,231 shares issued and outstanding at June 30, 2009 and December 31, 2008, respectively	1	1
Additional paid-in capital	37,837	34,330
Deficit accumulated during the developmental stage	(34,615)	(25,363)
Total stockholders' equity	3,223	8,968
Total liabilities and stockholders' equity	$ 5,102	$ 10,359

The accompanying notes are an integral part of these financial statements.

RXi PHARMACEUTICALS CORPORATION
(A Development Stage Company)

CONDENSED STATEMENTS OF EXPENSES
(Amounts in thousands, except share and per share data)
(Unaudited)

	For the Three Months Ended June 30, 2009	For the Three Months Ended June 30, 2008	For the Six Months Ended June 30, 2009	For the Six Months Ended June 30, 2008	Period from January 1, 2003 (Date of Inception) to June 30, 2009
Expenses:					
Research and development expense	$ 1,817	$ 1,307	$ 3,011	$ 2,189	$ 16,920
Research and development employee stock-based compensation expense	212	73	412	113	868
Research and development non-employee stock-based compensation expense	997	1,386	1,019	1,552	5,042
Fair value of common stock in exchange for licensing rights	—	—	—	—	3,954
Total research and development expenses	3,026	2,766	4,442	3,854	26,784
General and administrative	1,425	1,154	2,728	2,364	12,862
General and administrative employee stock-based compensation	532	426	969	849	3,775
Common stock warrants issued for general and administrative expenses	92	—	826	—	1,576
Fair value of common stock issued in exchange for general and administrative expenses	—	—	281	—	281
Total general and administrative expenses	2,049	1,580	4,804	3,213	18,494
Operating loss	(5,075)	(4,346)	(9,246)	(7,067)	(45,278)
Interest income (expense)	(2)	28	(2)	103	626
Other income (expense)	(4)	—	(4)	—	(4)
Net loss	$ (5,081)	$ (4,318)	$ (9,252)	$ (6,964)	$ (44,656)
Net loss per common share:					
Basic and diluted loss per share	$ (0.37)	$ (0.34)	$ (0.67)	$ (0.55)	N/A
Weighted average common shares outstanding:					
Basic and diluted	13,821,817	12,743,404	13,812,367	12,713,918	N/A

The accompanying notes are an integral part of these financial statements.

RXi PHARMACEUTICALS CORPORATION
(A Development Stage Company)

STATEMENTS OF CASH FLOWS
(Amounts in thousands, except share and per share data)
(Unaudited)

	For the Six Months Ended June 30, 2009	For the Six Months Ended June 30, 2008	Period from January 1, 2003 (Date of Inception) through June 30, 2009
Cash flows from operating activities:			
Net loss	$ (9,252)	$ (6,964)	$ (44,656)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization expense	80	62	247
Loss on disposal of equipment	4	8	12
Non-cash rent expense	—	29	29
Accretion and receipt of bond discount	—	171	35
Non-cash share-based compensation	2,400	2,514	9,687
Fair value of common stock warrants issued in exchange for services	826	—	1,576
Fair value of common stock issued in exchange for services	281	—	281
Fair value of common stock issued in exchange for licensing rights	—	—	3,954
Changes in assets and liabilities:			
Prepaid expenses	(260)	(336)	(333)
Accounts payable	186	416	580
Due to former parent	—	(207)	(207)
Accrued expenses and other current liabilities	298	(28)	1,274
Net cash used in operating activities	(5,437)	(4,335)	(27,521)
Cash flows from investing activities:			
Purchase of short-term investments	—	(6,054)	(31,542)
Maturities of short-term investments	—	9,780	31,507
Cash paid for purchase of equipment and furnishings	(46)	(76)	(544)
Disposal of equipment and furnishings	(1)	—	(1)
Cash paid for lease deposit	—	21	(45)
Net cash provided by (used in) investing activities	(47)	3,671	(625)
Cash flows from financing activities:			
Net proceeds from issuance of common stock	—	7,934	23,418
Net proceeds from exercise of common stock options	—	—	356
Repayments of capital lease obligations	(10)	(13)	(32)
Cash advances from former parent company, net	—	—	8,766
Net cash provided by (used in) financing activities	(10)	7,921	32,508
Net increase (decrease) in cash and cash equivalents	(5,494)	7,257	4,362
Cash and cash equivalents at the beginning of period	9,856	1,763	—
Cash and cash equivalents at end of period	$ 4,362	$ 9,020	$ 4,362
Supplemental disclosure of cash flow information:			
Cash received during the period for interest	$ —	$ 243	$ 723
Cash paid during the period for interest	$ 2	$ —	$ 7
Supplemental disclosure of non-cash investing and financing activities:			
Settlement of corporate formation expenses in exchange for common stock	$ —	$ —	$ 978
Allocation of management expenses	$ —	$ —	$ 551
Equipment and furnishings exchanged for common stock	$ —	$ —	$ 48
Acquisition of equipment and furnishings through accrued liabilities	$ —	$ —	$ —
Equipment and furnishings acquired through capital lease	$ 14	$ 43	$ 43
Non-cash lease deposit	$ —	$ —	$ 50

The accompanying notes are an integral part of these financial statements.

1. Description of Business and Basis of Presentation

RXi Pharmaceuticals Corporation ("RXi" or the "Company") began operations in January 2007 as a biopharmaceutical company pursuing the development of proprietary therapeutics based on RNAi for the treatment of human diseases. By utilizing the Company's expertise in RNAi and the RNAi technology platform the Company has established, the Company believes it will be able to efficiently identify lead compounds and advance towards clinical development of commercially marketable compounds, primarily in partnerships with pharmaceutical and larger biotech companies.

To date, RXi's principal activities have consisted of conducting research and pre-clinical development activities utilizing its RNAi therapeutic platform, acquiring key RNAi technologies and patent rights through exclusive, co-exclusive and non-exclusive licenses, recruiting a RNAi-focused management and scientific/clinical advisory team, capital raising activities and conducting business development activities aimed at establishing development partnerships with pharmaceutical and larger biotech companies. As the Company has not generated any revenues from inception through June 30, 2009, the Company is considered a development-stage company for accounting purposes.

The Company expects to incur significant operating losses for the foreseeable future while it advances its future product candidates from discovery through pre-clinical studies and clinical trials and seeks regulatory approval and potential commercialization, even if the Company is collaborating with pharmaceutical and larger biotech companies. The Company also expects general and administrative costs to increase as it recruits additional management and administrative personnel. The Company will need to generate significant revenues to achieve profitability and may never do so.

In the future, the Company will be dependent on obtaining funding from third parties to maintain its operations. There is no guarantee that additional debt, equity or other funding will be available to the Company on acceptable terms, or at all. If the Company fails to obtain additional funding when needed, it would be forced to scale back, or terminate, its operations or to seek to merge with or to be acquired by another company.

The accompanying condensed financial statements have been prepared in accordance with the rules and regulations of the SEC and should be read in conjunction with the Company's financial statements and the notes thereto for the year ended December 31, 2008 included in the Company's Annual Report on Form 10-K filed with the SEC on March 18, 2009. Certain information and footnote disclosures normally included in financial statements prepared in accordance with United States generally accepted accounting principles have been condensed or omitted pursuant to such rules and regulations. The information presented as of and for the three and six month periods ended June 30, 2009 and 2008, as well as the cumulative financial information for the period from January 1, 2003 (date of inception) through June 30, 2009, is unaudited and has been prepared on the same basis as the audited financial statements and includes all adjustments, consisting of only normal recurring adjustments, necessary for the fair presentation of this information in all material respects. The results of any interim period are not necessarily indicative of the results of operations to be expected for a full fiscal year. There have been no material changes to the Company's significant accounting policies as disclosed in the Company's Annual Report on Form 10-K for the year ended December 31, 2008.

Uses of estimates in preparation of financial statements

The preparation of financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from these estimates.

Reclassifications

Certain prior year amounts have been reclassified to conform with the current year's presentation.

2. Stock Based Compensation

RXi follows the provisions of Statement of Financial Accounting Standards ("SFAS") SFAS 123(R), *"Share-Based Payments"* . SFAS No. 123(R) requires the measurement and recognition of compensation expense for all share-based payment awards made to employees, non-employee directors, and consultants, including employee stock options. Stock compensation expense based on the grant date fair value estimated in accordance with the provisions of SFAS No. 123(R) is recognized as an expense over the requisite service period.

For stock options granted as consideration for services rendered by non-employees, the Company recognizes compensation expense in accordance with the requirements of SFAS No. 123(R), Emerging Issues Task Force ("EITF") Issue No. 96-18, " *Accounting for Equity Instruments that are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services* " and EITF Issue No. 00-18 " *Accounting Recognition for Certain Transactions involving Equity Instruments Granted to Other Than Employees* ," as amended.

Non-employee option grants that do not vest immediately upon grant are recorded as an expense over the vesting period of the underlying stock options. At the end of each financial reporting period prior to vesting, the value of these options, as calculated using the Black-Scholes option-pricing model, will be re-measured using the fair value of the Company's common stock and the non-cash compensation recognized during the period will be adjusted accordingly. Since the fair market value of options granted to non-employees is subject to change in the future, the amount of the future compensation expense will include fair value re-measurements until the stock options are fully vested.

The Company is currently using the Black-Scholes option-pricing model to determine the fair value of all its option grants. For options grants issued in the six month period ended June 30, 2009 and 2008, the following assumptions were used:

	2009	2008
Risk-free interest rate	1.55% - 3.84%	3.29% - 3.99%
Expected volatility	116.72% - 122.93%	101.80%
Expected lives (years)	6 — 10	6 — 10
Expected dividend yield	0.00%	0.00%

The weighted average fair value of options granted during the six month period ended June 30, 2009 and 2008 was $4.42 and $6.96 per share, respectively.

RXi's expected common stock price volatility assumption is based upon the volatility of a basket of comparable companies. The expected life assumptions for employee grants were based upon the simplified method provided for under Staff Accounting Bulletin 107 ("SAB 107"), which averages the contractual term of RXi's options of ten years with the average vesting term of four years for an average of six years. The expected life assumptions for non-employees were based upon the contractual term of the option. The dividend yield assumption of zero is based upon the fact that RXi has never paid cash dividends and presently has no intention of paying cash dividends. The risk-free interest rate used for each grant was also based upon prevailing short-term interest rates. RXi has estimated an annualized forfeiture rate of 4.0% for options granted to its employees, 2.1% for options granted to senior management and no forfeiture rate for the directors. RXi will record additional expense if the actual forfeitures are lower than estimated and will record a recovery of prior expense if the actual forfeiture rates are higher than estimated.

The following table summarizes stock option activity from January 1, 2009 through June 30, 2009:

	Total Number of Shares	Weighted Average Exercise Price
Outstanding at January 1, 2009	2,223,452	$ 6.11
Granted	1,167,546	4.42
Cancelled	8,375	5.34
Outstanding at June 30, 2009	3,382,342	$ 5.53
Options exercisable at June 30, 2009	1,787,285	$ 5.49

The aggregate intrinsic values of outstanding and exercisable options at June 30, 2009 were calculated based on the closing price of the Company's stock on June 30, 2009 of $4.54 per share less the exercise price of those shares. The total intrinsic value of outstanding stock options and exercisable common stock options for the six months ended June 30, 2009 and 2008 was $266,000 and $55,000 and $4,685,000 and $2,375,000, respectively.

3. Net Loss Per Share

The Company accounts for and discloses net loss per common share in accordance with SFAS No. 128, " *Earnings per Share* ." Basic net loss per common share is computed by dividing net loss attributable to common stockholders by the weighted average number of common shares outstanding. Diluted net loss per common share is computed by dividing net loss attributable to common stockholders by the weighted average number of common shares that would have been outstanding during the period assuming the issuance of common shares for all potential dilutive common shares outstanding. Potential common shares consist of shares issuable upon the exercise of stock options and warrants. Because the inclusion of potential common shares would be anti-dilutive for all periods presented diluted net loss per common share is the same as basic net loss per common share.

The following table sets forth the potential common shares excluded from the calculation of net loss per common share because their inclusion would be anti-dilutive:

	June 30,	
	2009	2008
Options to purchase common stock	3,382,342	1,987,293
Warrants to purchase common stock	332,500	—
Total	3,714,842	1,987,293

4. License Agreements

As part of its business, the Company enters into significant licensing agreements. During the quarter, the Company's terminated several license agreements previously disclosed in the Company's Annual Report on Form 10-K for the year ended December 31, 2008.

5. Fair Value Measurements

Effective January 1, 2008, the Company implemented SFAS No. 157, *"Fair Value Measurement"* , or SFAS 157, for the Company's financial assets and liabilities that are re-measured and reported at fair value at each reporting period, and are re-measured and reported at fair value at least annually using a fair value hierarchy that is broken down into three levels. The Company categorized its cash equivalents as a Level 1 hierarchy. The valuation for Level 1 was determined based on a "market approach" using quoted prices in active markets for identical assets. Valuations of these assets do not require a significant degree of judgment.

In accordance with the provisions of FAS Staff Position ("FSP") No. FAS 157-2, *"Effective Date of FASB Statement No. 157"*, the Company has elected to defer implementation of SFAS 157 as it relates to its financial assets and liabilities that are recognized and disclosed at fair value in the financial statements on a nonrecurring basis until January 1, 2010. The Company is evaluating the impact, if any, this standard will have on its financial assets and liabilities. The adoption of SFAS 157 as it relates to the Company's financial assets and liabilities that are re-measured and reported at fair value at least annually did not have an impact on the Company's financial results.

6. Recent Accounting Pronouncements

In June 2009, the Financial Accounting Standards Board ("FASB") issued SFAS No. 168, " *The FASB Accounting Standards Codification and the Hierarchy of Generally Accepted Accounting Principles"* . This standard replaces SFAS No. 162, *The Hierarchy of Generally Accepted Accounting Principles* , and establishes only two levels of U.S. GAAP, authoritative and non-authoritative. The FASB Accounting Standards Codification (the "Codification") will become the source of authoritative, non-governmental GAAP, except for rules and interpretive releases of the SEC, which are sources of authoritative GAAP for SEC registrants. All other non-grandfathered, non-SEC accounting literature not included in the Codification will become non-authoritative. This statement is effective for financial statements for interim or annual reporting periods ending after September 15, 2009. The Company will begin to use the new guidelines and numbering system prescribed by the Codification when referring to U.S. GAAP in the third quarter of fiscal 2009. As the Codification was not intended to change or alter existing U.S. GAAP, it will not have any impact on the Company's financial position, results of operations or cash flows.

In June 2009, the FASB issued SFAS No. 167, " *Amendments to FASB Interpretation No. 46(R)"* . This statement amends the consolidation guidance applicable to variable interest entities and is effective as of January 1, 2010. The Company is currently in the process of evaluating the impact of this pronouncement.

In June 2009, the FASB issued SFAS No. 166, " *Accounting for Transfers of Financial Assets , an amendment to SFAS No. 140"*. This statement eliminates the concept of a qualifying special-purpose entity, changes the requirements for derecognizing financial assets, and requires additional disclosures in order to enhance information reported to users of financial statements by providing greater transparency about transfers of financial assets, including securitization transactions, and an entity's continuing involvement in and exposure to the risks related to transferred financial assets. This statement is effective for fiscal years beginning after November 15, 2009. The Company is currently in the process of evaluating the impact of this pronouncement.

In May 2009, the FASB issued SFAS No. 165, " *Subsequent Events* ". This statement sets forth (i) the period after the balance sheet date during which management of a reporting entity should evaluate events or transactions that may occur for potential recognition or disclosure in the financial statements, (ii) the circumstances under which an entity should recognize events or transactions occurring after the balance sheet date in its financial statements, and (iii) the disclosures that an entity should make about events or transactions that occurred after the balance sheet date. SFAS No. 165 is effective for interim and annual periods ending after June 15, 2009. The Company adopted SFAS No. 165 in the quarter ending June 30, 2009. The adoption of SFAS No. 165 did not have any impact on the Company's financial position, results of operations or cash flows. The Company evaluated all events or transactions that occurred after June 30, 2009 through August 14, 2009, the date the Company issued these financial statements. During this period the Company did not have any material recognizable subsequent events other than what is disclosed in footnote 7.

In April 2009, the FASB issued three related Staff Positions: (i) FSP 157-4, " *Determining Fair Value When the Volume and Level of Activity for the Asset or Liability have Significantly Decreased and Identifying Transactions That Are Not Orderly"* or FSP 157-4, (ii) SFAS 115-2 and SFAS 124-2, " *Recognition and Presentation of Other-Than-Temporary Impairment"* or FSP 115-2 and FSP 124-2, and (iii) SFAS 107-1 and APB 28-1, " *Interim Disclosures about Fair Value of Financial Instruments"* or FSP 107 and APB 28-1, which will be effective for interim and annual periods ending after June 15, 2009. FSP 157-4 provides guidance on how to determine the fair value of assets and liabilities under SFAS 157 in the current economic environment and reemphasizes that the objective of a fair value measurement remains an exit price. If we were to conclude that there has been a significant decrease in the volume and level of activity of the asset or liability in relation to normal market activities, quoted market values may not be representative of fair value and we may conclude that a change in valuation technique or the use of multiple valuation techniques may be appropriate. FSP 115-2 and FSP 124-2 modify the requirements for recognizing other-than-temporarily impaired debt securities and revise the existing impairment model for such securities, by modifying the current intent and ability indicator in determining whether a debt security is other-than-temporarily impaired. FSP 107 and APB 28-1 enhance the disclosure of instruments under the scope of SFAS 157 for both interim and annual periods. The Company is currently evaluating these staff positions and the impact, if any, that adoption will have on its financial position and results of operation.

In June 2007, the Emerging Issues Task Force issued EITF Issue 07-03, " *Accounting for Advance Payments for Goods or Services to Be Used in Future Research and Development* ," or EITF 07-03. EITF 07-03 addresses the diversity which exists with respect to the accounting for the non-refundable portion of a payment made by a research and development entity for future research and development activities. Under EITF 07-03, an entity would defer and capitalize non-refundable advance payments made for research and development activities until the related goods are delivered or the related services are performed. EITF 07-03 was effective for fiscal years beginning after December 15, 2007 and interim periods within those years. The adoption of EITF 07-03 did not have a material impact on the Company's financial statements.

7. The Offering and Subsequent Events

The Company filed a Registration Statement on Form S-3 (File No. 333-158968, the "Registration Statement") on May 4, 2009, which the SEC declared effective on May 22, 2009. Pursuant to the Registration Statement, the Company may issue, in one or more offerings, shares of common stock, preferred stock, warrants or debt securities at an aggregate initial offering price not to exceed $30,000,000.

On March 17, 2009, the Company entered into a placement agency agreement, which was subsequently amended on May 26, 2009 and July 22, 2009, with Rodman & Renshaw, LLC as the exclusive placement agent, relating to a proposed offering by the Company of new securities to potential investors. On July 30, 2009, the Company entered in definitive agreements for the sale and issuance by the Company to certain investors of 2,385,715 units, with each unit consisting of (i) one share of the Company's common stock, par value $0.0001 per share and (ii) a warrant to purchase 0.40 of a share of common stock, at a purchase price of $3.50 per unit, pursuant to the Registration Statement (the "Offering"). The Offering closed on August 4, 2009. The warrants will generally be exercisable for a period beginning six months and ending five years from the closing date, and will carry a price per share equal to $4.50, or 105% of the closing price of the common stock on July 30, 2009. The Company raised gross proceeds of approximately $8,350,000 in the Offering and net proceeds, after deducting the placement agents' fees and other offering expenses payable by the Company, were approximately $7,766,500.

As part of the placement agency agreement, the Company issued a warrant to purchase 23,857 shares to the placement agency as part of their fees for the offering of new securities to investors. The warrants have an exercise price of $4.38 per share and expire five years from the date of issuance on August 3, 2014. The warrants are immediately vested and are exercisable for a period of five years.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

In this document, "we," "our," "ours" and "us" refer to RXi Pharmaceuticals Corporation

This management's discussion and analysis of financial condition as of June 30, 2009 and results of operations for the three and six months ended June 30, 2009 and 2008 should be read in conjunction with management's discussion and analysis of financial condition and results of operations included in our Annual Report on Form 10-K for the year ended December 31, 2008.

The discussion and analysis below includes certain forward-looking statements related to future operating losses and our potential for profitability, the sufficiency of our cash resources, our ability to obtain additional equity or debt financing, possible partnering or other strategic opportunities for the development of our products, as well as other statements related to the progress and timing of product development, present or future licensing, collaborative or financing arrangements or that otherwise relate to future periods, which are all forward-looking statements as defined by the Private Securities Litigation Reform Act of 1995. These statements represent, among other things, the expectations, beliefs, plans and objectives of management and/or assumptions underlying or judgments concerning the future financial performance and other matters discussed in this document. The words "may," "will," "should," "plan," "believe," "estimate," "intend," "anticipate," "project," and "expect" and similar expressions are intended to identify forward-looking statements. All forward-looking statements involve certain risks, uncertainties and other factors described elsewhere in this quarterly report, that could cause our actual results of operations, performance, financial position and business prospects and opportunities for this quarter and the periods that follow to differ materially from those expressed in, or implied by, those forward-looking statements. We caution investors not to place significant reliance on the forward-looking statements contained in this report. These statements, like all statements in this report, speak only as of the date of this report (unless another date is indicated) and we undertake no obligation to update or revise forward-looking statements.

Overview

We are a discovery-stage biopharmaceutical company pursuing proprietary therapeutics based on RNA interference, or RNAi, a naturally occurring cellular mechanism that has the potential to effectively and selectively interfere with, or "silence", expression of targeted disease-associated genes. By utilizing our expertise in RNAi and the RNAi technology platform that we have established, we believe we will be able to discover and develop lead compounds and move them into and through development for potential commercialization more efficiently than traditional drug development approaches.

We were formed in 2006 by CytRx and four prominent RNAi researchers, including Dr. Craig Mello, who was awarded the 2006 Nobel Prize in Medicine for his co-discovery of RNAi. From 2003 through 2006, CytRx sponsored therapeutic RNAi research at UMMS and Massachusetts General Hospital. We commenced operations in January 2007 after CytRx contributed to us its portfolio of RNAi therapeutic assets in exchange for approximately 7.04 million shares of our common stock. These assets consisted primarily of RNAi licenses and related intellectual property, and a nominal amount of equipment. The cost of the licenses had previously been expensed by CytRx as in-process research and development and was recorded in the predecessor financial statements at cost.

To date, RXi's principal activities have consisted of conducting research and pre-clinical development activities utilizing its RNAi therapeutic platform, acquiring key RNAi technologies and patent rights through exclusive and non-exclusive licenses, recruiting a RNAi-focused management and scientific/clinical advisory team, capital raising activities and conducting business development activities aimed at establishing development partnerships with pharmaceutical and larger biotech companies.

We have not generated revenue to date and may not generate revenue in the foreseeable future, if ever. We expect to incur significant operating losses as we advance our product candidates through the drug development and regulatory process. In addition to increasing research and development expenses, we expect general and administrative costs to increase as we add personnel. We will need to generate significant revenues to achieve profitability and might never do so. In the absence of product revenues, our potential sources of operational funding are expected to be the proceeds from the sale of equity, funded research and development payments and payments under collaborative agreements. We believe that our existing cash, cash equivalents and proceeds from the Registered Direct Offering that we closed on August 4, 2009 should be sufficient to fund our operations for at least 12 months. In the future, we will be dependent on obtaining financing from third parties in order to maintain our

operations. We cannot assure that additional debt or equity or other funding will be available to us on acceptable terms, or at all. If we fail to obtain additional funding when needed, we would be forced to scale back, or terminate, our operations, or to seek to merge with or to be acquired by another company.

As the Company has not generated any revenues since inception through June 30, 2009, we are considered a development stage company for accounting purposes.

Results of Operations

For the Three Months ended June 30, 2009 and 2008

For the three months ended June 30, 2009, our net loss was approximately $5,081,000 compared to a net loss of $4,318,000 for the three months ended June 30, 2008. The loss increased by $763,000, or approximately 18%. Reasons for the variations in the losses between the quarters are discussed below.

Research and Development Expense

Research and development expense consists primarily of compensation-related costs for our employees dedicated to research and development activities and for our Scientific Advisory Board ("SAB") members, licensing fees, patent prosecution costs, and the cost of lab supplies used in our research and development programs. We expect research and development expenses to increase as we expand our discovery and development activities for RNAi therapeutics.

Total research and development expenses were approximately $3,026,000 for the three months ended June 30, 2009, compared to $2,766,000 for the three months ended June 30, 2008. The increase of $260,000 or 9% was primarily due to a $139,000 increase in costs associated with employee compensation, due to a 40% increase in headcount as well as an increase in patent costs related to patent applications on internal discoveries offset by a $250,000 decrease in stock-based compensation expense.

General and Administrative Expense

General and administrative expenses include compensation-related costs for our employees dedicated to general and administrative activities, legal fees, audit and tax fees, consultants and professional services, and general corporate expenses.

General and administrative expenses were approximately $2,049,000 for the three months ended June 30, 2009, compared with $1,580,000 for the three months ended June 30, 2008. The increase of $469,000 or 30% was primarily due to a $271,000 increase due to the addition of new staff in 2009, $106,000 increase in non-cash share based compensation and a $92,000 increase due to non-cash compensation expense related to a warrant issued for business advisory services in the three months ended June 30, 2009. There was no non-cash warrant compensation expense for the three months ended June 30, 2008.

Interest income

Interest income was negligible for the three months ended June 30, 2009, compared with approximately $28,000 for the three months ended June 30, 2008. This decrease was primarily due to the current interest rates available to us on our cash and cash equivalents during the three months ended June 30, 2009. The key objectives of our investment policy are to preserve principal and ensure sufficient liquidity, so our invested cash may not earn as high a level of income as longer-term or lower quality securities, which generally have less liquidity and more volatility. The interest rates available on higher quality, shorter-term investments in today's market are lower than rates available in the prior period.

Operating Results

We reported a loss from operations of $5,075,000 in the three month period ended June 30, 2009, compared to a loss from operations of $4,346,000 in the corresponding period in 2008, an increased loss of $729,000, or 17%. This increase was due to increased operating expenses as noted above.

We reported a net loss of $5,081,000 in the three month period ended June 30, 2009, compared to a net loss of $4,318,000 in the corresponding period in 2008, an increase in net loss of $763,000 or 18%, and a net loss per share of $0.37 and $0.34, respectively.

For the Six Months ended June 30, 2009 and 2008

Research and Development Expense

Research and development expenses were $4,442,000 for the six months ended June 30, 2009, compared to $3,854,000 for the six months ended June 30, 2008. The increase of $588,000 or 15%, was due to higher staff cost of $1,063,000 and supplies costs of $594,000, partially offset by combined employee and non-employee stock based compensation of $1,431,000 in the six months ended June 30, 2009, compared to combined employee and non-employee stock based compensation of $1,665,000 in the six months ended June 30, 2008. Research and development expense consists primarily of compensation-related costs for our employees dedicated to research and development activities and for our SAB members, annual license maintenance fees, and the cost of supplies and reagents used in our research and development programs. We expect research and development expenses to increase as we expand our discovery and development activities for RNAi therapeutics.

General and Administrative Expense

General and administrative expenses were $4,804,000 for the six months ended June 30, 2009, compared to $3,213,000 for the six months ended June 30, 2008. The increase of $1,591,000, or 50%, was due to higher staff-related costs, including $969,000 in stock-based compensation expense, and to $826,000 in warrant expense related to a warrant issued for business advisory services and $281,000 in common stock issued under the SEDA. General and administrative expenses include compensation-related costs for our employees dedicated to general and administrative activities, legal fees, audit and tax fees, consultants and professional services and general corporation expenses.

Interest income

Interest income was approximately $2,000 for the six months ended June 30, 2009, compared to approximately $103,000 for the six months ended June 30, 2008. This decrease was primarily due to larger average balances of our cash, cash equivalents or short-term investments during the six months ended June 30, 2008 as well as lower interest rates during the six months ended June 30, 2009.

Operating Results

We reported a loss from operations of $9,246,000 in the six month period ended June 30, 2009 compared to a loss from operations of $7,067,000 in the corresponding period in 2008, an increase in loss of $2,179,000, or 31%. This increase was due primarily to increased expenses related to non-cash equity compensation, as noted above.

We reported a net loss of $9,252,000 in the six month period ended June 30, 2009, compared to a net loss of $6,964,000 in the corresponding period in 2008, an increase in net loss of $2,288,000 or 33%, and a net loss per share of $0.67 and $0.55, respectively.

Liquidity and Capital Resources

In April 2007, we issued 3,273,292 shares of common stock (valued at approximately $5.00 per share, based in part, upon the advice of the third-party valuation advisor and assuming the issuance of 462,112 shares to UMMS pursuant to our license agreements with them) in exchange for $15.0 million in cash from CytRx and the settlement of our inter-company account payable due to CytRx of approximately $2.0 million. On June 24, 2008, we issued

1,073,299 shares of our common stock to institutional investors at $8.12 per share resulting in aggregate gross proceeds of approximately $8.7 million. On January 30, 2009, we entered into the SEDA with YA Global, pursuant to which we may, at our option over a two-year period, periodically sell to YA Global shares of our common stock, for a total purchase price of up to $25,000,000. On August 4, 2009, we closed a registered direct offering (the "Offering") in which we sold 2,385,715 units at $3.50 per unit, each unit consisting of a share of our common stock and a warrant to purchase .40 of a share of our common stock. Warrants to purchase up to a total of 954,286 shares of our common stock at an exercise price of $4.50 per share. We received net proceeds of $7.8 million.

We have not had any revenue since inception nor are any revenues expected for the foreseeable future; however, it will be necessary for us to fund our operations, including general and administrative expenses as well as expenditures for research and development. We believe that our existing cash, cash equivalents and proceeds from the Offering we closed on August 4, 2009 should be sufficient to fund our operations for at least 12 months. In the future, we will be dependent on obtaining financing from third parties in order to maintain our operations. We cannot assure that additional debt or equity or other funding will be available to us on acceptable terms, or at all. If we fail to obtain additional funding when needed, we would be forced to scale back, or terminate, our operations, or to seek to merge with or to be acquired by another company.

Net Cash Flow from Operating Activities

Net cash used in operating activities was approximately $5,437,000 for the six month period ended June 30, 2009, compared with $4,335,000 net cash used in operating activities for the six month period ended June 30, 2008. The increase of approximately $1,102,000 resulted primarily from a net loss of $9,252,000, less the add back of non-cash items of $3,591,000, of which $2,400,000 related to stock-based compensation, $826,000 related to stock warrant expense in exchange for services, $80,000 related to depreciation and $224,000 related to changes in current assets and liabilities.

Net Cash Flow from Investing Activities

Net cash used in investing activities was approximately $47,000 for the six month period ended June 30, 2009, compared to net cash provided by investing activities of $3,671, 000 for the six month period ended June 30, 2008. The decrease of approximately $3,718,000 in cash provided by investing activities was primarily due to net redemption of short-term investments in 2008.

Net Cash Flow from Financing Activities

Net cash used in financing activities was $10,000 for the six month period ended June 30, 2009, compared with $7,921,000 cash provided by financing activities for the six month period ended June 30, 2008. This decrease was primarily due to the issuance of common stock in the amount of $7,934,000 to institutional investors in the second quarter of 2008.

Off-Balance Sheet Arrangements

We have not entered into off-balance sheet financing, other than operating leases.

Critical Accounting Policies and Estimates

In our Annual Report on Form 10-K for the year ended December 31, 2008, we disclosed our critical accounting policies and estimates upon which our financial statements are derived. There have been no changes to these policies since December 31, 2008. Readers are encouraged to review these disclosures in conjunction with the review of this quarterly report on Form 10-Q.

ITEM 4. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

As of the end of the period covered by this quarterly report on Form 10-Q, our Chief Executive Officer and Chief Financial Officer (the "Certifying Officers"), evaluated the effectiveness of our disclosure controls and procedures. Disclosure controls and procedures are controls and procedures designed to reasonably assure that information required to be disclosed in our reports filed under the Securities Exchange Act of 1934 (the "Exchange Act"), such as this Form 10-Q, is recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms. Disclosure controls and procedures are also designed to reasonably assure that such information is accumulated and communicated to our management, including the Certifying Officers, as appropriate to allow timely decisions regarding required disclosure. Based on these evaluations, the Certifying Officers have concluded, that, as of the end of the period covered by this quarterly report on Form 10-Q:

(a) our disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed by us in the reports we file or submit under the Exchange Act was recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms; and

(b) our disclosure controls and procedures were effective to provide reasonable assurance that material information required to be disclosed by us in the reports we file or submit under the Exchange Act was accumulated and communicated to our management, including the Certifying Officers, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There has not been any change in our internal control over financial reporting that occurred during the quarterly period ended June 30, 2009 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

RXi PHARMACEUTICALS CORPORATION
PART II — OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

None

ITEM 1.A RISK FACTORS

You should consider the "Risk Factors" included under Item 1A. of our annual report on Form 10-K for the year ended December 31, 2008, filed on March 18, 2009 with the SEC.

We will be subject to competition and may not be able to compete successfully.

A number of medical institutions and pharmaceutical companies are seeking to develop therapeutic products. Companies working in this area include: Alnylam Pharmaceuticals, MDRNA Inc., Tekmira Pharmaceuticals, Dicerna Pharmaceuticals, Cequent Pharmaceuticals, Tacere Therapeutics, Benitec Ltd., OPKO Health, Silence Therapeutics, Quark Pharmaceuticals, Rosetta Genomics, Lorus Therapeutics and Calando Pharmaceuticals, as well as a number of the multinational pharmaceutical companies. In addition, a number of companies are developing therapeutics for the same diseases we are targeting using technologies other than RNA interference. Most of these competitors have substantially greater research and development capabilities and financial, scientific, technical, manufacturing, marketing, distribution, and other resources than us, and we may not be able to successfully compete with them. In addition, even if we are successful in developing our product candidates, in order to compete successfully we may need to be first to market or to demonstrate that our RNAi based products are superior to therapies based on different technologies. If we are not first to market or are unable to demonstrate such superiority, any products for which we are able to obtain approval may not be successful.

We will rely upon third parties for the manufacture of our clinical product candidates.

We do not have the facilities or expertise to manufacture supplies of any of our potential product candidates. Accordingly, we will be dependent upon contract manufacturers for these supplies. We have no manufacturing supply arrangements for any of our product candidates, and there can be no assurance that we will be able to secure needed supply arrangements on attractive terms, or at all. Our failure to secure these arrangements as needed could have a materially adverse effect on our ability to complete the development of our product candidates or, if we obtain regulatory approval for our product candidates, to commercialize them.

Our current plans call for the manufacture of our rxRNA compounds and, as necessary, any delivery vehicles that may be used to deliver our rxRNA compounds *in vivo*, such as the particles used to deliver our rxRNA compounds to macrophages by contract manufacturers offering research grade, Good Laboratory Practices grade and Good Manufacturing Practices grade materials for preclinical studies (e.g. toxicology studies) and for clinical use. The chemistry, manufacturing and controls for RNAi active pharmaceutical ingredient will be addressed by our clinical development team in close collaboration with a contract manufacturer with extensive experience in RNA drug synthesis. RNA is a complex molecule requiring many synthesis steps, which may lead to challenges with purification and scale-up. These challenges could result in increased costs and delays in manufacturing. Additionally, although we are not currently aware of any such litigation or threatened litigation or challenge, if we have litigation or threatened litigation for or challenge to the composition of our products candidates in the future, manufacturers may refuse to manufacture such compounds.

We may be unable to protect our intellectual property rights licensed from UMMS or others, our intellectual property rights may be inadequate to prevent third parties from using our technologies or developing competing products, and we may need to license additional intellectual property from others.

We have a non-exclusive license to the Mello and Fire foundational RNAi patent owned by UMMS and the Carnegie Institution of Washington, which claims various aspects of RNAi or genetic inhibition by double stranded RNA. This license continues to be available to third parties, and as such it does not provide us with the ability to exclude others from its use or protect us from competition. Therapeutic applications of gene silencing technologies, delivery methods, and other technologies that we license from UMMS are also claimed in a number of UMMS

pending patent applications, but there can be no assurance that these applications will result in any issued patents or that those patents would withstand possible legal challenges or protect our technologies from competition. United States Patent and Trademark Office and patent granting authorities in other countries have upheld stringent standards for the RNAi patents that have been prosecuted so far. Consequently, pending patents that we have licensed may continue to experience long and difficult prosecution challenges and may ultimately issue with much narrower claims than those in the pending applications. We are aware of a number of issued patents covering various particular forms and compositions of RNAi-mediating molecules and therapeutic methods that we do not currently expect to use. Third parties may, however, hold or seek to obtain additional patents that could make it more difficult or impossible for us to develop products based on the gene silencing technology that we have licensed.

In addition, others may challenge the patent owned by UMMS and the Carnegie Institution of Washington or other patents that we currently license or may license in the future and, as a result, these patents could be narrowed, invalidated or rendered unenforceable, which would negatively affect our ability to exclude others from use of RNAi technologies described in these patents. There can be no assurance that these patent or other pending applications or issued patents we licensed in will withstand possible legal challenges. Moreover, the laws of some foreign countries may not protect our proprietary rights to the same extent as do the laws of the United States. Any patents issued to us or our licensors may not provide us with any competitive advantages, and there can be no assurance that the patents of others will not have an adverse effect on our ability to do business or to continue to use our technologies freely. Our efforts to enforce and maintain our intellectual property rights may not be successful and may result in substantial costs and diversion of management time. Even if our rights are valid, enforceable and broad in scope, competitors may develop products based on technology that is not covered by our licenses.

We may need to license additional intellectual property rights from third parties in order to be able to complete the development or enhance the efficacy of our product candidates or avoid possible infringement of the rights of others. Additionally, many of our UMMS licenses are limited to ALS, obesity, diabetes and cancer, and in order to pursue other diseases against proprietary gene targets, we may need licenses from third parties that may be unavailable. To the extent that we are required to obtain multiple licenses from third parties to develop or commercialize a product candidate, the aggregate licensing fees and milestones and royalty payments made to these parties may materially reduce our economic returns or even cause us to abandon development or commercialization of a product candidate. Accordingly, there is no assurance that we will be able to acquire any additional intellectual property rights on satisfactory terms, or at all.

In addition to our licenses, we also rely on copyright and trademark protection, trade secrets, know-how, continuing technological innovation and licensing opportunities. In an effort to maintain the confidentiality and ownership of our trade secrets and proprietary information, we require our employees, consultants, advisors and others to whom we disclose confidential information to execute confidentiality and proprietary information agreements. However, it is possible that these agreements may be breached, invalidated or rendered unenforceable, and if so, there may not be an adequate corrective remedy available. Furthermore, like many companies in our industry, we may from time to time hire scientific personnel formerly employed by other companies involved in one or more areas similar to the activities we conduct. In some situations, our confidentiality and proprietary information agreements may conflict with, or be subject to, the rights of third parties with whom our employees, consultants or advisors have prior employment or consulting relationships. Although we require our employees and consultants to maintain the confidentiality of all confidential information of previous employers, we or these individuals may be subject to allegations of trade secret misappropriation or other similar claims as a result of their prior affiliations. Finally, others may independently develop substantially equivalent proprietary information and techniques, or otherwise gain access to our trade secrets. Our failure to protect our proprietary information and techniques may inhibit or limit our ability to exclude certain competitors from the market and execute our business strategies.

Our success depends upon our ability to obtain and maintain intellectual property protection for our products and technologies.

Our success will depend on our ability to obtain and maintain adequate protection of our intellectual property covering our product candidates and technologies. The ultimate degree of patent protection that will be afforded to biotechnology products and processes, including ours, in the United States and in other important markets remains uncertain and is dependent upon the scope of protection decided upon by the patent offices, courts and lawmakers in these countries. There is no certainty that our existing patents, or patent applications if obtained, will afford us substantial protection or commercial benefit. Similarly, there is no assurance that our pending patent applications or

patent applications licensed from third parties will ultimately be granted as patents or that those patents that have been issued or are issued in the future will stand if they are challenged in court.

We may not be able to obtain sufficient financing, and may not be able to develop our product candidates.

We believe that our existing cash, cash equivalents, and potential proceeds from this offering and the Standby Equity Distribution Agreement, or SEDA, we entered into on January 30, 2009 with YA Global Master SPV Ltd., or YA Global, should be sufficient to fund our operations through 2010. In the future, we will be dependent on obtaining further financing from third parties in order to maintain our operations and to meet our financial obligations. Before we are able to access additional capital from the SEDA, we must satisfy certain conditions, including the requirement that shares of our stock to be sold to YA Global be registered with the U.S. Securities and Exchange Commission ("SEC"), and there is risk of delays in our satisfying these conditions. In addition, pursuant to the terms of the securities purchase agreements related to this offering, we are prohibited from issuing shares under the SEDA for a period of 30 days. We cannot assure that additional debt or equity or other funding to maintain our operations and to meet our obligations to our licensors will be available to us in the future on acceptable terms, or at all. If we fail to obtain additional funding when needed, we would be forced to scale back, or terminate, our operations, or to seek to merge with or to be acquired by another company.

We anticipate that we will need to raise substantial amounts of money to fund a variety of future activities integral to the development of our business, which may include but are not limited to the following:

- to conduct research and development to successfully develop our RNAi technologies,
- to obtain regulatory approval for our products,
- to file and prosecute patent applications and to defend and assess patents to protect our technologies,
- to retain qualified employees, particularly in light of intense competition for qualified scientists,
- to manufacture products ourselves or through third parties,
- to market our products, either through building our own sales and distribution capabilities or relying on third parties, and
- to acquire new technologies, licenses, products or companies.

We cannot assure you that any financing needed for the development of our business will be available to us on acceptable terms or at all. If we cannot obtain additional financing in the future, our operations may be restricted and we may ultimately be unable to continue to develop and potentially commercialize our product candidates.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

None

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

Our annual meeting of shareholders was held on June 5, 2009. At the meeting, our shareholders took the following actions:

(i) To elect two directors to serve until the 2012 Annual Meeting of Stockholders

	For	Withheld
Stephen S. Galliker	[X]	[ ]
Mark J. Ahn	[X]	[ ]

(ii) To ratify the selection of BDO Seidman, LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2009

For	Against	Abstain
[X]	[ ]	[ ]

(iii) To approve an amendment to the 2007 Incentive Plan to increase the number of shares of common stock, par value $0.0001 per share, available for issuance under the plan by 1,000,000 shares.

For	Against	Abstain
[X]	[ ]	[ ]

ITEM 5. OTHER INFORMATION

None

ITEM 6. EXHIBITS

EXHIBIT INDEX

Exhibit Number	Description
3.1	Form of Amended and Restated Certificate of Incorporation of RXi Pharmaceuticals Corporation(1)
3.2	Form of Amended and Restated By-laws of RXi Pharmaceuticals Corporation(1)
10.1	Amendment to Employment Agreement between RXi Pharmaceuticals Corporation and Stephen J. DiPalma, dated May 29, 2009*
31.1	Sarbanes-Oxley Act Section 302 Certification of Tod Woolf
31.2	Sarbanes-Oxley Act Section 302 Certification of Stephen J. DiPalma
32.1	Sarbanes-Oxley Act Section 906 Certification of Tod Woolf and Stephen J. DiPalma

(1) Previously filed as an Exhibit to the Company's Registration Statement on Form S-1 filed on October 30, 2007 (File No. 333-147009) and incorporated by reference herein

* Indicates a management contract or compensatory plan or arrangement.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

RXi PHARMACEUTICALS CORPORATION
(Registrant)

By: /s/ *Tod Woolf*
Tod Woolf, Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

By: /s/ *Stephen J. DiPalma*
Stephen J. DiPalma
Chief Financial Officer
(Principal Financial and Accounting Officer)

Date: August 14, 2009

Exhibit 10.1

Amendment to Employment Agreement

This Amendment dated as of May 15, 2009 (the " Amendment ") relates to the Employment Agreement dated August 28, 2007 between RXi Pharmaceuticals Corporation (" Employer ") and Stephen J. DiPalma (" Employee ") (the " Agreement ").

WHEREAS, Employer and Employee entered into the Agreement under which Employee is to serve as Employer's Chief Financial Officer on the terms set forth in the Agreement;

WHEREAS, Employer and Employee desire to amend the Agreement as a consequence of the Compensation Committee's vote to delete subparagraph 5.1(g) from the Agreement;

NOW THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties hereto agree with each other that the Agreement shall be amended further, effective as of the date hereof, as follows:

Changes to Agreement :

Article 5.1 is hereby amended as follows:

"Subparagraph 5.1(g) is hereby deleted in its entirety. "

IN WITNESS HEREOF, the parties hereto have caused this Amendment to be duly executed by authorized representatives as of the day and year indicated above.

RXi PHARMACEUTICALS CORP.

By: _____
Name: Tod Woolf, Ph.D.
Title: President and CEO

STEPHEN J. DIPALMA

By: _____

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Tod Woolf, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of RXi Pharmaceuticals Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report my conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls over financial reporting.

Dated: August 14, 2009

/s/ *Tod Woolf*
Tod Woolf, Ph.D.
President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Stephen J. DiPalma, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of RXi Pharmaceuticals Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:

    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report my conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls over financial reporting.

Dated: August 14, 2009

/s/ *Stephen J. DiPalma*
Stephen J. DiPalma
Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of RXi Pharmaceuticals Corporation. (the "Company") on Form 10-Q for the period ended June 30, 2009 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned officers of the Company certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to their knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. The information contained in the Report fairly presents, in all material respects, the Company's financial condition and result of operations.

/s/ *Tod Woolf*
Tod Woolf
President and Chief Executive Officer
August 14, 2009

/s/ *Stephen J. DiPalma*
Stephen J. DiPalma
Chief Financial Officer
August 14, 2009