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Filed pursuant to Rule 424(b)(3)
Registration No. 333-181534

PROSPECTUS

RXI Pharmaceuticals Corporation

138,941,780 Shares of Common Stock

This prospectus covers the sale of an aggregate of up to138,941,780 shares (the "**Shares**") of our common stock, $0.0001 par value per share (the "**Common Stock**"), by the selling security holders identified in this prospectus (collectively with any such holder's transferee, pledgee, donee or successor, referred to below as the "**Selling Stockholders**"). The Common Stock covered by this prospectus consists of shares of common stock potentially issuable upon conversion of our Series A Convertible Preferred Stock (the "**Series A Preferred Stock**"). The currently outstanding shares of our Series A Preferred Stock were issued pursuant to a Securities Purchase Agreement dated as of September 24, 2011.

We will not receive any proceeds from the sale by the Selling Stockholders of the shares covered by this prospectus. We are paying the cost of registering the shares covered by this prospectus, as well as various related expenses. The shares included in this prospectus may be offered and sold directly by the Selling Stockholders in accordance with one or more of the methods described in the plan of distribution, which begins on page 17 of this prospectus. The Selling Stockholders are responsible for all selling commissions, transfer taxes and other costs related to the offer and sale of their shares under this prospectus. If required, the number of shares to be sold, the public offering price of those shares, the names of any broker-dealers and any applicable commission or discount will be included in a supplement to this prospectus, called a prospectus supplement.

Our Common Stock is quoted on the OTCBB Market under the symbol "RXII". On May 17, 2012, the last reported sale price per share of our Common Stock on the OTCBB was $0.12. Our principal executive offices are located at 60 Prescott Street, Worcester, Massachusetts, 01605 and our telephone number is (508) 767-3861.

In reviewing this prospectus, you should carefully consider the matters described under the heading "Risk Factors " beginning on page 5.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is July 6, 2012.

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All references to "**RXi**," "**we**," "**our**," "**us**" and similar terms in this prospectus refer to RXi Pharmaceuticals Corporation. All references to "**Galena**" in this prospectus refer to Galena Biopharma, Inc. and its wholly owned subsidiary, Apthera, Inc.

You should rely only on the information contained in this prospectus or a prospectus supplement. We have not authorized anyone to provide you with different information. You should not assume that the information contained in this prospectus is accurate as of any date other than the date on the front of this prospectus.

Some of the industry data contained in this prospectus are derived from data from various third-party sources. While we are not aware of any misstatements regarding any industry data presented herein, such data are subject to change based on various factors, including those discussed under the heading "Risk Factors" in this prospectus.

PROSPECTUS SUMMARY

The following is a summary of some of the information contained in this prospectus. In addition to this summary, we urge you to read the entire prospectus carefully, especially the risks relating to our business and common stock discussed under the heading "Risk Factors" and our financial statements.

RXi Pharmaceuticals Corporation

Our Business

We are a biotechnology company focused on discovering, developing and commercializing innovative therapies addressing major unmet medical needs using RNAi-targeted technologies. We are pursuing proprietary therapeutics based on RNA interference ("**RNAi**"), which is a naturally occurring cellular mechanism that has the potential to effectively and selectively interfere with, or "silence," expression of targeted disease-associated genes.

Certain human diseases result from overexpression of one or more genes. We believe that these types of human diseases can potentially be treated by silencing (reducing) the overexpressed genes. While no therapeutic RNAi products have been approved by the Food and Drug Administration ("FDA") to date, there has been significant interest in the field of RNAi therapeutic development. This interest is driven by the potential ability to exploit the RNAi mechanism to develop lead compounds that specifically and selectively reduce single target genes, many of which are thought to be incapable of being inhibited by other modalities. We are currently focusing our internal therapeutic development efforts in fibrosis. We have demonstrated that treatment with RXI-109, our first RNAi product candidate, can significantly reduce CTGF (connective tissue growth factor) *in vivo* in rodent skin models, and we believe that RXI-109 may inhibit CTGF in human fibrotic disease. RXI-109 is initially being developed as a dermal anti-scarring therapy. The highlights of our RXI-109 development program are the following:

- We expect to initiate a Phase I clinical trial in 2012.
- As reported in Cytokine & Growth Factor Reviews (2008) and other publications, CTGF overexpression is implicated in scarring and fibrotic diseases. Data obtained from studies of RXI-109 in preclinical models using direct local administration to the skin demonstrate robust cellular delivery and statistically significant, dose-dependent silencing of CTGF that lasts for at least one week with a single injection.
- We believe that the potential commercial market for an effective dermal anti-scarring therapy is significant. According to data available publicly on the Center for Disease Control's ("**CDC**") website at www.CDC.gov, approximately 42 million surgical procedures are performed annually, with many patients experiencing hypertrophic scarring and keloids.
- Because abnormal overexpression of CTGF is implicated in dermal scarring and fibrotic disease, we believe that RXI-109, or other CTGF-targeting compounds that reduce CTGF, or block its action, may be able to treat other indications where fibrosis is a factor. These include pulmonary, liver, and renal fibrotic diseases, as well as ocular scarring, acute spinal injury (where scarring impedes regeneration) and restenosis (a complication arising from vessel damage following stent placement). If clinical studies of RXI-109 produce successful results in dermal anti-scarring, we may explore opportunities in these indications, as well as other possible dermatology applications.

We intend to maintain our core RNAi discovery and development capability and to develop products both on our own and through collaborations. By utilizing our expertise in RNAi and the comprehensive RNAi platform that we have established, we believe we will be able to discover and develop lead compounds and progress them into and through clinical development for potential commercialization. Our proprietary therapeutic platform is comprised of two main components:

- *Novel RNAi Compounds,* referred to as rxRNA® compounds, that are distinct from, and we believe convey significant advantages over, classic siRNA (conventionally-designed "small interfering RNA" compounds), and offer many of the properties that we believe are important to the clinical development of RNAi-based drugs. We have developed a number of unique forms of rxRNA® compounds, all of which have been shown to be highly potent both in vitro and in preclinical in vivo models. These RNAi compounds include rxRNAori®, rxRNAsolo® and sd-rxRNA®, or "self-delivering" RNA. Based on our research, we believe that these different, novel siRNA configurations

have various potential advantages for therapeutic use. These potential advantages include high potency, increased resistance to nucleases and off-target effects, and, in the case of the sd-rxRNA® compounds, access to cells and tissues with no additional formulation required.

- *Advanced Delivery Technologies* that enable the delivery of our rxRNA compounds to potentially treat a variety of acute and chronic diseases using both local and systemic approaches, potentially providing a competitive advantage in the development of many RNAi therapeutic compounds. Our suite of delivery technologies is comprised of delivery vehicles, which can be combined with various rxRNA® compounds, as well as sd-rxRNA® compounds, which are chemically modified and have the unique property of entering cells and tissues to effect silencing without the need for any additional delivery vehicle. This suite of delivery technologies has broad applications for multiple therapeutic areas targeting both local and systemic applications for the delivery of the RNAi drug.

We have not generated revenue to date and may not generate product 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.

Our Separation from Galena Biopharma, Inc.

Prior to September 24, 2011, our business was owned and operated by Galena Biopharma, Inc., a Delaware corporation ("**Galena**"). On September 8, 2011, we were incorporated in Delaware as a wholly owned subsidiary of Galena. On September 24, 2011, we entered into a contribution agreement with Galena pursuant to which Galena assigned and contributed to us substantially all of its RNAi-related technologies and assets as well as other assets, personnel and certain research grants. Further, we agreed to assume approximately $411,000 of accrued expenses of the RXi-109 development program and all future obligations under the contributed licenses, employment arrangements and other agreements. Additionally, we agreed to make future milestone payments to Galena of up to $45 million, consisting of two one-time payments of $15 million and $30 million, respectively, if we achieve annual net sales equal to or greater than $500 million and $1 billion, respectively, of any covered products that may be developed with the contributed RNAi technologies. See "Certain Relationships and Related Party Transactions — Agreements with Galena Biopharma, Inc." for additional details.

On April 27, 2012, we completed the offering and sale of shares of our Series A Preferred Stock as contemplated under that certain Securities Purchase Agreement, dated as of September 24, 2011 (the "**Purchase Agreement**"), by and among Galena, and Tang Capital Partners, LP and RTW Investments, LLC (collectively, the "**Investors**"). Pursuant to the Purchase Agreement, the Investors purchased a total of 9,500 shares of Series A Preferred Stock issued by the Company in consideration for $9,500,000 payable in cash and the extinguishment of indebtedness owed to the Investors by the Company.

The closing under the Purchase Agreement (the "**Closing**") followed the distribution by Galena on April 26, 2012 of a dividend of one share of Company common stock that was paid with respect to each share of Galena common stock issued and outstanding as of the close of business on April 23, 2012. As a result of the total number of shares of Galena common stock that were issued and outstanding on the record date, Galena distributed to its stockholders a total of 66,959,894 shares of Company common stock (the "**Spin-off**"), while Galena retained ownership of an additional 33,479,947 shares of Common Stock, which shares are subject to limitations on resale. The Spin-off was registered under the Securities Act on a Registration Statement on Form S-1 (File No. 333-177498), which was declared effective on February 14, 2012 by the U.S. Securities and Exchange Commission.

Concurrent with the Closing, the Company issued a total of 41,849,934 additional shares of Common Stock to Advirna, LLC in partial consideration for the assignment of certain patent rights to the Company. Additional information relating to the issuance of the shares to Advirna and the agreement with Advirna under which they were issued can be found in "Business — Intellectual property — Other Technology Agreements; Advirna" and "Certain Relationships and Related Party Transactions — Advirna Agreements."

Risks Related to RXi

We face a number of risks and uncertainties relating to our separation from Galena and our business. These risks and uncertainties include:

- We may be unable to achieve some or all of the benefits that we expect to achieve from our separation from Galena.

- We may be unsuccessful in recruiting or retaining key employees.
- We may not be able to obtain sufficient funding and may not be able to commercialize our product candidates.
- The approach we are taking to discover and develop novel therapeutics using RNAi is unproven and may never lead to marketable products.
- We may not be able to maintain the third-party relationships that are necessary to develop or commercialize some or all of our product candidates.
- If our clinical trials do not demonstrate safety and efficacy in humans, our product candidates may not receive FDA approval and we will not be able to commercialize these candidates.
- Even if we receive regulatory approval to market our product candidates, our product candidates may not be accepted commercially, which may prevent us from becoming profitable.
- We are dependent on technologies we license, and if we lose the right to license such technologies or we fail to license new technologies in the future, our ability to develop new products would be harmed.
- Our common stock is newly listed for quotation on the OTCBB and an active trading market may not develop.

For further discussion of these and other risks and uncertainties that RXi faces, see the "Risk Factors" section beginning on page 5 of this prospectus and "Management's Discussion and Analysis of Financial Condition and Results of Operations" section beginning on page 22 of this prospectus.

Corporate Information

Our principal executive offices are located at 60 Prescott Street, Worcester, Massachusetts 01605, and our telephone number is (508) 767-3861. Our Internet address is www.rxipharma.com. Our website and the information contained on that site, or connected to that site, is not part of or incorporated by reference into this prospectus.

Summary Historical Financial Information

The following summary historical financial information should be read in conjunction with the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section and the financial statements and corresponding notes to financial statements included elsewhere in this prospectus.

Prior to April 13, 2011, Galena was engaged primarily in conducting discovery research and preclinical development activities based on RNAi, and Galena's financial statements for periods prior to April 13, 2011 reflected solely the assets, liabilities and results of operations attributable to Galena's RNAi-based assets, liabilities and results of operations. On April 13, 2011, Galena broadened its strategic direction by adding the development and commercialization of cancer therapies that utilize peptide-based immunotherapy products, including a main product candidate, NeuVax, for the treatment of various cancers. Accordingly, the historical financial information for the three months ended March 31, 2012 and 2011 and the fiscal years ended December 31, 2011 and 2010, as well as the cumulative period from inception (January 1, 2003) through March 31, 2012 has been "carved out" of the financial statements of Galena, as our "Predecessor," for such periods. Such carved-out financial information reflects Galena's RNAi-related activities, assets and liabilities only, and excludes activities, assets and liabilities attributable to Galena's cancer therapies. On September 24, 2011, Galena contributed to RXi substantially all of Galena's RNAi-related technologies and assets. The financial information for the periods ended December 31, 2011 and March 31, 2012 also includes the results of RXi, "Registrant," for the period from September 24, 2011 to December 31, 2011 and to March 31, 2012, respectively. RXi was formed on September 8, 2011 and was not engaged in any activities other than its initial incorporation from September 8, 2011 to September 23, 2011, at which time Galena contributed to RXi all of its RNAi-related activities, assets and selected liabilities.

The carved-out financial information includes both direct and indirect expenses. The historical direct expenses consist primarily of the various costs for technology license agreements, sponsored research agreements, fees paid to scientific advisors and employee expenses of employees directly involved in RNAi-related activities. Indirect

expenses represent employee expenses incurred by Galena that were allocable to the RNAi business. The indirect expenses are based upon (1) estimates of the percentage of time spent by Galena employees working on RNAi business matters and (2) allocations of various expenses associated with the employees, including salary, benefits, rent associated with the employees' office space, accounting and other general and administrative expenses. The percentage of time spent by Galena employees was multiplied by these allocable expenses to arrive at the total employee expenses allocable to the RNAi business and reflected in the carved out financial statements. Management believes the assumptions underlying the carved-out financial information are reasonable; however, the financial position and expenses may have been materially different if the RNAi business had operated as a stand-alone entity during the periods presented.

	Predecessor (RNAi) and RXi (Registrant)(1)	RXi (Registrant)	Predecessor (RNAi)	Predecessor (RNAi) and RXi (Registrant)(2)	Predecessor (RNAi)
	Period from January 1, 2003 (Date of Inception) to March 31, 2012	Three Months Ended March 31,		Years Ended December 31,	
		2012	2011	2011	2010
		(Amounts in thousands)			
Statement of Expenses Data:					
Expenses:					
Research and development expense	$ 46,885	$ 1,154	$ 2,156	$ 6,624	$ 7,873
General and administrative expense	37,967	751	3,119	6,146	8,752
Total operating expenses	84,852	1,905	5,275	12,770	16,625
Interest income (expense)	606	(22)	(1)	—	5
Other income (expense)	6,317	1	1,435	2,551	4,627
Net loss	$ (77,929)	$ (1,926)	$ (3,841)	$ (10,219)	$ (11,993)
Basic and diluted loss per share		$ (0.04)	$ (0.19)	$ (0.28)	$ (0.67)
Weighted average common shares outstanding: basic and diluted		47,967,499	20,316,170	36,334,413	17,833,381

	RXi (Registrant)		Predecessor (RNAi)
	March 31, 2012	December 31, 2011	December 31, 2010
	(Amounts in thousands)		
Balance Sheets Data:			
Cash and cash equivalents	$ 357	$ 556	$ 6,891
Total current assets	$ 1,012	$ 1,339	$ 7,041
Equipment and furnishings, net	$ 315	$ 355	$ 419
Total assets	$ 1,327	$ 1,694	$ 7,476
Total liabilities	$ 3,104	$ 2,281	$ 5,046
Total stockholder's deficit	$ (1,777)	$ (587)	$ —
Divisional equity	$ —	$ —	$ 2,430
Total liabilities, stockholder's deficit and divisional equity	$ 1,327	$ 1,694	$ 7,476

(1) The statement of expenses for the period from January 1, 2003 (date of inception) to March 31, 2012 includes the results of operations of the carved-out Predecessor (RNAi) entity from the beginning of the periods presented to September 23, 2011 ($73,466,000) combined with the results of operations of RXi (Registrant) for the period September 24, 2011 to March 31, 2012 ($4,463,000).

(2) The statements of expenses for the year ended December 31, 2011 includes the results of operations of the carved-out Predecessor (RNAi) entity from the beginning of the periods presented to September 23, 2011($73,466,000) combined with the results of operations of RXi (Registrant) for the period September 24, 2011 to December 31, 2011 ($2,537,000).

RISK FACTORS

You should carefully consider the risks described below and all of the other information contained in this prospectus in evaluating us and our common stock. If the following risks and uncertainties, or any one of them, develops into actual events, they could have a material adverse effect on our business, financial condition or results of operations. In that case, the trading price of our common stock could decline.

Risks Relating to the Company

We are dependent on the success of our lead drug candidate, which may not receive regulatory approval or be successfully commercialized.

RXI-109, our first RNAi-based product candidate, targets CTGF and may have a variety of medical applications. We expect to initiate a Phase I clinical trial in 2012 for RXI-109. The FDA, however, may require additional information before we are allowed to commence our clinical studies, and such information may be costly to provide or cause potentially significant delays in development. There is no assurance that we will be able to successfully develop RXI-109 or any other product candidate.

We currently generate no revenue from sales and may never be able to develop marketable products. The FDA or similar foreign governmental agencies must approve our products in development before they can be marketed. The process for obtaining FDA approval is both time-consuming and costly, with no certainty of a successful outcome. Before obtaining regulatory approval for the sale of any drug candidate, we must conduct extensive preclinical tests and clinical trials to demonstrate the safety and efficacy in humans of our product candidates. We have not yet shown safety or efficacy in humans for any RNAi-based product candidates, including RXI-109. A failure of any preclinical study or clinical trial can occur at any stage of testing. The results of preclinical and initial clinical testing of these products may not necessarily indicate the results that will be obtained from later or more extensive testing. It is also possible to suffer significant setbacks in advanced clinical trials, even after obtaining promising results in earlier trials.

A number of different factors could prevent us from obtaining regulatory approval or commercializing our product candidates on a timely basis, or at all.

We, the FDA or other applicable regulatory authorities or an institutional review board ("**IRB**") may suspend clinical trials of a drug candidate at any time for various reasons, including if we or they believe the subjects or patients participating in such trials are being exposed to unacceptable health risks. Among other reasons, adverse side effects of a drug candidate on subjects or patients in a clinical trial could result in the FDA or other regulatory authorities suspending or terminating the trial and refusing to approve a particular drug candidate for any or all indications of use.

Clinical trials of a new drug candidate require the enrollment of a sufficient number of patients, including patients who are suffering from the disease the drug candidate is intended to treat and who meet other eligibility criteria. Rates of patient enrollment are affected by many factors, and delays in patient enrollment can result in increased costs and longer development times.

Clinical trials also require the review and oversight of IRBs, which approve and continually review clinical investigations and protect the rights and welfare of human subjects. An inability or delay in obtaining IRB approval could prevent or delay the initiation and completion of clinical trials, and the FDA may decide not to consider any data or information derived from a clinical investigation not subject to initial and continuing IRB review and approval.

Numerous factors could affect the timing, cost or outcome of our drug development efforts, including the following:

- Delays in filing or acceptance of initial drug applications for RXI-109 or other product candidates;
- Difficulty in securing centers to conduct trials;
- Conditions imposed on us by the FDA or comparable foreign authorities regarding the scope or design of RXi's clinical trials;

- Problems in engaging IRBs to oversee trials or problems in obtaining or maintaining IRB approval of studies;
- Difficulty in enrolling patients in conformity with required protocols or projected timelines;
- Third-party contractors failing to comply with regulatory requirements or to meet their contractual obligations to us in a timely manner;
- Our drug candidates having unexpected and different chemical and pharmacological properties in humans than in laboratory testing and interacting with human biological systems in unforeseen, ineffective or harmful ways;
- The need to suspend or terminate clinical trials if the participants are being exposed to unacceptable health risks;
- Insufficient or inadequate supply or quality of our drug candidates or other necessary materials necessary to conduct our clinical trials;
- Effects of our drug candidates not being the desired effects or including undesirable side effects or the drug candidates having other unexpected characteristics;
- The cost of our clinical trials being greater than we anticipate;
- Negative or inconclusive results from our clinical trials or the clinical trials of others for similar drug candidates or inability to generate statistically significant data confirming the efficacy of the product being tested;
- Changes in the FDA's requirements for testing during the course of that testing;
- Reallocation of our limited financial and other resources to other clinical programs; and
- Adverse results obtained by other companies developing similar drugs.

It is possible that none of the product candidates that we may develop will obtain the appropriate regulatory approvals necessary to begin selling them or that any regulatory approval to market a product may be subject to limitations on the indicated uses for which we may market the product. The time required to obtain FDA and other approvals is unpredictable, but often can take years following the commencement of clinical trials, depending upon the complexity of the drug candidate. Any analysis we perform of data from clinical activities is subject to confirmation and interpretation by regulatory authorities, which could delay, limit or prevent regulatory approval. Any delay or failure in obtaining required approvals could have a material adverse effect on our ability to generate revenue from the particular drug candidate.

We also are subject to numerous foreign regulatory requirements governing the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement. The foreign regulatory approval process includes all of the risks associated with the FDA approval described above as well as risks attributable to the satisfaction of local regulations in foreign jurisdictions. Approval by the FDA does not assure approval by regulatory authorities outside of the United States.

The approach we are taking to discover and develop novel therapeutics using RNAi is unproven and may never lead to marketable products.

RNA interference is a relatively new scientific discovery. Our RNAi technologies have not yet been clinically tested, nor are we aware of any clinical trials for efficacy having been completed by third parties involving these technologies. To date, no company has received regulatory approval to market therapeutics utilizing RNAi, and a number of clinical trials of RNAi technologies by other companies have been unsuccessful. The scientific evidence to support the feasibility of developing drugs based on these discoveries is both preliminary and limited. To successfully develop RNAi-based products, we must resolve a number of issues, including stabilizing the RNAi material and delivering it into target cells in the human body. We may spend large amounts of money trying to resolve these issues and may never succeed in doing so. In addition, any compounds that we develop may not demonstrate in patients the chemical and pharmacological properties ascribed to them in laboratory studies, and they may interact with human biological systems in unforeseen, ineffective or even harmful ways.

The FDA could impose a unique regulatory regime for RNAi therapeutics.

The substances we intend to develop may represent a new class of drug, and the FDA has not yet established any definitive policies, practices or guidelines in relation to these drugs. While we expect any product candidates that we develop will be regulated as a new drug under the Federal Food, Drug, and Cosmetic Act, the FDA could decide to regulate them or other products we may develop as biologics under the Public Health Service Act. The lack of policies, practices or guidelines may hinder or slow review by the FDA of any regulatory filings that we may submit. Moreover, the FDA may respond to these submissions by defining requirements that we may not have anticipated.

The FDA approval process may be delayed for any drugs we develop that require the use of specialized drug delivery devices or vehicles.

Some drug candidates that we develop may need to be administered using specialized vehicles, such as an implantable pump, that deliver RNAi therapeutics directly to diseased parts of the body. The drug delivery vehicles that we expect to utilize to deliver our drug candidates have not been approved by the FDA or other regulatory agencies. In addition, the FDA may regulate the product as a combination product of a drug and a device or require additional approvals or clearances for the modified delivery.

If a specialized delivery vehicle is owned by another company, we would need that company's cooperation to implement the necessary changes to the vehicle, or its labeling and to obtain any additional approvals or clearances. Any delays in finding suitable drug delivery vehicles to administer RNAi therapeutics directly to diseased parts of the body could negatively affect our ability to successfully develop our RNAi therapeutics.

Even if we receive regulatory approval to market our product candidates, our product candidates may not be accepted commercially, which may prevent us from becoming profitable.

The RNAi product candidates that we are developing are based on new technologies and therapeutic approaches. RNAi products may be more expensive to manufacture than traditional small molecule drugs, which may make them more costly than competing small molecule drugs. Additionally, for various applications, RNAi products are likely to require injection or implantation and to not readily cross the so-called blood brain barrier, which will make them less convenient to administer than drugs administered orally. Key participants in the pharmaceutical marketplace, such as physicians, medical professionals working in large reference laboratories, public health laboratories and hospitals, third-party payors and consumers may not accept products intended to improve therapeutic results based on RNAi technology. As a result, it may be more difficult for us to convince the medical community and third-party payors to accept and use our products or to provide favorable reimbursement. If medical professionals working with large reference laboratories, public health laboratories and hospitals choose not to adopt and use our RNAi technology, our products may not achieve broader market acceptance.

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

We believe numerous companies are investigating or plan to investigate a variety of proposed anti-scarring therapies in clinical trials. The companies include large and small pharmaceutical, chemical and biotechnology companies, as well as universities, government agencies and other private and public research organizations. Such companies include Renovo Group plc, CoDa Therapeutics, Inc., Sirnaomics, Inc., FirstString Research, Inc., Merz Pharmaceuticals, LLC, Capstone Therapeutics, Halscion, Inc., Garnet Bio Therapeutics, Inc., AkPharma Inc., Promedior, Inc., Kissei Pharmaceutical Co., Ltd., Eyegene, Derma Sciences, Inc., Healthpoint Biotherapeutics and Pharmaxon. In particular, Excaliard Pharmaceuticals, Inc., which has been acquired by Pfizer, Inc., has successfully advanced an anti-CTGF antisense oligonucleotide through several Phase I and Phase II trials, demonstrating improved scar outcome over placebo.

We believe other companies working in the RNAi area, generally, include Alnylam Pharmaceuticals, Inc., Marina Biotech, Inc., Tacere Therapeutics, Inc., Benitec Limited, OPKO Health, Inc., Silence Therapeutics plc, Quark Pharmaceuticals, Inc., Rosetta Genomics Ltd., Lorus Therapeutics, Inc., Tekmira Pharmaceuticals Corporation, Arrowhead Research Corporation, Regulus Therapeutics Inc., FibroGen, Inc. and Santaris, as well as a number of large pharmaceutical companies. Many other companies are pursuing non-RNAi-based therapies for one or more fibrotic disease indications, including ocular scarring or other indications that we may seek to pursue.

Most of these competitors have substantially greater research and development capabilities and financial, scientific, technical, manufacturing, marketing, distribution and other resources than we have, 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. A number of our competitors have already commenced clinical testing of RNAi product candidates and may be more advanced than we are in the process of developing products. If we are not first to market or are unable to demonstrate superiority, any products for which we are able to obtain approval may not be successful.

We are dependent on technologies we license, and if we lose the right to license such technologies or fail to license new technologies in the future, our ability to develop new products would be harmed.

Many patents in the RNAi field have already been exclusively licensed to third parties, including our competitors. If any of our existing licenses are terminated, the development of the products contemplated by the licenses could be delayed or terminated and we may not be able to negotiate additional licenses on acceptable terms, if at all, which would have a material adverse effect on our business.

We may be unable to protect our intellectual property rights licensed from other parties; 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.

Therapeutic applications of gene silencing technologies, delivery methods and other technologies that we license from third parties are claimed in a number of pending patent applications, but there is 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. The 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 and those that we own may continue to experience long and difficult prosecution challenges and may ultimately issue with much narrower claims than those in the pending applications. Third parties may hold or seek to obtain additional patents that could make it more difficult or impossible for us to develop products based on RNAi technology without obtaining a license to such patents, which licenses may not be available on attractive terms, or at all.

In addition, others may challenge the patents or patent applications that we currently license or may license in the future or that we own and, as a result, these patents could be narrowed, invalidated or rendered unenforceable, which would negatively affect our ability to exclude others from using RNAi technologies described in these patents. There is no assurance that these patent or other pending applications or issued patents we license or that we own 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 is no assurance that the patents of others will not have an adverse effect on our ability to do business or to continue to use its 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 or patents or patent application that we own.

We have received a letter from Alnylam Pharmaceuticals, Inc., or Alnylam, claiming that we require access to Alnylam's patent and patent applications and demanding that we stop engaging in unspecified alleged infringing activities unless we obtain a license from Alnylam. We understand that other companies working in the RNAi area have received similar letters from Alnylam. Although we believe, based on the advice of our patent counsel, that our current and planned activities do not infringe any valid patent rights of Alnylam, there is no assurance that we will not need to alter our development candidates or products or obtain a license to Alnylam's rights to avoid any such infringement.

There is no guarantee that future licenses will be available from third parties for our product candidates on timely or satisfactory terms, or at all. To the extent that we are required and are able 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.

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

The applications based on RNAi technologies claim many different methods, compositions and processes relating to the discovery, development, delivery and commercialization of RNAi therapeutics. Because this field is so new, very few of these patent applications have been fully processed by government patent offices around the world, and there is a great deal of uncertainty about which patents will issue, when, to whom and with what claims. Although we are not aware of any blocking patents or other proprietary rights, it is likely that there will be significant litigation and other proceedings, such as interference and opposition proceedings in various patent offices, relating to patent rights in the RNAi field. It is possible that we may become a party to such proceedings.

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 for clinical trials. Accordingly, we will be dependent upon contract manufacturers for these supplies. We currently obtain supplies for RXI-109 from a single supplier, Agilent Technologies, Nucleic Acid Solutions Division. If for any reason we are unable to obtain RXI-109 from this supplier, we would have to seek to obtain it from another major digonucleotide manufacturer. There is no assurance that we will be able to timely secure needed supply arrangements on satisfactory terms, or at all. Our failure to secure these arrangements as needed could have a material 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.

We may not be able to establish or maintain the third-party relationships that are necessary to develop or potentially commercialize some or all of our product candidates.

We expect to depend on collaborators, partners, licensees, clinical research organizations and other third parties to support our discovery efforts, to formulate product candidates, to manufacture our product candidates and to conduct clinical trials for some or all of our product candidates. We cannot guarantee that we will be able to successfully negotiate agreements for or maintain relationships with collaborators, partners, licensees, clinical investigators, vendors and other third parties on favorable terms, if at all. Our ability to successfully negotiate such agreements will depend on, among other things, potential partners' evaluation of the superiority of our technology over competing technologies, the quality of the preclinical and clinical data that we have generated and the perceived risks specific to developing our product candidates. If we are unable to obtain or maintain these agreements, we may not be able to clinically develop, formulate, manufacture, obtain regulatory approvals for or commercialize our product candidates. We cannot necessarily control the amount or timing of resources that our contract partners will devote to our research and development programs, product candidates or potential product candidates, and we cannot guarantee that these parties will fulfill their obligations to us under these arrangements in a timely fashion. We may not be able to readily terminate any such agreements with contract partners even if such contract partners do not fulfill their obligations to us.

Even if we obtain regulatory approvals, our marketed drugs will be subject to ongoing regulatory review. If we fail to comply with continuing U.S. and foreign regulations, we could lose our approvals to market drugs and our business would be materially and adversely affected.

Following regulatory approval of any drugs we may develop, we will remain subject to continuing regulatory review, including the review of adverse drug experiences and clinical results that are reported after our drug products are made available to patients. This would include results from any post-marketing tests or vigilance required as a condition of approval. The manufacturer and manufacturing facilities we use to make any of our drug products will also be subject to periodic review and inspection by the FDA. The discovery of any new or previously unknown problems with the product, manufacturer or facility may result in restrictions on the drug or manufacturer or facility, including withdrawal of the drug from the market. We would continue to be subject to the FDA requirements governing the labeling, packaging, storage, advertising, promotion, recordkeeping and submission of safety and other post-market information for all of our product candidates, even those that the FDA had approved. If we fail to comply with applicable continuing regulatory requirements, we may be subject to fines, suspension or withdrawal of regulatory approval, product recalls and seizures, operating restrictions and other adverse consequences.

We are subject to potential liabilities from clinical testing and future product liability claims.

If any of our future products are alleged to be defective, they may expose us to claims for personal injury by patients in clinical trials of our products. If our products are approved by the FDA, users may claim that such products caused unintended adverse effects. We will seek to obtain clinical trial insurance for clinical trials that we conduct, as well as liability insurance for any products that we market. There is no assurance that we will be able to obtain insurance in the amounts we seek, or at all. We anticipate that licensees who develop our products will carry liability insurance covering the clinical testing and marketing of those products. There is no assurance, however, that any insurance maintained by us or our licensees will prove adequate in the event of a claim against us. Even if claims asserted against us are unsuccessful, they may divert management's attention from our operations and we may have to incur substantial costs to defend such claims.

Any drugs we develop may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives, which could have a material adverse effect on our business.

We intend to sell our products to plastic surgeons and dermatologists, as well as hospitals, oncologists and clinics which receive reimbursement for the healthcare services they provide to their patients from third-party payors, such as Medicare, Medicaid and other domestic and international government programs, private insurance plans and managed care programs. Most third-party payors may deny reimbursement if they determine that a medical product was not used in accordance with cost-effective treatment methods, as determined by the third-party payor, was used for an unapproved indication or if they believe the cost of the product outweighs its benefits. Third-party payors also may refuse to reimburse for experimental procedures and devices. Furthermore, because our programs are still in development, we are unable at this time to determine their cost-effectiveness and the level or method of reimbursement for them. Increasingly, the third-party payors who reimburse patients are requiring that drug companies provide them with predetermined discounts from list prices, and are challenging the prices charged for medical products. If the price we are able to charge for any products we develop is inadequate in light of our development and other costs, our profitability could be adversely affected.

We currently expect that any drugs we develop may need to be administered under the supervision of a physician. Under currently applicable law, drugs that are not usually self-administered may be eligible for coverage by the Medicare program if:

- They are "incidental" to a physician's services;
- They are "reasonable and necessary" for the diagnosis or treatment of the illness or injury for which they are administered according to accepted standard of medical practice;
- They are not excluded as immunizations; and
- They have been approved by the FDA.

Insurers may refuse to provide insurance coverage for newly approved drugs, or insurance coverage may be delayed or be more limited than the purpose for which the drugs are approved by the FDA. Moreover, eligibility for insurance coverage does not imply that any drug will be reimbursed in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution. Interim payments for new drugs, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement may be based on payments for other services and may reflect budgetary constraints or imperfections in Medicare data. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement rates. Our inability to promptly obtain coverage and profitable reimbursement rates from both government-funded and private payors for new drugs that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to develop products and our overall financial condition.

Additionally, third-party payors are increasingly attempting to contain healthcare costs by limiting both coverage and the level of reimbursement for medical products and services. Levels of reimbursement may decrease in the future, and future legislation, regulation or reimbursement policies of third-party payors may adversely affect the demand for and price levels of our products. If our customers are not reimbursed for our products, they may reduce or discontinue purchases of our products, which could have a material adverse effect on our business, financial condition and results of operations.

Comprehensive healthcare reform legislation, which was recently adopted by Congress and was subsequently signed into law, could adversely affect our business and financial condition. Among other provisions, the legislation provides that a "biosimilar" product may be approved by the FDA on the basis of analytical tests and certain clinical studies demonstrating that such product is highly similar to an existing, approved product and that switching between an existing product and the biosimilar product will not result in diminished safety or efficacy. This abbreviated regulatory approval process may result in increased competition if we are able to bring a product to market. The legislation also includes more stringent compliance programs for companies in various sectors of the life sciences industry with which we may need to comply and enhanced penalties for non-compliance with the new healthcare regulations. Complying with new regulations may divert management resources, and inadvertent failure to comply with new regulations may result in penalties being imposed on us.

Some states and localities have established drug importation programs for their citizens, and federal drug import legislation has been introduced in Congress. The Medicare Prescription Drug Plan legislation, which became law in December 2003, required the Secretary of Health and Human Services to promulgate regulations for drug reimportation from Canada into the United States under some circumstances, including when the drugs are sold at a lower price than in the United States. The Secretary, however, retained the discretion not to implement a drug reimportation plan if he finds that the benefits do not outweigh the costs, and has so far declined to approve a reimportation plan. Proponents of drug reimportation may attempt to pass legislation that would directly allow reimportation under certain circumstances. Legislation or regulations allowing the reimportation of drugs, if enacted, could decrease the price we receive for any products that we may develop and adversely affect our future revenues and prospects for profitability.

If we fail to attract, hire and retain qualified personnel, we may not be able to design, develop, market or sell our products or successfully manage our business.

Our business prospects are dependent on our management team. The loss of any of our key employees, or our inability to identify, attract, retain and integrate additional qualified key personnel, could make it difficult for us to manage our business successfully and achieve our business objectives.

Competition for skilled research, product development, regulatory and technical personnel is intense, and we may not be able to recruit and retain the personnel we need. The loss of the services of any key research, product development, regulatory and technical personnel, or our inability to hire new personnel with the requisite skills, could restrict our ability to develop our product candidates.

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

We believe that we have sufficient working capital to fund our currently planned expenditures for at least the next twelve months. However, in the future we may need to incur debt or issue equity in order to fund our planned expenditures as well as to make acquisitions and other investments. We cannot assure you that debt or equity financing will be available to us on acceptable terms or at all. If we cannot, or are limited in the ability to, incur debt, issue equity or enter in strategic collaborations, we may be unable to fund discovery and development of our product candidates, address gaps in our product offerings or improve our technology.

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 or products.

In addition, our common stock is not a "covered security" for purposes of the Securities Act of 1933, as amended (the "Securities Act"). The term "covered security" applies to securities exempt from state registration because of their oversight by federal authorities and national regulatory bodies, such as national securities exchanges, pursuant to Section 18 of the Securities Act. Because our common stock is not a "covered security," the sale of our shares may be subject to registration in various states. This could make it more difficult or costly to conduct an equity financing, which could have a material adverse effect on our business.

We cannot assure you that any needed financing 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.

Future financing may be obtained through, and future development efforts may be paid for by, the issuance of debt or equity, which may have an adverse effect on our stockholders or may otherwise adversely affect our business.

If we raise funds through the issuance of debt or equity, any debt securities or preferred stock issued will have rights, preferences and privileges senior to those of holders of our common stock in the event of a liquidation. In such event, there is a possibility that once all senior claims are settled, there may be no assets remaining to pay out to the holders of common stock. In addition, if we raise funds through the issuance of additional equity, whether through private placements or public offerings, such an issuance would dilute your ownership in us.

The terms of debt securities may also impose restrictions on our operations, which may include limiting our ability to incur additional indebtedness, to pay dividends on or repurchase our capital stock, or to make certain acquisitions or investments. In addition, we may be subject to covenants requiring us to satisfy certain financial tests and ratios, and our ability to satisfy such covenants may be affected by events outside of our control.

We expect to continue to incur significant research and development expenses, which may make it difficult for us to attain profitability, and may lead to uncertainty as to our ability to continue as a going concern.

Substantial funds were expended to develop our RNAi technologies, and additional substantial funds will be required for further research and development, including preclinical testing and clinical trials of any product candidates, and to manufacture and market any products that are approved for commercial sale. Because the successful development of our products is uncertain, we are unable to precisely estimate the actual funds we will require to develop and potentially commercialize them. In addition, we may not be able to generate enough revenue, even if we are able to commercialize any of our product candidates, to become profitable.

If we are unable to achieve or sustain profitability or to secure additional financing, we may not be able to meet our obligations as they come due, raising substantial doubts as to our ability to continue as a going concern. Any such inability to continue as a going concern may result in our common stock holders losing their entire investment. There is no guarantee that we will become profitable or secure additional financing. Our financial statements contemplate that we will continue as a going concern and do not contain any adjustments that might result if we were unable to continue as a going concern. Changes in our operating plans, our existing and anticipated working capital needs, the acceleration or modification of our expansion plans, increased expenses, potential acquisitions or other events will all affect our ability to continue as a going concern.

You may have difficulty evaluating our business because we have no history as a separate company and our historical financial information may not be representative of our results as a separate company.

The historical financial information included in this prospectus does not necessarily reflect the financial condition, results of operations or cash flows that we would have achieved as a separate company during the periods presented or those that we will achieve in the future. Prior to the contribution of our RNAi assets from our former parent company, Galena Biopharma, Inc. ("Galena"), our RNAi research and development activities were conducted by Galena as part of its broader operations, rather than as an independent division or subsidiary. Galena also performed various corporate functions relating to our business, as discussed above. Our historical financial information reflects allocations of corporate expenses from Galena for these and similar functions. We believe that these allocations are comparable to the expenses we would have incurred had we operated as a separate company, although we may incur higher expenses as a separate company.

Risks Relating to Our Common Stock

Our common stock is quoted on the OTCBB, which may have an unfavorable impact on our liquidity.

As of May 10, 2012, our common stock became quoted and eligible for trading on the OTCBB. The OTCBB is a significantly more limited trading market than the New York Stock Exchange or NASDAQ system. The quotation of our shares on the OTCBB may result in a less liquid market available for existing and potential stockholders to trade shares of our common stock, which could depress the trading price of our common stock and could have a long-term adverse impact on our ability to raise capital in the future.

Our common stock is considered a "penny stock" and does not qualify for exemption from the "penny stock" restrictions, which may make it more difficult for you to sell your shares.

Our common stock is classified as a "penny stock" by the SEC and is subject to rules adopted by the SEC regulating broker-dealer practices in connection with transactions in "penny stocks." The SEC has adopted regulations which define a "penny stock" to be any equity security that has a market price of less than $5.00 per share, subject to certain exceptions, and that is not listed for trading on a national securities exchange. For any transaction involving a penny stock, unless exempt, these rules require delivery, prior to any transaction in a penny stock, of a disclosure schedule relating to the penny stock market. Disclosure is also required to be made about current quotations for the securities and about commissions payable to both the broker-dealer and the registered representative. Finally, broker-dealers must send monthly statements to purchasers of penny stocks disclosing recent price information for the penny stock held in the account and information on the limited market in penny stocks. As a result of our shares of common stock being subject to the rules on penny stocks, the liquidity of our common stock may be adversely affected.

We cannot predict whether an active public market for our common stock will develop or be sustained. Accordingly, our common stock may only be thinly traded and, you may be unable to sell at or near ask prices or at all if you need to sell your shares to raise money or otherwise desire to liquidate your shares.

Our common stock was first quoted on the OTCBB on May 10, 2012, and prior to that date, no trading market existed for our common stock. We cannot predict the extent to which an active public market for our common stock will develop or be sustained. Our common stock has been sporadically or "thinly-traded", meaning the number of persons interested in purchasing our common stock at or near bid prices at any given time may be relatively small or non-existent. This situation is attributable to a number of factors, including the fact that we are a small company which is relatively unknown to stock analysts, stock brokers, institutional investors and others in the investment community that generate or influence sales volume. As a consequence, there may be periods of several days or more when trading activity in our shares is minimal or non-existent, as compared to a seasoned issuer which has a large and steady volume of trading activity that will generally support continuous sales without an adverse effect on share price. We cannot assure you that a broader or more active public trading market for our common stock will develop or be sustained, or that current trading levels will be sustained. The price at which you purchase our common stock may not be indicative of the price that will prevail in the trading market. You may be unable to sell your common stock at or above your purchase price if at all, which may result in substantial losses to you.

Our shares of common stock distributed to Galena's stockholders are eligible for immediate sale, which may adversely affect our stock price.

The shares of our common stock that our former parent company, Galena, distributed to its stockholders in connection with the first public distribution of our shares of common stock generally may be sold immediately in the public market. Any sales of substantial amounts of our common stock in the public market, or the perception that such sales might occur, whether as a result of the distribution or otherwise, may cause the market price of our common stock to decline. We are unable to predict the extent to which these stockholders will sell their shares in the open market or whether a sufficient number of buyers for our common stock will be in the market at that time.

We issued preferred stock upon the closing of the spin-off transaction and possibly may issue more preferred stock in the future, and the terms of the preferred stock may reduce the value of our common stock.

We are authorized to issue up to 10,000,000 shares of preferred stock in one or more series, and there are currently 9,500 shares of our Series A Preferred Stock issued and outstanding. Our board of directors may determine

the terms of future preferred stock offerings without further action by our stockholders. The issuance of our preferred stock could affect your rights or reduce the value of our outstanding common stock. In particular, rights granted to holders of preferred stock may include voting rights, preferences as to dividends and liquidation, conversion and redemption rights and restrictions on our ability to merge with or sell our assets to a third party. Additionally, the sale of a significant number of shares of common stock received upon conversion of our Series A Preferred Stock could cause the market price of our common stock to decline. For a summary of the rights granted to the holders of our Series A Preferred Stock, see the "Description of Capital Stock — Preferred Stock" section of this prospectus.

We may acquire other businesses or form joint ventures that may be unsuccessful and could dilute your ownership interest in our company.

As part of our business strategy, we may pursue future acquisitions of other complementary businesses and technology licensing arrangements. We also may pursue strategic alliances. We have no experience with respect to acquiring other companies and limited experience with respect to the formation of collaborations, strategic alliances and joint ventures. We may not be able to integrate such acquisitions successfully into our existing business, and we could assume unknown or contingent liabilities. We also could experience adverse effects on our reported results of operations from acquisition related charges, amortization of acquired technology and other intangibles and impairment charges relating to write-offs of goodwill and other intangible assets from time to time following the acquisition. Integration of an acquired company requires management resources that otherwise would be available for ongoing development of our existing business. We may not realize the anticipated benefits of any acquisition, technology license or strategic alliance.

To finance future acquisitions, we may choose to issue shares of our common stock or preferred stock as consideration, which would dilute your ownership interest in us. Alternatively, it may be necessary for us to raise additional funds through public or private financings. Additional funds may not be available on terms that are favorable to us and, in the case of equity financings, may result in dilution to our stockholders. Any future acquisitions by us also could result in large and immediate write-offs, the incurrence of contingent liabilities or amortization of expenses related to acquired intangible assets, any of which could harm our operating results.

The holders of our Series A Preferred Stock may be able to delay or prevent a change in corporate control that would be beneficial to our stockholders.

The holders of our Series A Preferred Stock have the right to convert at any time their shares of our Series A Preferred Stock into shares of our common stock, except to the extent that the holder would own more than 9.999% of our common stock outstanding immediately after giving effect to the conversion. Without regard to this conversion limitation, our Series A Preferred Stock would be convertible, at the completion of the spin-off transaction, into approximately 83% of the fully diluted shares of our common stock then outstanding. Although our Series A Preferred Stock generally is non-voting stock, the holders of our Series A Preferred Stock will be entitled to vote on an as-converted basis together with our common stock with respect to any transaction that would constitute a deemed liquidation event under our charter, including any proposal merger or sale of Company. Although the Series A Preferred Stock holders have no rights to influence our day-to-day operations or even vote on the election of directors, by virtue of their voting rights in the context of a deemed liquidation event, the holders of our Series A Preferred Stock will be able to significantly influence the outcome of the vote on any such extraordinary transaction that is required to be submitted to a vote of our stockholders. This right may adversely affect the market price of our common stock by:

- Delaying, deferring or preventing a change in control of our company;
- Impeding a merger, consolidation, takeover or other business combination involving our company; or
- Discouraging a potential acquirer from making a tender offer or otherwise attempting to obtain control of our company in a "hostile" transaction.

We do not anticipate paying cash dividends in the foreseeable future.

Our business requires significant funding. We currently plan to invest all available funds and future earnings in the development and growth of our business and do not anticipate paying any cash dividends on our common stock in the foreseeable future. As a result, capital appreciation, if any, of our common stock will be your sole source of potential gain for the foreseeable future.

Provisions of our certificate of incorporation and bylaws and Delaware law might discourage, delay or prevent a change of control of our company or changes in our management and, as a result, depress the trading price of our common stock.

Our certificate of incorporation and bylaws contain provisions that could discourage, delay or prevent a change of control of our company or changes in our management that the stockholders of our company may deem advantageous. These provisions:

- Authorize the issuance of "blank check" preferred stock that our board could issue to increase the number of outstanding shares and to discourage a takeover attempt;
- Prohibit stockholder action by written consent, which requires all stockholder actions to be taken at a meeting of our stockholders;
- Provide that the board of directors is expressly authorized to adopt, alter or repeal our bylaws; and
- Establish advance notice requirements for nominations for election to our board or for proposing matters that can be acted upon by stockholders at stockholder meetings.

Although we believe these provisions collectively provide for an opportunity to receive higher bids by requiring potential acquirers to negotiate with our board, they would apply even if the offer may be considered beneficial by some stockholders. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management team by making it more difficult for stockholders to replace members of our board, which is responsible for appointing the members of our management.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. The restrictions contained in Section 203 are not applicable to any of our existing stockholders that will own 15% or more of our outstanding common stock upon the completion of the spin-off of RXi.

FORWARD-LOOKING STATEMENTS

Any statements in this prospectus about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and are forward-looking statements. These statements are often, but not always, made through the use of words or phrases such as "believe," "will," "expect," "anticipate," "estimate," "intend," "plan" and "would." For example, statements concerning financial condition, possible or assumed future results of operations, growth opportunities, industry ranking, plans and objectives of management, markets for our common stock and future management and organizational structure are all forward-looking statements. Forward-looking statements are not guarantees of performance. They involve known and unknown risks, uncertainties and assumptions that may cause actual results, levels of activity, performance or achievements to differ materially from any results, levels of activity, performance or achievements expressed or implied by any forward-looking statement.

Any forward-looking statements are qualified in their entirety by reference to the risk factors discussed throughout this prospectus. Some of the risks, uncertainties and assumptions that could cause actual results to differ materially from estimates or projections contained in the forward-looking statements include but are not limited to:

- We may be unsuccessful in developing RXI-109 or other lead candidates, or development may cost more or take longer than we anticipate;
- We may be unsuccessful in recruiting and retaining key employees;
- The difficulty in evaluating our historical financial information due to the spin-off from Galena;
- Our limited financial resources and the potential inability to raise additional working capital;
- Our ability to control product development costs;
- We may be unable to compete effectively against other companies with greater financial and technical resources;
- We may be unable to enter into strategic collaborations with pharmaceutical companies and other potential partners, or maintain our current licenses and strategic collaborations;
- Changes in government regulation affecting our RNAi-based drug candidates could increase our development costs;
- We may be unable to protect our intellectual property rights or our intellectual property rights may be inadequate to prevent third parties from using our technologies;
- Our involvement in patent and other intellectual property litigation could be expensive and could divert management's attention;
- The possibility that there will be no market acceptance for our products, even if they are successfully developed and ultimately approved for commercialization;
- Changes in pricing regulations or third-party reimbursement policies could adversely affect potential future sales of any of our products that may be approved for marketing; and
- Whether an active public market for our common stock will develop or be sustained.

The foregoing list sets forth some, but not all, of the factors that could affect our ability to achieve results described in any forward-looking statements. Stockholders are cautioned not to place undue reliance on such statements, which speak only as of the date of this prospectus. We assume no obligation and expressly disclaim any duty to update any forward-looking statement to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements contained in this prospectus.

All subsequent written and oral forward-looking statements attributable to us or any person acting on our behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section.

PLAN OF DISTRIBUTION

The Shares offered by this prospectus may be sold by the Selling Stockholders. Such sales may be made in one or more transactions at fixed prices that may be changed, at market prices prevailing at the time of sale, at prices related to such prevailing market prices, or at negotiated prices, and may be made in the over-the-counter market or any exchange on which our Common Stock may then be listed, or otherwise. In addition, the Selling Stockholders may sell some or all of the Shares through:

- a block trade in which a broker-dealer may resell a portion of the block, as principal, in order to facilitate the transaction;
- purchases by a broker-dealer, as principal, and resale by the broker-dealer for its account;
- ordinary brokerage transactions and transactions in which a broker solicits purchasers;
- in negotiated transactions;
- in a combination of any of the above methods of sale; or
- any other method permitted under applicable law.

The Selling Stockholders may also engage in short sales against the box, puts and calls and other hedging transactions in the Shares or derivatives of the Shares and may sell or deliver the Shares in connection with these trades. For example, the Selling Stockholders may:

- enter into transactions involving short sales of our Common Stock by broker-dealers;
- sell our Common Stock short themselves and redeliver any portion of the Shares to close out their short positions;
- enter into option or other types of transactions that require the Selling Stockholder to deliver Shares to a broker-dealer, who will then resell or transfer the Shares under this prospectus; or
- loan or pledge Shares to a broker-dealer, who may sell the loaned Shares or, in the event of default, sell the pledged Shares.

There is no assurance that any of the Selling Stockholders will sell any or all of the Shares offered by them.

The Selling Stockholders may negotiate and pay broker-dealers commissions, discounts or concessions for their services. Broker-dealers engaged by the Selling Stockholders may allow other broker-dealers to participate in resales. However, the Selling Stockholders and any broker-dealers involved in the sale or resale of the Shares may qualify as "underwriters" within the meaning of the Section 2(a)(11) of the Securities Act. In addition, the broker-dealers' commissions, discounts or concessions may qualify as underwriters' compensation under the Securities Act.

The Selling Stockholders will be subject to the prospectus delivery requirements of the Securities Act, unless exempted therefrom.

In addition to selling the Shares under this prospectus, the Selling Stockholders may:

- transfer their Shares in other ways not involving market makers or established trading markets, including, but not limited to, directly by gift, distribution, privately negotiated transactions in compliance with applicable law or other transfer; or
- sell their Shares under Rule 144 of the Securities Act rather than under this prospectus, if the transaction meets the requirements of Rule 144. Each Selling Stockholder will bear all expenses with respect to the offering of the Shares by such Selling Stockholder.

Each Selling Stockholder will be subject to the applicable provisions of the Exchange Act and the associated rules and regulations under the Exchange Act, including Regulation M, which provisions may limit the timing of purchases and sales of shares of our Common Stock by the Selling Stockholders.

The Selling Stockholders may from time to time pledge or grant a security interest in some or all of the Shares owned by them and, if they default in the performance of their secured obligations, the pledges or secured parties

may offer and sell the Shares from time to time under this prospectus after an amendment has been filed under Rule 424(b) or other applicable provision of the Securities Act amending the list of Selling Stockholders to include the pledge, transferee or other successors in interest as "Selling Stockholders" under this prospectus.

The Selling Stockholders also may transfer the Shares in other circumstances, in which case the respective pledgees, donees, transferees or other successors in interest may be the selling beneficial owners for purposes of this prospectus and may sell such Shares from time to time under this prospectus after an amendment or supplement has been filed under Rule 424(b) or other applicable provision of the Securities Act amending or supplementing the list of Selling Stockholders to include the pledge, transferee or other successors in interest as "Selling Stockholders" under this prospectus.

We will make copies of this prospectus available to the Selling Stockholders and have informed them of the need to deliver copies of this prospectus to purchasers at or prior to the time of any sale of the Shares.

We will bear all costs, expenses and fees in connection with the registration of the Shares. The Selling Stockholders will bear all commissions and discounts, if any, attributable to the resale of the Shares. The Selling Stockholders may agree to indemnify any broker-dealer or agent that participates in transactions involving sales of the Shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the Selling Stockholders against certain liabilities, including liabilities under the Securities Act, the Exchange Act and state securities laws, relating to the registration of the Shares offered by this prospectus.

Once sold under the registration statement of which this prospectus is a part, the Shares will be freely tradable in the hands of persons other than our affiliates.

USE OF PROCEEDS

We will not receive any proceeds as a result of the distribution of our shares of common stock by the Selling Stockholders.

SELLING SECURITY HOLDERS

This prospectus covers the sale of an aggregate of up to 138,941,780 shares of our Common Stock, $0.0001 par value per share, by the Selling Stockholders, which are potentially issuable upon conversion of shares of our Series A Preferred Stock. See "Description of Capital Stock" beginning on page 49 for a description of the Series A Preferred Stock.

Each Selling Stockholder represented to us that it was an accredited investor and that it was acquiring the Series A Preferred Stock for investment only and not with a view towards, or for resale in connection with, the public sale or distribution thereof in a manner that would violate the Securities Act or any applicable state securities laws.

Beneficial ownership is determined in accordance with SEC rules, and generally includes voting or investment power with respect to our common stock. Shares of common stock subject to options, warrants, our Series A Preferred Stock and other convertible securities that are currently exercisable or convertible within 60 days are deemed to be outstanding and to be beneficially owned by the person holding the options, warrants or convertible securities for the purpose of computing the percentage ownership of the person, but are not treated as outstanding for the purpose of computing the percentage ownership of any other person.

The following table sets forth certain information regarding the Selling Stockholders, the Shares that may be offered by this prospectus and other shares of Common Stock beneficially owned by them as of May 1, 2012. Selling Stockholders may offer Shares under this prospectus from time to time and may elect to sell none, some or all of the Shares set forth below. As a result, we cannot estimate the number of Shares of Common Stock that a Selling Stockholder will beneficially own after termination of sales under this prospectus. However, for the purposes of the table below, we have assumed that, after completion of the offering, none of the Shares covered by this prospectus will be held by the Selling Stockholders. In addition, a Selling Stockholder may have sold, transferred or otherwise disposed of all or a portion of that holder's Shares since the date on which they provided information for this table. We are relying on the Selling Stockholders to notify us of any changes in their beneficial ownership after the date they originally provided this information. See "Plan of Distribution" beginning on page 17. Unless otherwise disclosed in the footnotes to the table below, except for the ownership of the Common Stock and Series A Preferred Stock, the Selling Stockholders have not had any material relationship with us within the past three years

Selling Stockholder(1)	Number of Shares Beneficially Owned before Offering	Number of Shares Covered by This Prospectus	Number of Shares Beneficially Owned after Offering(2)	Percentage of Shares Beneficially Owned after Offering(3)
Tang Capital Partners, LP(4)	15,808,218(5)	131,629,055	31,244,478	9.999%
RTW Investments, LLC(6)	15,808,218(7)	7,312,725	29,250,901	9.421%

(1) If required, information about other selling security holders, except for any future transferees, pledgees, donees or successors of Selling Stockholders named in this table, will be set forth in a prospectus supplement or amendment to the registration statement of which this prospectus is a part. Additionally, post-effective amendments to the registration statement will, to the extent necessary, be filed to disclose any material changes to the plan of distribution from the description contained in the final prospectus.

(2) This number is based upon 281,231,555 shares of common stock outstanding after this offering (assuming the sale of all Shares offered by this prospectus, but no other issuances by the Company).

(3) This percentage is based upon 281,231,555 shares of common stock outstanding after this offering (assuming the sale of all Shares offered by this prospectus, but no other issuances by the Company) plus the number of shares of Common Stock issuable to such Selling Stockholder upon the conversion of the Series A Preferred Stock that was issued pursuant to the Securities Purchase Agreement.

(4) The address for Tang Capital Partners, LP ("TCP") is 4747 Executive Drive, Suite 510, San Diego, California 92121. Tang Capital Management, LLC is the general partner of TCP. Kevin C. Tang is the Managing Director of Tang Capital Management, LLC, Mr. Tang shares voting and investment power over the shares shown with TCP and Tang Capital Management, LLC and, as such, may be deemed to be a beneficial owner of such shares. Mr. Tang disclaims beneficial ownership of such shares, except to the extent of his pecuniary interest therein.

(5) Represents shares of common stock issuable upon the conversion of shares of Series A Preferred Stock as of May 1, 2012. In accordance with the conversion limitation contained within the Series A Preferred Stock Certificate of Designations, in no event may TCP convert shares of Series A Preferred Stock into shares of our common stock if such conversion would result in beneficial ownership of more than 9.999% of the then issued and outstanding shares of our common stock. This conversion limitation may not be waived and any purported conversion that is inconsistent with this conversion limitation is null and void.

(6) The address for RTW Investments, LLC ("RTW") is 1350 Avenue of the Americas, 28th Floor, New York, New York 10019. Roderick T. Wong is the Managing Member of RTW. Mr. Wong has sole voting and investment power over the shares shown and, as such, may be deemed to be a beneficial owner of such shares.

(7) Represents shares of common stock issuable upon the conversion of shares of Series A Preferred Stock as of May 1, 2012. In accordance with the conversion limitation contained within the Series A Preferred Stock Certificate of Designations, in no event may RTW convert shares of Series A Preferred Stock into shares of our common stock if such conversion would result in beneficial ownership of more than 9.999% of the then issued and outstanding shares of our common stock. This conversion limitation may not be waived and any purported conversion that is inconsistent with this conversion limitation is null and void.

CAPITALIZATION

The following table presents our capitalization as of March 31, 2012 on (1) an actual historical basis and (2) an as adjusted basis to give effect to a 1,004,397.41 - for - 1 stock split effected by us immediately following the record date for the distribution in connection with our spin-off from Galena, the distribution of our common stock described in this prospectus and the purchase by TCP and RTW of a total of $9,500,000 of our Series A Preferred Stock, which purchase is described above under "Prospectus Summary." The following table excludes shares of our common stock that will be issuable upon the exercise of stock options that may be granted to our directors and officers, including stock options to be granted to Geert Cauwenbergh, Dr. Med. Sc. and Pamela Pavco, Ph.D. as described in the "Executive Compensation — Employment Agreements" section of this prospectus.

You should read the information below in connection with our financial statements and related notes and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus.

	As of March 31, 2012	
	Actual	As Adjusted
	(unaudited) (Amounts in thousands)	
Cash and cash equivalents	$ 357	$ 8,857
Convertible notes payable	$ 1,000	$ —
Stockholders' equity:		
Series A Convertible Preferred Stock, $0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding (actual); 9,500 shares issued and outstanding (as adjusted)	$ —	$ 9,500
Common stock, $0.0001 par value, 1,500,000,000 shares authorized; 100,439,841 shares issued and outstanding (actual); 142,289,775 shares issued and outstanding (as adjusted) (1)	$ 10	$ 14
Additional paid in capital	$ 4,416	$ 4,412
Deficit accumulated since incorporation(2)	$(6,203)	$(6,203)
Total stockholders' equity (deficit)	$(1,777)	$ 7,723
Total capitalization (deficit)	$ (777)	$ 7,723

(1) The as adjusted outstanding shares include the 41,849,934 common shares issued to Advirna.
(2) This amount includes the deficit of the Predecessor (RNAi) and RXi (Registrant) from inception.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion in conjunction with our financial statements and the notes to financial statements included elsewhere in this prospectus. This discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements as a result of various factors discussed below and elsewhere in this prospectus, particularly in the "Risk Factors" and "Forward-Looking Statements" sections.

Overview

We are a biotechnology company focused on discovering, developing and commercializing innovative therapies addressing major unmet medical needs using RNAi-targeted technologies. We are pursuing proprietary therapeutics based on RNA interference ("**RNAi**"), a naturally occurring cellular mechanism that has the potential to effectively and selectively interfere with, or "silence," expression of targeted disease-associated genes.

Certain human diseases result from overexpression of one or more genes. We believe that these types of human diseases can potentially be treated by silencing (reducing) the overexpressed genes. While no therapeutic RNAi products have been approved by the Food and Drug Administration ("**FDA**") to date, there has been significant interest in the field of RNAi therapeutic development. This interest is driven by the potential ability to use RNAi to develop lead compounds that specifically and selectively inhibit single target genes, many of which are thought to be incapable of being inhibited by other modalities. RXI-109, our first RNAi product candidate, is a dermal anti-scarring therapy that targets connective tissue growth factor ("**CTGF**"). We expect to initiate a Phase I clinical trial of RXI-109 in 2012. Because abnormal overexpression of CTGF is implicated in dermal scarring and fibrotic disease, we believe that RXI-109 or other CTGF-targeting RNAi compounds may be able to treat other indications, including pulmonary fibrosis, liver fibrosis, acute spinal injury, ocular scarring and restenosis. We intend to maintain our core RNAi discovery and development capability and to develop products both on our own and through collaborations.

Research and Development

To date, our research programs have focused on identifying product candidates and optimizing the delivery method and technology necessary to make RNAi compounds available by local, systemic or oral administration, as appropriate for disease for which we intend to develop an RNAi therapeutic. Since we commenced operations, research and development has comprised a significant proportion of our total operating expenses and is expected to comprise the majority of our spending for the foreseeable future.

There are risks in any new field of drug discovery that preclude certainty regarding the successful development of a product. We cannot reasonably estimate or know the nature, timing and costs of the efforts necessary to complete the development of, or the period in which material net cash inflows are expected to commence from, any product candidate. Our inability to make these estimates results from the uncertainty of numerous factors, including but not limited to:

- Our ability to advance product candidates into preclinical research and clinical trials;
- The scope and rate of progress of our preclinical program and other research and development activities;
- The scope, rate of progress and cost of any clinical trials we commence;
- The cost of filing, prosecuting, defending and enforcing patent claims and other intellectual property rights;
- Clinical trial results;
- The terms and timing of any collaborative, licensing and other arrangements that we may establish;
- The cost and timing of regulatory approvals;

- The cost of establishing clinical and commercial supplies of our product candidates and any products that we may develop;
- The cost and timing of establishing sales, marketing and distribution capabilities;
- The effect of competing technological and market developments; and
- The effect of government regulation and insurance industry efforts to control healthcare costs through reimbursement policy and other cost management strategies.

Failure to complete any stage of the development of our product candidates in a timely manner could have a material adverse effect on our operations, financial position and liquidity.

License Agreements

We have entered into licensing relationships with academic institutions, research foundations and commercial entities, and may seek to enter into additional licenses with pharmaceutical and biotechnology companies. We also may enter into strategic alliances to expand our intellectual property portfolio and to potentially accelerate our development programs by gaining access to technology and funding, including equity sales, license fees and other revenues. For each product that we develop that is covered by the patents licensed to us including our material licenses discussed elsewhere in this prospectus, we are obligated to make additional payments upon the attainment of certain specified product development milestones. See "Business — Intellectual Property" section of this prospectus for information on our material license agreements.

Critical Accounting Policies and Estimates

Predecessor's Financial Statements and Carve-Out Financial Statements

Prior to April 13, 2011, Galena was engaged primarily in conducting discovery research and preclinical development activities based on RNAi, and Galena's financial statements for periods prior April 13, 2011 reflected solely the assets, liabilities and results of operations attributable to Galena's RNAi-based assets, liabilities and results of operations. On April 13, 2011, Galena broadened its strategic direction by adding the development and commercialization of cancer therapies that utilize peptide-based immunotherapy products, including a main product candidate, NeuVax, for the treatment of various cancers. On September 24, 2011, Galena contributed to RXi, a newly formed subsidiary of Galena, substantially all of Galena's RNAi-related technologies and assets. The newly formed RXi was incorporated on September 8, 2011 with the issuance of 100 initial shares at a price of $0.01 per share for total consideration of $1.00. RXi was not engaged in any activities other than its initial incorporation from September 8, 2011 to September 23, 2011.

Accordingly, the historical financial information for the three months ended March 31, 2012 and 2011, the fiscal years ended December 31, 2011 and 2010, as well as the cumulative period from inception (January 1, 2003) through March 31, 2012, has been "carved-out" of the financial statements of Galena, as our "Predecessor (RNAi)," for such periods, and includes activities through September 23, 2011. Such financial information is limited to Galena's RNAi-related activities, assets and liabilities only, and excludes activities, assets and liabilities that are attributable to Galena's cancer therapy activities. The financial information for the periods ended December 31, 2011 and March 31, 2012 also includes the results of RXi, "Registrant," for the period from September 24, 2011 to December 31, 2011 and to March 31, 2012, respectively. RXi was formed on September 8, 2011 and was not engaged in any activities other than its initial incorporation from September 8, 2011 to September 23, 2011.

The carved-out financial information includes both direct and indirect expenses. The historical direct expenses consist primarily of the various costs for technology license agreements, sponsored research agreements, fees paid to scientific advisors and employee expenses of employees directly involved in RNAi-related activities. Indirect expenses represent employee expenses incurred by Galena that were allocable to the RNAi business. The indirect expenses are based upon (1) estimates of the percentage of time spent by Galena employees working on RNAi business matters and (2) allocations of various expenses associated with the employees, including salary, benefits,

rent associated with the employees' office space, accounting and other general and administrative expenses. The percentage of time spent by Galena employees was multiplied by these allocable expenses to arrive at the total employee expenses allocable to the RNAi business and reflected in the carved out financial statements. Management believes the assumptions underlying the carve-out financial information are reasonable; however, the financial position, expenses and cash flows may have been materially different if the RNAi business had operated as a stand-alone entity during the periods presented.

We have generated no revenues since our inception, and anticipate that no revenues will be generated for the year ending December 31, 2012. Accordingly, for accounting purposes we are considered a development stage company.

Use of Estimates

Management's discussion and analysis of our financial condition and results of operations include the financial statements as of and for the years ended December 31, 2011 and 2010 and as of and for the three months ended March 31, 2012 and 2011. The preparation of these financial statements required management to make estimates, allocations and judgments that affected the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, management evaluates its estimates, including those related to impairment of long-lived assets, accrued liabilities and certain expenses. We base our estimates about the carrying values of assets and liabilities that are not readily apparent from other sources on historical experience and on other assumptions believed to be reasonable under the circumstances. Actual results may differ materially from these estimates under different assumptions or conditions. Additionally, the financial information included here may not necessarily reflect the financial position, operating results, changes in our invested equity and cash flows in the future or what they would have been had we been a separate, stand-alone entity during the periods presented.

Our significant accounting policies are summarized in the footnotes to our financial statements. We believe the following critical accounting policies involve significant judgments and estimates used in the preparation of our financial statements.

Research and Development Expenses

Research and development costs are expensed as incurred. Included in research and development costs are wages, benefits and other operating costs, facilities, supplies, external services and overhead directly related to our research and development departments as well as costs to acquire technology licenses.

Stock-Based Compensation

The following stock-based compensation information relates to stock options issued by Galena. Stock-based compensation expense is allocated to the carved-out financial statements based on an estimate of time spent by Galena employees, board members, scientific advisory board members and outside consultants on RXi related matters. RXi and Galena follow the provisions of the Financial Accounting Standards Board ("**FASB**") Accounting Standards Codification ("**ASC**") Topic 718, *"Compensation — Stock Compensation"* ("**ASC 718**"), which 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 ASC 718 is recognized as an expense over the requisite service period.

For stock options granted as consideration for services rendered by non-employees, RXi and Galena recognize compensation expense in accordance with the requirements of FASB ASC Topic 505-50 ("**ASC 505-50**"), "*Equity Based Payments to Non-Employees.*" 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 our 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.

With respect to options to acquire its common stock granted by our predecessor, Galena, during the three months ended March 31, 2012 and 2011 and the years ended December 31, 2011 and 2010 and reflected in the financial statements, the fair value of each option grant is estimated using the Black-Scholes option-pricing model, with the following weighted average assumptions:

	For the Three Months ended March 31,	
	2012	2011
Weighted average risk-free interest rate	1.01%	2.33%
Weighted average expected volatility	75.96%	112.95%
Weighted average expected lives (years)	5.96	5.76
Weighted average expected dividend yield	0.00%	0.00%

	For the years ended December 31,	
	2011	2010
Weighted average risk-free interest rate	0.97% - 3.16%	1.88% - 3.28%
Weighted average expected volatility	98.61% - 113.87%	118.30% - 133.62%
Weighted average expected lives (years)	4.71 - 6.25	6 - 10
Weighted average expected dividend yield	0.00%	0.00%

Galena's expected common stock price volatility assumption was 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 ASC 718, which averages the contractual term of our 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 was based upon the fact that we have never paid cash dividends and presently have no intention of paying cash dividends in the future. The risk-free interest rate used for each grant was also based upon prevailing short-term interest rates.

The financial statements reflect an estimated annualized forfeiture rate of 15.0% for options granted to employees, and 8.0% for options granted to senior management and no forfeiture rate for the directors. An additional expense was recorded if the actual forfeitures were lower than estimated and a recovery of prior expense was recorded if the actual forfeiture rates were higher than estimated.

Derivative Financial Instruments

During the normal course of business, from time to time, Galena issues warrants and options to vendors as consideration to perform services. Galena may also issue warrants as part of a debt or equity financing. The Company does not enter into any derivative contracts for speculative purposes.

We recognize all derivatives as assets or liabilities measured at fair value with changes in fair value of derivatives reflected as current period income or loss unless the derivatives qualify for hedge accounting and are accounted for as such.

Results of Operations for the Three Months Ended March 31, 2012 and 2011

For the three months ended March 31, 2012, our net loss was approximately $1,926,000 compared with a net loss of $3,841,000 for the three months ended March 31, 2011. The net loss decreased by $1,915,000 or approximately 50%. Variations in the losses between the two periods are discussed below.

Results of Operations for the Years Ended December 31, 2011 and 2010

For the year ended December 31, 2011, our net loss was approximately $10,219,000, compared with a net loss of $11,993,000 for the year ended December 31, 2010. Reasons for the variations in the losses between the years are discussed below.

Revenues

Since we are a development-stage biopharmaceutical company, we have not generated any revenues since inception.

Research and Development Expense (in thousands)

	For the Three Months Ended March 31,	
	2012	2011
Research and development expense	$ 1,017	$ 1,941
Research and development employee stock-based compensation expense	38	246
Research and development non-employee stock-based compensation expense	99	(31)
Total research and development expense	$ 1,154	$ 2,156

	For the Years Ended December 31,	
	2011	2010
Research and development expense	$ 6,190	$ 6,046
Research and development employee stock-based compensation expense	513	1,084
Research and development non-employee stock-based compensation expense	(79)	743
Total research and development expense	$ 6,624	$ 7,873

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 as well as licensing fees, patent prosecution costs and the cost of lab supplies used in our research and development programs. We expect to continue to devote a substantial portion of our resources to research and development programs. We expect research and development expenses to increase as we expand our research and development activities.

Research and development expenses were approximately $1,154,000 for the three months ended March 31, 2012, compared with $2,156,000 for the three months ended March 31, 2011. The decrease of $1,002,000, or 46%, was primarily due to a decrease of $924,000 in research and development expenses due to lower personnel costs and a decrease of $208,000 in employee stock based compensation offset by an increase of $130,000 in non-employee non-cash stock based compensation primarily related to the changes in Black-Scholes assumptions.

Research and development expenses for the year ended December 31, 2011 were approximately $6,624,000 as compared to $7,873,000 for the year ended December 31, 2010. The decrease of $1,249,000, or 16%, was primarily due to decreases of $822,000 in non-employee non-cash stock based compensation and $571,000 in employee non-cash stock based compensation primarily related to timing and changes in Galena Black-Scholes assumptions offset by an increase of $144,000 in research and development cash expenses related to RXI-109 associated activities.

Research and Development Non-Employee Stock-Based Compensation Expense

Galena issued options to purchase shares of its common stock as compensation to SAB members and consultants. For financial statement purposes, these shares were valued at their fair value. Fluctuations in non-employee stock-based compensation expense results from variations in the number of common stock options issued, vesting schedules and the Black-Scholes fair values of common stock options granted to SAB members.

General and Administrative Expense (in thousands)

	For the Three Months Ended March 31,	
	2012	2011
General and administrative expenses	$ 674	$ 1,921
Fair value of Parent Company common stock and common stock warrants issued in exchange for general and administrative expense	—	99
General and administrative employee stock-based compensation expense	77	1,099
Total general and administrative expense	$ 751	$ 3,119

	For the Years Ended December 31,	
	2011	2010
General and administrative expenses	$4,357	$5,493
Fair value of Parent Company common stock and common stock warrants issued for general and administrative expense	114	718
General and administrative employee stock-based compensation expense	1,675	2,541
Total general and administrative expense	$6,146	$8,752

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 $751,000 for the three months ended March 31, 2012, compared with $3,119,000 for the three months ended March 31, 2011. The decrease of $2,368,000, or 76%, was primarily due to a decrease of $1,247,000 in general and administrative expenses due to lower personnel related costs and professional and outside services, a decrease of $1,022,000 in employee stock based compensation, a decrease of $99,000 related to the fair value of our Parent Company's common stock and common stock warrants.

General and administrative expenses were $6,146,000 for the year ended December 31, 2011 compared with $8,752,000 for the year ended December 31, 2010. The decrease of $2,606,000, or 30%, was primarily due to decreases of $604,000 in non-cash stock based compensation related to business advisory services, $866,000 in employee non-cash stock based compensation and $1,136,000 in general and administrative expenses due to a decrease in headcount.

Interest Income (Expense)

Interest expenses were approximately $22,000 for the three months ended March 31, 2012, compared with $1,000 for the three months ended March 31, 2011. The increase of $21,000, or 2100% was primarily due to the interest expense from the bridge notes funded by TCP and RTW. 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 higher risk securities, which generally have less liquidity and more volatility.

Interest income (expense) was negligible for the years ended December 31, 2011 and December 31, 2010. 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 higher risk securities, which generally have less liquidity and more volatility. The interest rates available on lower risk, shorter-term investments in today's market are lower than rates available in the prior period.

Other Income (Expense)

Other income (expense) is summarized as follows (in thousands):

	For the Three Months Ended March 31,	
	2012	2011
Other income	$ 1	$ —
Change in fair value of derivatives issued	—	1,435
Other income	$ 1	$ 1,435

	For the Years Ended December 31,	
	2011	2010
Change in fair value of derivatives issued	$ 2,513	$ 3,049
Reduction of potential redemption liability	—	785
Other income	38	793
Other income (expense), net	$ 2,551	$ 4,627

Other income and expense was negligible for the three months ended March 31, 2012, compared with $1,435,000 for the three months ended March 31, 2011 which related to the change in the fair value of Galena's derivatives potentially settleable in cash issued in connection with several financing transactions.

Other income (expense) was $2,551,000 and $4,627,000 for the years ended December 31, 2011 and 2010, respectively. The overall decrease of $2,076,000, or 45%, was due to a decrease of $536,000 attributable to the change in fair value of derivatives issued, the reduction of potential redemption liability of $785,000 and a decrease of $755,000 of other income, representing primarily a decrease in grant income.

Income Taxes

There was no income tax expense for the three months ended March 31, 2012 and 2011 and the years ended December 31, 2011 and 2010 due to the fact that we have incurred significant tax losses since we began operations. A tax benefit would have been recorded for losses however, due to the uncertainty of realizing these assets, a valuation allowance was recognized which fully offset the deferred income tax assets.

Liquidity and Capital Resources

Overview

We had cash and cash equivalents of approximately $0.4 million as of March 31, 2012 and $0.6 million as of December 31, 2011. Our cash and cash equivalents was approximately $7.8 million as of April 30, 2012. The increase from December 31, 2011 to April 30, 2012 represents the remaining proceeds of $9.0 million from TCP and RTW, as per the securities purchase agreement, less operating expenses incurred during the period.

We have not generated revenue to date and may not generate product 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. 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 received under partnership and collaborative agreements.

The newly formed RXi was incorporated on September 8, 2011 with the issuance of 100 initial shares at a price $0.01 per share for a total consideration of $1.00. On September 24, 2011, RXi entered into a contribution agreement with Galena pursuant to which, among other things, Galena assigned and contributed to RXi all of its RNAi-related technologies and assets. Also on this date, derivative liabilities amounting to $9,249,000 related to warrants exercisable for Galena common stock were reclassified to divisional deficit, as RXi was released of any obligation to settle these liabilities upon the signing of this agreement. Contemporaneously, the divisional deficit was eliminated in a recapitalization to reflect the capital structure of the newly formed RXi entity.

On September 24, 2011, we entered into a securities purchase agreement pursuant to which TCP and RTW agreed to purchase a total of $9,500,000 of our Series A Preferred Stock at the closing of our spin-off from Galena and to lend to us up to $1,500,000 to fund our operations between September 24, 2011 and the closing of the spin-off transaction, with the outstanding principal and accrued interest from the loans to be converted into shares of our preferred stock at the closing. As of April 27, 2012, the date of completion of RXi's spin-off from Galena, TCP and RTW had advanced $1,000,000 to RXi under this bridge loan arrangement. As of March 31, 2012 and December 31, 2011, the Company received $1,000,000 and $500,000, respectively, of the bridge loan from TCP and RTW. This amount is classified as long-term on the respective balance sheets, as the amount was subsequently converted into preferred stock. On April 27, 2012, the Company issued 9,500 shares of our Series A Preferred Stock upon the conversion of the $1,026,736 principal and accrued interest under the bridge notes and the receipt of the remaining $8,473,624 from TCP and RTW, as provided for in the securities purchase agreement. The Company believes that the cash received under the securities purchase agreement should be sufficient to fund RXi's operations at least for

the next twelve months. In the future, RXi will be dependent on obtaining funding from third parties, such as proceeds from the sale of equity, funded research and development programs and payments under partnership and collaborative agreements, in order to maintain RXi's operations and meet our obligations to licensors. There is no guarantee that debt, additional 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, RXi would be forced to scale back, or terminate the Company's 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 $1,209,000 for the three months ended March 31, 2012, compared with $3,027,000 for the three months ended March 31, 2011. The decrease of approximately $1,818,000 resulted primarily from a net loss of $1,926,000, adjusted for non-cash items consisting of $214,000 related to stock-based compensation, $40,000 related to depreciation, and $463,000 related to changes in current assets and liabilities.

Net cash used in operating activities was approximately $9,989,000 for the year ended December 31, 2011 compared with $10,257,000 net cash used in operating activities for the year ended December 31, 2010. The decrease of approximately $268,000 resulted primarily from a net loss of $10,219,000, adjusted for non-cash items consisting of $2,223,000 related to stock-based compensation, $163,000 related to depreciation, $40,000 related to the loss on disposal of equipment, $900,000 related to the loss on exchange of equity instruments, $3,413,000 that reflects derivatives issued in financings completed by Galena in 2009, 2010 and 2011 and $317,000 related to changes in current assets and liabilities.

Net Cash Flow from Investing Activities

Net cash used in investing activities was $0 for the three months ended March 31, 2012, compared with $40,000 for the three months ended March 31, 2011. The decrease was primarily due to no purchases of equipment and furnishing during the three months ended March 31, 2012 as compared $40,000 in purchases for the same period in 2011.

Net cash used in investing activities was approximately $59,000 for the year ended December 31, 2011, compared with $106,000 for the year ended December 31, 2010. The decrease of approximately $47,000 was due to $59,000 in purchases of equipment and furnishings in 2011 compared with $106,000 in purchases of equipment and furnishing for the same period in 2010.

Net Cash Flow from Financing Activities

Net cash provided by financing activities was $1,010,000 for the three months ended March 31, 2012, compared with $7,291,000 for the three months ended March 31, 2011. The decrease was primarily due to net cash distributions to Galena in the amount of $522,000 and proceeds of $500,000 from a convertible note in 2011 compared with net cash contributions from Galena of $7,314,000 for the same period in 2011.

Net cash provided by financing activities was $3,713,000 for the year ended December 31, 2011, compared with net cash provided by financing activities of $11,570,000 for the year ended December 31, 2010. The decrease was primarily due to net cash distributions to Galena in the amount of $3,330,000 and proceeds of $500,000 from a convertible note in 2011 compared with net cash contributions from Galena of $11,640,000 in 2010.

Recently Issued Accounting Standards

Recently Adopted Accounting Pronouncements

In May 2011, the FASB issued ASU 2011-04, Fair Value Measurement (Topic 820): *Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs*, a new accounting standard that clarifies the application of certain existing fair value measurement guidance and expands the disclosures for fair value measurements that are estimated using significant unobservable (Level 3) inputs. This new standard is effective on a prospective basis for annual and interim reporting periods beginning on or after December 15, 2011. The adoption of this new standard did not have a material impact on the Company's financial statements.

Recently Issued Accounting Pronouncements

In June 2011, the FASB issued ASU 2011-05, Comprehensive Income (Topic 220): *Presentation of Comprehensive Income*, a new accounting standard that eliminates the option to present the components of other comprehensive income as part of the statement of changes in stockholders' equity, requires the consecutive presentation of the statement of net income and other comprehensive income and requires an entity to present reclassification adjustments on the face of the financial statements from other comprehensive income to net income. The amendments in this new standard do not change the items that must be reported in other comprehensive income or when an item of other comprehensive income must be reclassified to net income nor do the amendments affect how earnings per share is calculated or presented. This new standard is required to be applied retrospectively and is effective for fiscal years and interim periods within those years beginning after December 15, 2011. The adoption of this standard did not impact the Company's financial statements as the Company's comprehensive loss is equal to the net loss for all periods presented.

Off-Balance Sheet Arrangements

In connection with certain license agreements, we are required to indemnify the licensor for certain damages arising in connection with the intellectual property rights licensed under the agreement. In addition, we are a party to a number of agreements entered into in the ordinary course of business that contain typical provisions that obligate us to indemnify the other parties to such agreements upon the occurrence of certain events. These indemnification obligations are considered off-balance sheet arrangements in accordance with ASC Topic 460, *"Guarantor's Accounting and Disclosure Requirements for Guarantees, Including Indirect Guarantees of Indebtedness of Other*s." To date, we have not encountered material costs as a result of such obligations and have not accrued any liabilities related to such obligations and have not accrued any liabilities related to such obligations in our financial statements. See Note 7 to our financial statements included in this prospectus for further discussion of these indemnification agreements.

BUSINESS

Overview

We are a biotechnology company focused on discovering, developing and commercializing innovative therapies addressing major unmet medical needs using RNAi-targeted technologies. We are pursuing proprietary therapeutics based on RNA interference ("**RNAi**"), which is a naturally occurring cellular mechanism that has the potential to effectively and selectively interfere with, or "silence," expression of targeted disease-associated genes. Our principal executive offices are located at 60 Prescott Street, Worcester, Massachusetts 01605, and our telephone number is (508) 767-3861. Prior to September 24, 2011, our business was operated as an unincorporated division within Galena. We were incorporated in Delaware as a wholly owned subsidiary of Galena on September 8, 2011 and were spun-off from Galena on April 26, 2012.

Certain human diseases result from overexpression of one or more genes. We believe that these types of human diseases can potentially be treated by silencing (reducing) the overexpressed genes. While no therapeutic RNAi products have been approved by the Food and Drug Administration ("**FDA**") to date, there has been significant interest in the field of RNAi therapeutic development. This interest is driven by the potential ability to exploit the RNAi mechanism to develop lead compounds that specifically and selectively reduce single target genes, many of which are thought to be incapable of being inhibited by other modalities. We are currently focusing our internal therapeutic development efforts in fibrosis. We have demonstrated that treatment with RXI-109, our first RNAi product candidate, can significantly reduce CTGF (connective tissue growth factor) *in vivo* in rodent skin models, and we believe that RXI-109 may inhibit CTGF in human fibrotic disease. RXI-109 is initially being developed as a dermal anti-scarring therapy. The highlights of our RXI-109 development program are the following:

- We expect to initiate a Phase I clinical trial of RXI-109, commencing in 2012.
- As reported in Cytokine & Growth Factor Reviews (2008) and other publications, CTGF overexpression is implicated in scarring and fibrotic diseases. Data obtained from studies of RXI-109 in preclinical models using direct local administration to the skin demonstrate robust cellular delivery and statistically significant, dose-dependent silencing of CTGF that lasts for at least one week with a single injection.
- We believe that the potential commercial market for an effective dermal anti-scarring therapy is significant. According to data available publicly on the Center for Disease Control's ("**CDC**") website at www.CDC.gov, approximately 42 million surgical procedures are performed annually, with many patients experiencing hypertrophic scarring and keloids.
- Because abnormal overexpression of CTGF is implicated in dermal scarring and fibrotic disease, we believe that RXI-109, or other CTGF-targeting compounds that reduce CTGF or block its action, may be able to treat many other indications where fibrosis is a factor. These include pulmonary, liver, and renal fibrotic diseases, as well as ocular scarring, acute spinal injury (where scarring impedes regeneration) and restenosis (a complication arising from vessel damage following stent placement). If clinical studies of RXI-109 produce successful results in dermal anti-scarring, we may explore opportunities in these indications as well as other dermatology applications.

We intend to maintain our core RNAi discovery and development capability and to develop products both on our own and through collaborations. By utilizing our expertise in RNAi and the comprehensive RNAi platform that we have established, we believe we will be able to discover and develop lead compounds and progress them into and through clinical development for potential commercialization. Our proprietary therapeutic platform is comprised of two main components:

- *Novel RNAi Compounds*, referred to as rxRNA® compounds, that are distinct from, and we believe convey significant advantages over, classic siRNA (conventionally-designed "small interfering RNA" compounds), and offer many of the properties that we believe are important to the clinical development of RNAi-based drugs. We have developed a number of unique forms of rxRNA compounds, all of which have been shown to be highly potent both *in vitro* and in preclinical *in vivo* models. These RNAi compounds include rxRNAori®, rxRNAsolo® and sd-rxRNA®, or "self-delivering" RNA. Based on our research, we believe that these different, novel siRNA configurations have various potential advantages for therapeutic use. These potential advantages include high potency, increased resistance to nucleases and off-target effects, and, in the case of the sd-rxRNA compounds, access to cells and tissues with no additional formulation required.

- *Advanced Delivery Technologies* that enable the delivery of our rxRNA® compounds to potentially treat a variety of acute and chronic diseases using both local and systemic approaches, potentially providing a competitive advantage in the development of many RNAi therapeutic compounds. Our suite of delivery technologies is comprised of delivery vehicles, which can be combined with various rxRNA® compounds, as well as sd-rxRNA® compounds, which are chemically modified and have the unique property of entering cells and tissues to effect silencing without the need for any additional delivery vehicle. This suite of delivery technologies has broad applications for multiple therapeutic areas targeting both local and systemic applications for the delivery of the RNAi drug.

According to a recent review of "Current prospects for RNA interference-based therapeutics" published in Nature Reviews Genetics in 2011 and other sources (clinicaltrials.gov), many human diseases, including TTR Amyloidosis, Hepatocelular Carcinoma, Hypercholesterolaemia, Fibrosis and Age Related macular degeneration, in which the over-expression of a particular gene is known to be a contributing factor, might be targeted using RNAi-based therapeutics.

Recent Business Developments

During 2010 and 2011, we announced several important developments that are outlined below.

- In November 2010, we announced that the United States Internal Revenue Service awarded us four Therapeutic Discovery Project, or TDP, grants totaling $977,917 as part of the Patient Protection and Affordable Care Act of 2010. The TDP grants were awarded in four equal amounts for developing: (1) sd-rxRNAi® therapeutics for fibrotic disease; (2) sd-rxRNAi® therapeutics for age-related macular degeneration; (3) sd-rxRNAi® therapeutics for ALS (Lou Gehrig's disease); and (4) glucan-encapsulated siRNAs that can be delivered orally for rheumatoid arthritis.
- In January 2011, we announced positive research results in collaboration with Generex Biotechnology Corporation, and its wholly owned subsidiary Antigen Express, Inc., in developing proprietary vaccine formulations for active immunotherapy. Initial results demonstrated success in using sd-rxRNA® compounds to silence genes up to 80% in hematopoietic cells. The ability to reduce expression of certain genes in isolated hematopoietic-derived cancer cells (*ex vivo*) has the potential to convert them into specific immune-stimulants.
- In January 2011, we announced positive initial results as part of our collaboration with miRagen Therapeutics, Inc. in creating microRNA mimics, or artificial copies of microRNAs, using our sd-rxRNA® technology. In particular, the collaboration demonstrated efficient down-regulation of a reporter gene (*in vitro*) whose expression is controlled by the microRNA in cell culture model systems develop by miRagen. Increasing the level of particular microRNAs by using therapeutic mimics may treat certain diseases, including cardiovascular, cancer, and inflammatory, fibrotic and metabolic disorders.
- In February 2011, we announced the initiation of our development program for RXI-109. IND-enabling toxicology studies of RXI-109 are currently underway and the manufacturing of the clinical drug supply is ongoing. We expect to initiate a Phase I clinical trial in 2012.
- In March 2011, we announced new preclinical data using our proprietary sd-rxRNA® compounds, including RXI-109. We announced preclinical *in vivo* data showing robust, dose dependent, long-lasting, target-specific silencing data with an sd-rxRNA® compound targeting CTGF. Included in these new data were our preclinical results using intradermal injection of CTGF targeting sd-rxRNAs® that showed strong silencing for more than a week, as well as downstream effects related to abrogation of scar formation.
- In April 2011, we announced that the National Institutes of Health ("**NIH**") awarded us two Small Business Innovation Research grants totaling approximately $580,000. The first grant was in the amount of $304,559 to provide funding for an ongoing collaboration between us and Robert Brown, M.D., D.Phil., Chair of the Department of Neurology at UMASS, which is focused on the preclinical development of novel RNAi therapeutics for ALS and other neurodegenerative disorders. The second grant was in the amount of $273,824 to provide funding for a project seeking to improve the delivery of RNAi therapeutics through medicinal chemistry.

- In April 2011, we announced that our collaborative project on development of an sd-rxRNA® based ALS therapeutic with Dr. Brown was selected to receive $500,000 of additional funding from Massachusetts Life Sciences Center Cooperative Research Grant.
- In September 2011, we announced new preclinical data using our proprietary sd-rxRNA® compounds, including RXI-109, at the 7th Annual Meeting of the Oligonucleotide Therapeutics Society. The data included preclinical efficacy data of RXI-109 demonstrating robust, dose dependent, long-lasting, target-specific silencing of CTGF in skin, which in turn, impacted myofibroblast differentiation and collagen deposition, key markers of the fibrosis process. In addition, intraocular efficacy and safety data were presented along with preliminary data clarifying the mechanism of cellular uptake of sd-rxRNA® compounds in cultured cells.

Financial Condition

We have not generated revenue to date and may not generate product 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. 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 received under partnership and collaborative agreements.

In the future, we will be dependent on obtaining funding from third parties, such as proceeds from the sale of equity, funded research and development programs and payments under partnership and collaborative agreements, in order to maintain our operations and meet our obligations to licensors. There is no guarantee that debt, additional 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 described in the "Certain Relationships and Related Party Transactions" section of this prospectus, on September 24, 2011, we entered into a securities purchase agreement pursuant to which TCP and RTW agreed to purchase a total of $9,500,000 of our Series A Preferred Stock at the closing of our spin-off from Galena. The spin-off transaction was completed on April 27, 2012. The purchase of $9,500,000 of our Series A Preferred Stock and other transactions contemplated by the Securities Purchase Agreements were completed on April 27, 2012, with a portion of the purchase price being paid though the extinguishment of indebtedness owed to TCP and RTW arising out of sums lent to the Company between the signing of the Securities Purchase Agreement and the closing.

Introduction to the Field of RNAi Therapeutics

RNAi is a naturally occurring phenomenon where short double-stranded RNA molecules interfere with the expression of targeted genes. RNAi technology takes advantage of this phenomenon and potentially allows us to effectively interfere with particular genes within living cells by designing RNA-derived molecules targeting those genes. RNAi is regarded as a significant advancement in the scientific community, as evidenced by the journal *Science's* selection of RNAi as the "Breakthrough of the Year" in 2002 and by the awarding of the 2006 Nobel Prize in Medicine to the co-discoverers of RNAi, including Dr. Craig Mello, a founder of Galena.

RNAi offers a novel approach to the drug development process because, as described below under "The RNAi Mechanism," RNAi compounds can potentially be designed to target any one of the thousands of human genes, many of which are undruggable by other modalities. In contrast, an article published in the December 2005 edition of *Drug Discovery Today*, by Andreas P. Russ and Stefan Lampel, has demonstrated that only a subset of the proteins encoded in the human genetic code (human genome) are able to be targeted efficiently by traditional medicinal chemistry or antibody-based approaches. The specificity of RNAi is achieved by an intrinsic well-understood biological mechanism based on designing the sequence of an RNAi compound to match the sequence of the targeted gene. According to studies cited in *Nature Review of Drug Discovery*, the specificity of RNAi may be sufficient to permit therapeutic targeting of only a single gene, and may even selectively reduce or eliminate expression from a single abnormal copy of a gene while preserving expression from a normal copy ("allele-specific" targeting). This is critical in diseases such as cancer and neurodegenerative disorders that are often caused by abnormal copies of genes. In one study cited, for example, an siRNA was introduced into the cell and the specificity of silencing was evaluated using microarray analysis. According to the article, each siRNA silenced the intended target to the highest extent guided by sequence homology.

The RNAi Mechanism

The genome is made of a double-strand of DNA (the double helix) that acts as an instruction manual for the production of the roughly 30,000 to 50,000 human proteins. Proteins are important molecules that allow cells and organisms to live and function. With rare exceptions, each cell in the human body has the entire complement of genes. However, only a subset of these genes directs the production of proteins in any particular cell type. For example, a muscle cell produces muscle-specific protein, whereas a skin cell does not.

In order for a gene to guide the production of a protein, it must first be copied into a single-stranded chemical messenger (messenger RNA or mRNA), which is then translated into protein. RNAi is a naturally occurring process by which a particular messenger RNA can be destroyed before it is translated into protein. The process of RNAi can be artificially induced by introducing a small double-stranded fragment of RNA corresponding to a particular messenger RNA into a cell. A protein complex within the cell called RISC (RNA-Induced Silencing Complex) recognizes this double-stranded RNA fragment and splits the double-strands apart, retaining one strand in the RISC complex. The RISC then helps this guide strand of RNA bind to and destroy its corresponding cellular messenger RNA target. Thus, RNAi provides a method to potentially block the creation of the proteins that cause disease.

Since gene expression controls most cellular processes, the ability to inhibit gene expression provides a potentially powerful tool to treat human diseases. Furthermore, since the human genome has already been decoded, and based on numerous gene-silencing reports, we believe that RNAi compounds can readily be designed to interfere with the expression of any specific gene. Based on our internal research and our review of certain scientific literature, we also believe that our RNAi platform may allow us to develop create therapeutics with significant potential advantages over traditional drug development methods, including:

- High specificity for targeted genes;
- High potency (low doses);
- Ability to interfere with the expression of potentially any gene;
- Accelerated generation of lead compounds; and
- Low toxicity, natural mechanism of action.

RXi's RNAi Therapeutic Platform

RNAi Compound Design

RNAi compounds are made from a strand or strands of RNA that are manufactured by a nucleic acid synthesizer. The synthesizer is programmed to assemble a strand of RNA of a particular sequence using the four kinds of nucleotide units (Adenine ("**A**"), Uracil ("**U**"), Cytidine ("**C**") and Guanosine ("**G**")) that match a small segment of the targeted gene. The hallmark of an RNAi compound is that it has a double stranded region. The compounds can be of various lengths of nucleotide units (nt). The two strands can have overhangs, or they can have blunt ends. A single strand can form an RNAi compound by forming a structure referred to as a hairpin.

The length and shape of the compound can affect the activity and hence the potency of the RNAi in cells. The first design of RNAi compounds to be pursued for development as a human therapeutic was a short double-stranded RNA that included at least one overhanging single-stranded region, known as small interfering RNA, or siRNA, which we also refer to as classic siRNA.

In the case of classic siRNA, double-stranded RNA with single-stranded overhangs is used. We believe that classic siRNAs have drawbacks that may limit the usefulness of those agents as human therapeutics, and that we may be able to utilize the technologies we have licensed and developed internally to optimize RNAi compounds for use as human therapeutic agents. It is the combination of the length, the nucleotide sequence and the configuration of chemical modifications that are important for effective RNAi therapeutics.

Our internal research leads us to believe that next generation rxRNA compounds offer significant advantages over classic siRNA used by other companies developing RNAi therapeutics, highlighted by the following characteristics:

- Up to 100 times more active than classic siRNA;

- More resistant to nuclease degradation;
- Readily manufactured;
- Potentially more specific for the target gene;
- More reliable at blocking immune side effects than classic siRNA; and
- In the case of *sd*-rxRNA, the unique ability to be "self-delivering," without the need for any additional delivery vehicle.

Based on our own research, we have developed a variety of novel siRNA configurations with potential advantages for therapeutic use. The first of these has been termed rxRNA *ori*. This configuration has some similarities to classic siRNA in that it is composed of two, short RNA strands. We have found that by using a somewhat longer length (25-29 bp), removing the overhangs and using proprietary chemical modification patterns we achieve a higher hit rate of very potent (picomolar potency) compounds in a given target sequence. These rxRNA *ori* compounds are modified to increase resistance to nucleases and to prevent off-target effects including induction of an immune response. These novel RNAi compounds are distinct from the siRNA compounds used by many other companies developing RNAi therapeutics in that they are designed specifically for therapeutic use and offer many of the properties that we believe are important to the clinical development of RNAi-based drugs.

The second novel configuration has been called "*sd*-rxRNA" to indicate its novel "self-delivering" properties which do not require additional delivery vehicles for efficient cellular uptake and RISC-mediated silencing. A combination of at least three characteristics is required for activity: (1) specific, proprietary chemical modifications; (2) a precise number of chemical modifications; and (3) reduction in oligonucleotide content. Kineteic analyses of fluorescently-labeled compounds demonstrate that efficient cellular internalization is observed within minutes of exposure. These molecules are taken up efficiently and cause target gene silencing in diverse cell types (cell lines and primary cells). This novel class of RNAi compounds may afford a broad opportunity for therapeutic development.

We believe that both chemical modification and formulation of RNAi compounds may be utilized to develop RNA drugs suitable for therapeutic use. The route by which an RNAi therapeutic is brought into contact with the body depends on the intended organ or tissue to be treated. Delivery routes can be simplified into two major categories: (1) local (when a drug is delivered directly to the tissue of interest); and (2) systemic (when a drug accesses the tissue of interest through the circulatory system). Local delivery may avoid some hurdles associated with systemic approaches such as circulation clearance and tissue extravasation (crossing the endothelial barrier from the blood stream). However, the local delivery approach can only be applied to a limited number of organs or tissues (*e.g.*, skin, eye, lung and potentially the central nervous system).

The key to therapeutic success with RNAi lies in delivering intact RNAi compounds to the target tissue and the interior of the target cells. To accomplish this, we have developed a comprehensive platform that includes local, systemic and oral delivery approaches. We work with chemically synthesized RNAi compounds that are optimized for stability and efficacy and combine delivery at the site of action and formulation with delivery agents to achieve optimal delivery to specific target tissues.

Local Delivery

sd-rxRNA® molecules have unique properties which improve tissue and cell uptake. Delivery of *sd*-rxRNA® by a local route of administration may avoid hurdles associated with systemic approaches such as rapid clearance from the bloodstream and inefficient extravasation (*e.g.*, crossing the endothelial barrier from the blood stream). We have studied *sd*-rxRNA® molecules in a rat model of dermal delivery. Direct application of *sd*-rxRNA® with no additional delivery vehicle to the skin (incision introduced) demonstrates that target gene silencing can be measured after topical delivery. The dose levels required for these direct injection methods are small and suitable for clinical development suggesting that local delivery indications will be very accessible with the *sd*-rxRNA® technology platform. Target tissues that are potentially accessible for local delivery using *sd*-rxRNA® compounds include lung, eye, skin, CNS, mucosal tissues, sites of inflammation and tumors (direct administration).

Systemic Delivery

Systemic delivery occurs when a drug accesses the tissue of interest through the circulatory system. In some cases, such as in targeting a treatment to the liver, the optimal route of delivery may be by a systemic route. We have developed a portfolio of systemic delivery solutions utilizing our RNAi therapeutic platforms. One novel approach involves the use of *sd*-rxRNA® compounds. The self-delivering technology introduces properties required for *in vivo* efficacy such as cell and tissue penetration and improved blood clearance and distribution properties. Systemic delivery of these compounds to mice has resulted in gene specific inhibition with no additional delivery vehicle required. In addition, we have developed novel nanotransporter formulations to aid in transport of RNAi compounds to both liver and various other target tissues in the body. These nanotransporters are chemically synthesized molecules that form nanometer-sized particles when mixed with RNAi compounds and alter the clearance, distribution and tissue penetration properties of the RNAi compounds. Delivery of RNAi compounds to the liver might be critical for the treatment of many diseases and using rxRNA® in conjunction with such delivery vehicles has enabled us to demonstrate gene specific inhibition at low doses in a mouse model after intravenous, systemic delivery. Target tissues that are potentially accessible using rxRNA® compounds by systemic delivery include liver, lung, adipocytes, cardiomyocytes, bone marrow, sites of inflammation, tumors, vascular endothelium and kidney.

Oral Delivery

Most RNAi therapeutic products being developed today require recurring intravenous injections or other forms of administration which are not patient friendly. To address the desire for RNAi therapeutics with improved modes of administration, we are testing a novel formulation technology, Glucan-Encapsulated RNAi Particles (GeRPs) that may allow our rxRNA® compounds to be incorporated into orally administered pills. Early data to date suggest that the GeRP delivery system appears to be more potent than previous methods used for systemic delivery of RNAi therapeutics by intravenous injection. Additional studies will need to be conducted to clearly establish the flexibility of the GeRP system and to determine whether they can either be used to administer a single RNAi compound, multiple RNAi compounds, or could potentially allow co-delivery of RNAi, DNA, protein and small molecule combinations.

Alliance Partners in Therapeutic Areas

We are actively seeking to leverage our technology platforms by seeking to work with pharmaceutical and biotechnology partners in the partners' fields of interest. Our team has experience targeting genes in virtually every major therapeutic area, and based on this experience, we believe we can discover many more drug candidates by working with partners than we can develop with our own resources. We are seeking to work with partners in the discovery and development of drugs in a number of therapeutic areas.

Intellectual Property

We actively seek protection for our proprietary information by means of United States and foreign patents, trademarks and copyrights. In addition, we rely upon trade secret protection and contractual arrangements to protect certain of our proprietary information and products. We have pending patent applications that relate to potential drug targets, compounds we are developing to modulate those targets (described throughout herein as rxRNA), methods of making or using those compounds and proprietary elements of our drug discovery platform.

Much of our technology and many of our processes depend upon the knowledge, experience and skills of key scientific and technical personnel. To protect our rights to our proprietary know-how and technology, we require all employees, as well as our consultants and advisors when feasible, to enter into confidentiality agreements that require disclosure and assignment to us of ideas, developments, discoveries and inventions made by these employees, consultants and advisors in the course of their service to us.

We have also obtained rights to various patents and patent applications under licenses with third parties, which require us to pay royalties or milestone payments, or both. The degree of patent protection for biotechnology products and processes, including ours, remains uncertain, both in the United States and in other important markets, because the scope of protection depends on decisions of patent offices, courts and lawmakers in these countries. There is no certainty that our existing patents or others, 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 assess our license agreements on an ongoing basis, and may from time to time terminate licenses to technology that we do not intend to employ in our immunotherapy or RNAi technology platforms, or in our product discovery or development activities.

Patents and Patent Applications

We are actively prosecuting 13 patent families, including four pending PCT patent applications and nine patent families that have entered national stage. The nine patent families that have entered national stage include ten (including one continuation-in-part application) United States, four Canadian, two Chinese, four European, and five Japanese pending patent applications. Our portfolio does not include any issued patents. The patent applications encompass what we believe to be important new compounds and their use as therapeutics in RNAi, chemical modifications of RNAi compounds that improve the compounds' suitability for therapeutic uses (including delivery) and compounds directed to specific targets (*i.e.*, that address specific disease states). Any patents that may issue from these pending patent applications will be set to expire between 2028 and 2031, not including any patent term extensions that may be afforded under the Federal Food, Drug and Cosmetic Act (and the equivalent provisions in foreign jurisdictions) for any delays incurred during the regulatory approval process relating to human drug products (or processes for making or using human drug products).

License Agreements

We have secured exclusive and non-exclusive rights to develop RNAi therapeutics by licensing key RNAi technologies and patent rights from third parties. These rights relate to chemistry and configuration of RNAi compounds, delivery technologies of RNAi compounds to cells and therapeutic targets. As we continue to develop our own proprietary compounds, we continue to evaluate both our in-licensed portfolio as well as the field for new technologies that could be in-licensed to further enhance our intellectual property portfolio and unique position in the RNAi space.

University of Massachusetts Medical School. We hold a non-exclusive license from the University of Massachusetts Medical School ("**UMMS**"). This license grants to us rights under certain UMMS patent applications to make, use and sell products related to applications of RNAi technologies in particular fields, including HCMV and retinitis, amyotrophic lateral sclerosis, known as "ALS" or "Lou Gehrig's Disease," diabetes and obesity. Throughout the term of the license, we must pay UMMS an annual maintenance fee of $15,000. We also will be required to pay to UMMS customary royalties of up to 10% of (i) any future net sales of licensed products, (ii) income received from any sublicensees under this license, and (iii) net sales of commercial clinical laboratory services, subject to a minimum royalty of $50,000 beginning in 2016. We also agreed to pay expenses incurred by UMMS in prosecuting and maintaining the licensed patents.

The UMMS license was effective on April 15, 2003 and will remain in effect until: (i) the expiration of all issued patents within the "patent rights" (as defined); or (ii) for a period of ten years after the effective date if no such patents have issued within the ten-year period, unless earlier terminated in accordance with the provisions of the license. In the event that either party commits a material breach of its obligations under the UMMS license and fails to cure that breach within 60 days after receiving written notice thereof, the other party may terminate the UMMS license immediately upon written notice to the party in breach.

The UMMS license may be amended, supplemented, or otherwise modified only by signed written agreement of the parties.

Other Technology Agreements

Dharmacon. We have entered into a license agreement with Dharmacon, Inc. (now part of Thermo Fisher Scientific Inc.), pursuant to which we obtained an exclusive license to certain RNAi sequences to a number of target genes for the development of our rxRNA® compounds. Furthermore, we hold the right to license additional RNAi sequences, under the same terms, disclosed by Thermo Fisher Scientific Inc. in its pending patent applications against target genes and have received an option for exclusivity for other siRNA configurations. As partial consideration for this license, we have agreed to pay future clinical milestone payments in an aggregate amount of up to $2,000,000 and royalty payments of either 0.25% or 0.5% based on the level of any future sales of siRNA compositions developed in connection with the licensed technology.

The Dharmacon license will remain in effect for the duration of any patents issued with respect to the technologies covered by such agreement, unless otherwise terminated earlier by us.

The Dharmacon license may be amended, supplemented or otherwise modified only by signed written agreement of the parties.

Advirna. We have entered into agreements with Advirna pursuant to which Advirna assigned to us its existing patent and technology rights related to sd-rxRNA® technology in exchange for our agreement to pay Advirna an annual $100,000 maintenance fee and a one-time milestone payment of $350,000 upon the issuance of the first patent with valid claims covering the assigned technology. Additionally, we are required to pay a 1% royalty to Advirna for any licensing revenue received by us with respect to future licensing of the assigned Advirna patent and technology rights. We also agreed to grant back to Advirna a license under the assigned patent and technology rights for fields of use outside human therapeutics and diagnostics and to issue to Advirna, upon the completion of the spin-off transaction, shares of common stock equal to approximately 5% of our outstanding common stock on a fully diluted basis assuming the conversion of all outstanding Series A Preferred Stock.

Our rights under the Advirna agreement will expire upon the later of: (i) the expiration of the last-to-expire of the "patent rights" (as defined) included in the Advirna agreement; or (ii) the abandonment of the last-to-be abandoned of such patents, unless earlier terminated in accordance with the provisions of the agreement.

We may terminate the Advirna agreement at any time upon 90 days' written notice in advance to Advirna, and Advirna may terminate the agreement upon 90 days' prior written notice in the event that we cease using commercially reasonable efforts to research, develop, license or otherwise commercialize the patent rights or "royalty-bearing products" (as defined), provided that we may refute such claim within such 90-day period by showing budgeted expenditures for the research, development, licensing or other commercialization consistent with other technologies of similar stage of development and commercial potential as the patent rights or royalty-bearing products. Further, either party at any time may provide written notice to the other party a material breach of agreement. If the other party fails to cure the identified breach within 90 days after the date of the notice, the aggrieved party may terminate agreement by written notice to the party in breach.

The Advirna agreement may only be altered or supplemented by written mutual agreement by the parties.

Competition

We believe numerous companies are investigating or plan to investigate a variety of proposed anti-scarring therapies in clinical trials. The companies include large and small pharmaceutical, chemical and biotechnology companies, as well as universities, government agencies and other private and public research organizations. Such companies include Renovo Group plc, CoDa Therapeutics, Inc., Sirnaomics, Inc., FirstString Research, Inc., Merz Pharmaceuticals, LLC, Capstone Therapeutics, Halscion, Inc., Garnet Bio Therapeutics, Inc., AkPharma Inc., Promedior, Inc., Kissei Pharmaceutical Co., Ltd., Eyegene, Derma Sciences, Inc., Healthpoint Biotherapeutics and Pharmaxon. In particular, Excaliard Pharmaceuticals, Inc., which has been acquired by Pfizer, Inc., has successfully advanced an anti-CTGF antisense oligonucleotide through several Phase I and Phase II trials, demonstrating improved scar outcome over placebo.

We believe other companies working in the RNAi area, generally, include Alnylam Pharmaceuticals, Inc., Marina Biotech, Inc., Tacere Therapeutics, Inc., Benitec Limited, OPKO Health, Inc., Silence Therapeutics plc, Quark Pharmaceuticals, Inc., Rosetta Genomics Ltd., Lorus Therapeutics, Inc., Tekmira Pharmaceuticals Corporation, Arrowhead Research Corporation, Regulus Therapeutics Inc., FibroGen, Inc. and Santaris, as well as a number of large pharmaceutical companies. Many other companies are pursuing non-RNAi-based therapies for one or more fibrotic disease indications, including ocular scarring or other indications that we may seek to pursue.

Most of these competitors have substantially greater research and development capabilities and financial, scientific, technical, manufacturing, marketing, distribution and other resources than we have, 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. A number of our competitors have already commenced clinical testing of RNAi product candidates and may be more advanced than we are in the process of developing products. If we are not first to market or are unable to demonstrate superiority, any products for which we are able to obtain approval may not be successful.

Government Regulation

The United States and other developed countries extensively regulate the preclinical and clinical testing, manufacturing, labeling, storage, record-keeping, advertising, promotion, export, marketing and distribution of drugs and biologic products. The FDA regulates pharmaceutical and biologic products under the Federal Food, Drug, and Cosmetic Act, the Public Health Service Act and other federal statutes and regulations.

To obtain approval of our future product candidates from the FDA, we must, among other requirements, submit data supporting safety and efficacy for the intended indication as well as detailed information on the manufacture and composition of the product candidate. In most cases, this will require extensive laboratory tests and preclinical and clinical trials. The collection of these data, as well as the preparation of applications for review by the FDA involve significant time and expense. The FDA also may require post-marketing testing to monitor the safety and efficacy of approved products or place conditions on any approvals that could restrict the therapeutic claims and commercial applications of these products. Regulatory authorities may withdraw product approvals if we fail to comply with regulatory standards or if we encounter problems at any time following initial marketing of our products.

The first stage of the FDA approval process for a new biologic or drug involves completion of preclinical studies and the submission of the results of these studies to the FDA. These data, together with proposed clinical protocols, manufacturing information, analytical data and other information submitted to the FDA, in an IND, must become effective before human clinical trials may commence. Preclinical studies generally involve FDA regulated laboratory evaluation of product characteristics and animal studies to assess the efficacy and safety of the product candidate.

After the IND becomes effective, a company may commence human clinical trials. These are typically conducted in three sequential phases, but the phases may overlap. Phase I trials consist of testing the product candidate in a small number of patients or healthy volunteers, primarily for safety at one or more doses. Phase II trials, in addition to safety, evaluate the efficacy of the product candidate in a patient population somewhat larger than Phase I trials. Phase III trials typically involve additional testing for safety and clinical efficacy in an expanded population at multiple test sites. A company must submit to the FDA a clinical protocol, accompanied by the approval of the Institutional Review Boards at the institutions participating in the trials, prior to commencement of each clinical trial.

To obtain FDA marketing authorization, a company must submit to the FDA the results of the preclinical and clinical testing, together with, among other things, detailed information on the manufacture and composition of the product candidate, in the form of a new drug application (an "**NDA**"), or, in the case of a biologic, a biologics license application (a "**BLA**").

The amount of time taken by the FDA for approval of an NDA or BLA will depend upon a number of factors, including whether the product candidate has received priority review, the quality of the submission and studies presented, the potential contribution that the compound will make in improving the treatment of the disease in question and the workload at the FDA.

The FDA may, in some cases, confer upon an investigational product the status of a fast track product. A fast track product is defined as a new drug or biologic intended for the treatment of a serious or life threatening condition that demonstrates the potential to address unmet medical needs for this condition. The FDA can base approval of an NDA or BLA for a fast track product on an effect on a surrogate endpoint, or on another endpoint that is reasonably likely to predict clinical benefit. If a preliminary review of clinical data suggests that a fast track product may be effective, the FDA may initiate review of entire sections of a marketing application for a fast track product before the sponsor completes the application.

We anticipate that our products will be manufactured by our strategic partners, licensees or other third parties. Before approving an NDA or BLA, the FDA will inspect the facilities at which the product is manufactured and will not approve the product unless the manufacturing facilities are in compliance with the FDA's current good manufacturing practices ("**cGMP**"), which are regulations that govern the manufacture, holding and distribution of a product. Manufacturers of biologics also must comply with the FDA's general biological product standards. Our manufacturers also will be subject to regulation under the Occupational Safety and Health Act, the Nuclear Energy and Radiation Control Act, the Toxic Substance Control Act and the Resource Conservation and Recovery Act and other applicable environmental statutes. Following approval, the FDA periodically inspects drug and biologic manufacturing facilities to ensure continued compliance with the good manufacturing practices regulations. Our manufacturers will have to continue to comply with those requirements. Failure to comply with these requirements subjects the manufacturer to possible legal or regulatory action, such as suspension of manufacturing or recall or seizure of product. Adverse patient experiences with the product must be reported to the FDA and could result in the

imposition of marketing restrictions through labeling changes or market removal. Product approvals may be withdrawn if compliance with regulatory requirements is not maintained or if problems concerning safety or efficacy of the product occur following approval.

The labeling, advertising, promotion, marketing and distribution of a drug or biologic product also must be in compliance with FDA and Federal Trade Commission requirements which include, among others, standards and regulations for off-label promotion, industry sponsored scientific and educational activities, promotional activities involving the internet, and direct-to-consumer advertising. We also will be subject to a variety of federal, state and local regulations relating to the use, handling, storage and disposal of hazardous materials, including chemicals and radioactive and biological materials. In addition, we will be subject to various laws and regulations governing laboratory practices and the experimental use of animals. In each of these areas, as above, the FDA has broad regulatory and enforcement powers, including the ability to levy fines and civil penalties, suspend or delay issuance of product approvals, seize or recall products and deny or withdraw approvals.

We will also be subject to a variety of regulations governing clinical trials and sales of our products outside the United States. Whether or not FDA approval has been obtained, approval of a product candidate by the comparable regulatory authorities of foreign countries and regions must be obtained prior to the commencement of marketing the product in those countries. The approval process varies from one regulatory authority to another and the time may be longer or shorter than that required for FDA approval. In the European Union, Canada and Australia, regulatory requirements and approval processes are similar, in principle, to those in the United States.

Environmental Compliance

Our research and development activities involve the controlled use of potentially harmful biological materials as well as hazardous materials, chemicals and various radioactive compounds. We are subject to federal, state and local laws and regulations governing the use, storage, handling and disposal of these materials and specific waste products. We are also subject to numerous environmental, health and workplace safety laws and regulations, including those governing laboratory procedures, exposure to blood-borne pathogens and the handling of bio-hazardous materials. The cost of compliance with these laws and regulations could be significant and may adversely affect capital expenditures to the extent we are required to procure expensive capital equipment to meet regulatory requirements.

Human Resources

As of May 10, 2012, we had ten full-time employees, seven of whom were engaged in research and development and three of whom were engaged in management, administration and finance. None of our employees is represented by a labor union or covered by a collective bargaining agreement, nor have we experienced any work stoppages.

Insurance

We currently purchase insurance policies for property and liability risks arising out of current operations.

Properties

We occupy our facility located at 60 Prescott Street, Worcester, Massachusetts, pursuant to a lease agreement, dated September 25, 2007, with Newgate Properties, LLC (an affiliate of Worcester Polytechnic Institute). The facility is approximately 6,800 square feet, of which 5,600 square feet is laboratory space used for research and development and the additional 1,200 square feet is used for general and administrative offices. In May 2011, we reduced space occupied by us to approximately 5,307 square feet. On June 9, 2011, the lease was extended through July 31, 2012. The monthly rental fee is approximately $16,000. We believe that the space is suitable for our current needs.

Legal Proceedings

Although we are not currently involved in any legal proceedings, from time to time, we may become a party to various legal actions and complaints arising in the ordinary course of business.

MANAGEMENT

Board of Directors

Biographical Information regarding our initial board of directors is set forth below. At the present time, the Company's board is comprised of a single director, although the bylaws provide that the minimum board size shall be no fewer than two directors, starting May 26, 2012, which is 30 days from the completion of our spin-off from Galena. It is expected that additional directors will be appointed and that at least a majority of the additional directors will be "independent" directors within the meaning of NASDAQ Marketplace Rule 5605(a)(2).

Geert Cauwenbergh, Dr. Med. Sc. (58), was appointed to the Board of Directors and was elected as President and Chief Executive Officer of the Company on April 27, 2012. Prior to joining us, from June 2011 to April 2012, Dr. Cauwenbergh was active, through his consulting company Phases123 LLC, in advising various small biotech and healthcare companies. From July 2008 to June 2011, Dr. Cauwenbergh was the Chief Executive Officer of Rhei Pharmaceuticals HK Ltd, a Chinese company that licenses western drugs for development and commercialization in China, and Managing Director of the Center for Medical Innovation, a government subsidized center for translational medicine for the Belgian Region of Flanders. In February 2008 and May 2009, Dr. Cauwenbergh founded Phases123 LLC and Aramis LLC, a dermatology company, respectively. From 2002 to 2008, Dr. Cauwenbergh was with Barrier Therapeutics, Inc., a publicly-traded biopharmaceutical company he founded in 2001 that focused on dermatology drug development, where he held positions including Chief Executive Officer and Chairman. Barrier was acquired by Stiefel Laboratories, Inc. in 2008. Prior to founding Barrier, Dr. Cauwenbergh held a number of ascending senior management positions at Johnson & Johnson, where he was employed for 23 years. As Vice President, Research and Development for Johnson & Johnson's Skin Research Center, he was responsible for the worldwide research and development of all skin care products for the Johnson & Johnson consumer companies. He is a member of the board of directors of Ablynx NV and Euroscreen S.A., both European biotechnology companies. In 2005, Dr. Cauwenbergh was inducted into the New Jersey High-Tech Hall of Fame, and, from 2009 to 2010, he served as Chairman of the Board of Trustees of BioNJ. He has authored more than 100 publications and has been a guest editor for a number of books in mycology and infectious diseases. Dr. Cauwenbergh received his Doctorate in Medical Sciences from the Catholic University of Leuven, Faculty of Medicine (Belgium), where he also completed his masters and undergraduate work.

Director Independence

Dr. Cauwenbergh does not qualify as an "independent" director under the rules of The NASDAQ Stock Market ("NASDAQ"). Although the Company's common stock is not listed on NASDAQ, the Board uses the definition of independence from the NASDAQ listing standards to assess independence of our directors. Under applicable SEC and NASDAQ rules, the existence of certain "related-party" transactions above certain thresholds between a director and us are required to be disclosed and preclude a finding by the Board that the director is independent.

Committees of the Board of Directors

Our board of directors may establish an Audit Committee, a Compensation Committee and a Nominating and Governance Committee. At the present time, however, there are no committees of the board given the board's small size. Until such committees are appointed, our board of directors as a whole performs the functions normally associated with such Committees.

Executive Officers

As of May 1, 2012, we had one executive officer in addition to Dr. Cauwenbergh. Information about our sole executive officer who is not also a director is set forth below.

Pamela Pavco, Ph.D. (55). Dr. Pavco has been our Senior Vice President of Pharmaceutical Development since September 24, 2011. From March 2007 until that time, she served as the Vice President of Pharmaceutical Development of Galena. Dr. Pavco has over 20 years of research and development experience in oligonucleotides. Dr. Pavco was Senior Director, Research and Development Project Management at Sirna Therapeutics, Inc., from 2002 until 2006, when it was acquired by Merck & Co., Inc. for $1.1 billion. While at Sirna, she was responsible for the discovery research and development of Sirna-027, the first chemically modified siRNA to enter clinical trials. Dr. Pavco also managed Sirna's alliance with Allergan, Inc. that was initiated to continue discovery research in the area of ophthalmology and take Sirna-027 forward into Phase 2 clinical studies. While at Sirna, Dr. Pavco served in various additional capacities, including Director of Biology Research and Director of Pharmacology and she also

managed numerous corporate collaborations and internal programs focusing on the development of therapeutic oligonucleotides in the fields of oncology, anti-angiogenesis, hepatitis, respiratory disease and Huntington's disease. Dr. Pavco has authored numerous scientific articles and contributed to approximately 58 patents and patent applications in the oligonucleotide therapeutics field. Dr. Pavco received a Ph.D. in Biochemistry from Virginia Commonwealth University in 1983 and did her post-doctoral work at Duke University. She is a member of the American Association of Cancer Research and the Association for Research and Vision in Ophthalmology.

EXECUTIVE COMPENSATION

Summary Compensation Table

Mark Ahn served as our President and Chief Financial Officer from September 24, 2011 to April 27, 2012. During that time, Dr. Ahn also served as the President and Chief Executive Officer of Galena and, as a result, was not compensated by us for his services. Anastasia Khvorova and Pamela Pavco, became employed by us on September 24, 2011, and Dr. Khvorova served with the Company until April 27, 2012. On April 27, 2012, Dr. Cauwenbergh was appointed our President and Chief Executive Officer concurrent with Dr. Ahn's resignation. The principal terms of our employment agreements with Drs. Khvorova, Pavco and Cauwenbergh are described below in the "Executive Compensation — Employment Agreements" section of this prospectus.

The following table sets forth the compensation paid or accrued by us during the fiscal year ended December 31, 2011 and by Galena, our predecessor, during the fiscal year ended December 31, 2010 to Noah D. Beerman, the former President and Chief Executive Officer of Galena, and to Drs. Khvorova and Pavco:

Executive Compensation

Name and Principle Position	Year	Salary ($)(1)	Bonus ($)(1)	Stock Awards ($)(2)	Option Awards ($)(3)	All Other Compensation ($)(4)	Total ($)
Noah D. Beerman(5) Former President and Chief Executive Officer of Galena	2010	376,731	90,000	—	29,455	300	496,486
Anastasia Khvorova, Ph.D.(6)	2011	331,667	7,326	50,000	—	300	389,293
Former Chief Scientific Officer	2010	283,752	49,941	—	198,572	300	532,565
Pamela Pavco, Ph.D.	2011	292,500	7,255	—	90,304	300	390,359
Vice President of Pharmaceutical Development	2010	281,197	38,933	—	203,006	300	523,436

(1) The salary and bonus attributable to the period prior to September 24, 2011 were paid by Galena. Drs. Khvorova and Pavco served in the capacities indicated with Galena during that period.

(2) Represents shares of common stock of Galena, our predecessor. The amounts shown reflect the grant date fair value computed in accordance with FASB ASC 718 for the indicated year.

(3) Represents options to purchase common stock of Galena, our predecessor. The amounts shown reflect the grant date fair value computed in accordance with FASB ASC 718 for the indicated year, adjusted to disregard the effects of any estimate of forfeitures related to service-based vesting. The assumptions we used in valuing options are described more fully in the "Management's Discussion and Analysis" section and the footnotes to our financial statements for the year ended December 31, 2011.

(4) Consists of life insurance premiums.

(5) Mr. Beerman became President and Chief Executive Officer of Galena on November 5, 2009. He resigned effective March 31, 2011.
(6) Dr. Khvorova served with the Company until April 27, 2012.

RXi Pharmaceuticals Corporation 2012 Long Term Incentive Plan

On January 23, 2012, our board of directors and our sole stockholder adopted the RXi Pharmaceuticals Corporation 2012 Long Term Incentive Plan (the "**2012 Incentive Plan**"). Under the 2012 Incentive Plan, we may grant incentive stock options, nonqualified stock options, cash awards, stock appreciation rights, restricted and unrestricted stock and stock unit awards and other stock-based awards. A maximum of 90,000,000 shares of common stock are authorized for issuance and available for future grants under our 2012 Incentive Plan, including the grants of stock options to be made to Drs. Cauwenbergh and Pavco as provided in our employment agreements with them. Our board of directors currently acts as the administrator of our 2012 Incentive Plan.

The administrator has the power to select participants from among the key employees, directors and consultants of and advisors to the Company, establish the terms, conditions and vesting schedule, if applicable, of each award and to accelerate vesting or exercisability of any award. The administrator may at any time modify or amend the 2012 Incentive Plan or any award made thereunder in any respect, except where a participant's approval is required by law or where such termination or modification or amendment affects materially and adversely the rights of a participant under a previously granted award and such participant's consent has not been obtained.

In the event of a change of control in which there is an acquiring or surviving entity, the administrator may provide for the assumption or substitution of some or all of the outstanding awards by the acquiror or survivor. In the absence of an assumption or substitution, the administrator may provide that each stock option will become fully exercisable prior to the transaction on a basis that gives the holder of the stock option a reasonable opportunity as determined by the administrator, to participate as a stockholder in the transaction following exercise, and the stock option will terminate upon consummation of the transaction. In the case of restricted stock, the administrator may require that any amounts delivered, exchanged or otherwise paid in respect of such stock in connection with the transaction be placed in escrow or otherwise made subject to such restrictions as the administrator deems appropriate.

Upon termination of employment of an employee, the unvested portion of any stock option generally, and with exceptions, will terminate and the balance, to the extent exercisable, will remain exercisable for the lesser of (i) a period of three months or (ii) the period ending on the latest date on which such stock option could have been exercised.

Outstanding Equity Awards

We have no outstanding stock options or other stock awards. In our employment agreements with Drs. Cauwenbergh and Pavco described below, we agreed to grant them future options under the 2012 Incentive Plan.

Nonqualified Deferred Compensation

We do not have any nonqualified deferred compensation plans.

Termination-Based Compensation; Employment Agreements

On September 24, 2011, we entered into an employment agreement with Dr. Pavco. The employment agreement provides that, upon termination of Dr. Pavco's employment without "cause" (as defined) by RXi, or by Dr. Pavco for "good reason" (as defined), Dr. Pavco will be entitled to payment of: (a) any accrued but unpaid salary and unused vacation as of the date of her termination; (b) twelve months (in the event of such termination within twelve months of the effective date of her employment) or six months (in the event of such termination after twelve months from the effective date of her employment), as the case may be, of salary from the date of termination; and (c) continued participation, at RXi's expense, during the applicable severance period in RXi's sponsored group medical and dental plans. In the event her employment is terminated within twelve months following a "change of control" of RXi, Dr. Pavco will be entitled to: (x) twelve months of salary from the date of termination; (y) accelerated vesting of any unvested RXi stock options held by her as to 50% of the unvested option shares or the portion of the unvested option shares that would have vested over the following twenty-four months, whichever is greater; and (z) continued participation, at RXi's expense, during the severance period in RXi's sponsored group medical and dental plans.

On September 24, 2011, we entered into an employment agreement with Dr. Khvorova. The employment agreement provided that, upon termination of Dr. Khvorova's employment without "cause" (as defined) by RXi, or by Dr. Khvorova for "good reason" (as defined), Dr. Khvorova was entitled to payment of: (a) any accrued but unpaid salary and unused vacation as of the date of her termination; (b) twelve months (in the event of such termination within twelve months of the effective date of her employment) or six months (in the event of such termination after twelve months from the effective date of her employment), as the case may be, of salary from the date of termination; and (c) continued participation, at RXi's expense, during the applicable severance period in RXi's sponsored group medical and dental plans. In the event her employment was terminated within twelve months following a "change of control" of RXi, Dr. Khvorova was entitled to: (x) twelve months of salary from the date of termination; (y) accelerated vesting of any unvested RXi stock options held by her as to 50% of the unvested option shares or the portion of the unvested option shares that would have vested over the following twenty-four months, whichever was greater; and (z) continued participation, at RXi's expense, during the severance period in RXi's sponsored group medical and dental plans. Dr. Khvorova was employed by the company until April 27, 2012, when we entered into a separation agreement, pursuant to which Dr. Khvorova's employment was terminated and the parties clarified and confirmed certain rights and obligations relating to the assignment and grant-back license agreements between the Company and Advirna, as well as other Company intellectual property. Dr. Khvorova co-owns Advirna with her spouse. Dr. Khvorova is not entitled to receive any material consideration from the Company pursuant to the Separation Agreement.

On April 27, 2012, we entered into an employment agreement with Dr. Cauwenbergh. Dr. Cauwenbergh's employment agreement provides that, upon termination of Dr. Cauwenbergh's employment without "cause" (as defined) by us or by Dr. Cauwenbergh for "good reason" (as defined), he will be entitled to payment of: (1) any accrued but unpaid salary, business expenses and unused vacation as of the date of his termination as well as any unpaid bonus compensation awarded for the prior year; (2) six months of salary from the date of termination; and (3) continued participation, at our expense, during the applicable severance period in our sponsored group medical and dental plans. In the event his employment is terminated within twelve months following a "change of control" of RXi, he will be entitled to: (x) twelve months of salary from the date of termination; (y) accelerated vesting of any unvested RXi stock options held by him; and (z) continued participation, at our expense, during the severance period in our sponsored group medical and dental plans.

Director Compensation

Dr. Ahn received no compensation from us for his service as our sole director. Similarly, as our sole director, who is also an employee, Dr. Cauwenbergh will receive no separate compensation for board service. With the addition of non-employee directors, we anticipate that, in the discretion of our board of directors, each non-employee director may be paid such fees for services as a director and be reimbursed for reasonable expenses incurred in the performance of duties as director as our board of directors determines from time to time.

Employment Agreements

Geert Cauwenbergh, Dr. Med. Sc.

Dr. Cauwenbergh was appointed Chief Executive Officer pursuant to an employment agreement, dated April 27, 2012, pursuant to which he is entitled to receive an initial base salary of $360,000 per annum, as well as a performance bonus of up to 50% of his base salary, subject to the achievement of performance goals to be established annually. On the May 27, 2012, Dr. Cauwenbergh will receive an option entitling him to purchase a number of shares of Company common stock equal to 4% of the Company's outstanding common stock (calculated on a fully-diluted and as-converted basis), at an exercise price equal to the fair value of the underlying common stock on the date of grant. The option will vest and become exercisable with respect to one quarter of the underlying shares on May 27, 2013, and then on a ratable basis monthly thereafter over the next three years such that the option is fully vested and exercisable on the fourth anniversary of the Closing.

Dr. Cauwenbergh's employment agreement provides that, upon termination of Dr. Cauwenbergh's employment without "cause" (as defined) by us or by Dr. Cauwenbergh for "good reason" (as defined), he will be entitled to payment of: (1) any accrued but unpaid salary, business expenses and unused vacation as of the date of his termination as well as any unpaid bonus compensation awarded for the prior year; (2) six months of salary from the date of termination; and (3) continued participation, at our expense, during the applicable severance period in our

sponsored group medical and dental plans. In the event his employment is terminated within twelve months following a "change of control" of RXi, he will be entitled to: (x) twelve months of salary from the date of termination; (y) accelerated vesting of any unvested RXi stock options held by him; and (z) continued participation, at our expense, during the severance period in our sponsored group medical and dental plans.

Anastasia Khvorova, Ph.D.

Dr. Khvorova served as our Senior Vice President and Chief Scientific Officer until April 27, 2012. Under her employment agreement, Dr. Khvorova was entitled to receive an annual salary of $310,000. She was also entitled to receive an option to purchase up to 2% of the fully diluted common stock of RXi. Due to Dr. Khvorova's termination of employment on April 27, 2012, the option was never granted. Dr. Khvorova received no consideration from RXi in connection with the termination of her employment.

Pamela Pavco, Ph.D.

Dr. Pavco serves as our Senior Vice President of Pharmaceutical Development. Under her employment agreement dated September 24, 2011, Dr. Pavco receives an annual salary of $300,000. She also is entitled to receive an option to purchase up to 2% of the fully diluted common stock of RXi at an exercise price per share to be determined based on the fair value of our common stock at the date of grant, which will be May 27, 2012. The option will be subject to vesting in equal monthly installments over the four-year period following the effective date of her employment, which commenced on September 24, 2011, subject to accelerated vesting in some events.

Dr. Pavco's employment agreement provides that, upon termination of Dr. Pavco's employment without "cause" (as defined) by us or by Dr. Pavco for "good reason" (as defined), she will be entitled to payment of: (1) any accrued but unpaid salary and unused vacation as of the date of her termination; (2) twelve months (in the event of such termination within twelve months of the effective date of her employment) or six months (in the event of such termination after twelve months from the effective date of her employment), as the case may be, of salary from the date of termination; and (3) continued participation, at our expense, during the applicable severance period in our sponsored group medical and dental plans. In the event her employment is terminated within twelve months following a "change of control" of RXi, she will be entitled to: (x) twelve months of salary from the date of termination; (y) accelerated vesting of any unvested RXi stock options held by her as to 50% of the unvested option shares or the portion of the unvested option shares that would have vested over the following twenty-four months, whichever is greater; and (z) continued participation, at our expense, during the severance period in our sponsored group medical and dental plans.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Agreements with Galena Biopharma, Inc.

Prior to the completion of the spin-off transaction, Galena was the owner of all of our outstanding capital stock. On September 24, 2011, we entered into a contribution agreement with Galena pursuant to which:

- Galena assigned and contributed to us substantially all of its RNAi-related technologies and assets, which consist primarily of novel RNAi compounds and licenses from Dharmacon, Inc., Northwestern University, the Carnegie Institute of Washington, and the University of Massachusetts Medical School relating to its RNAi technologies, as well as the lease of its Worcester, Massachusetts laboratory facility, fixed assets and other equipment located at the facility and its employment arrangements with certain scientific, corporate and administrative personnel who have become our employees, as well as research grants from the National Institute of Neurological Disorders and Stroke, National Institute of Allergy and Infectious Diseases, and the National Institute of General Medical Sciences of approximately $800,000 that are subject to the approval of the granting institutions which was received in 2012; and
- We agreed to assume certain recent accrued expenses of the RXi-109 development program and all future obligations under the contributed licenses, employment arrangements and other agreements, and we agreed to make future milestone payments to Galena of up to $45 million, consisting of two one-time payments of $15 million and $30 million, respectively, if we achieve annual net sales equal to or greater than $500 million and $1 billion, respectively, of any covered products that may be developed with the contributed RNAi technologies.

Agreements with TCP and RTW

On September 24, 2011, we entered into a securities purchase agreement with Galena, TCP and RTW pursuant to which TCP and RTW agreed to purchase a total of $9,500,000 of our Series A Preferred Stock at the closing of the spin-off transaction and to lend to us up to $1,500,000 to fund our operations prior to the closing, with the outstanding principal and accrued interest from the loan to be converted into Series A Preferred Stock at the closing and with the aggregate principal and interest to be applied to the aggregate purchase price for the Series A Preferred Stock. The terms of the Series A Preferred Stock are as described below under the caption "Description of Capital Stock – Preferred Stock". The spin-off transaction was completed on April 26, 2012 and the purchase of $9,500,000 of our Series A Preferred Stock and other transactions contemplated by the contribution and securities purchase agreements were completed on April 27, 2012.

Advirna Agreement

As part of the transactions contemplated by the contribution and securities purchase agreements, on September 24, 2011, we entered into agreements with Advirna, pursuant to which:

- Advirna assigned to us its existing patent and technology rights related to sd-rxRNA technology in exchange for our agreement to pay Advirna an annual $100,000 maintenance fee and a one-time $350,000 milestone payment upon the future issuance of the first patent with valid claims covering the assigned patent and technology rights;
- We are required to pay a 1% royalty to Advirna for any licensing revenue received by us with respect to future licensing of the assigned Advirna patent and technology rights;
- We have granted back to Advirna a license under the assigned patent and technology for fields of use outside the fields of human therapeutics and diagnostics; and
- We have agreed to issue to Advirna, upon the completion of the spin-off transaction, shares of our common stock equal to approximately 5% of the fully diluted shares of RXi common stock assuming the conversion in full of all outstanding Series A Preferred Stock.

See "Business — Intellectual Property — Other Technology Agreements; Advirna" on page 38 of this prospectus for more information about our license from Advirna.

Anastasia Khvorova, Ph.D., our former Senior Vice President and Chief Scientific Officer, is a director and 50% owner of Advirna. Dr. Khvorova's husband is the other director and 50% owner of Advirna.

Review and Approval of Related Party Transactions

Our board of directors has a policy to review and approve all transactions with directors, officers and holders of more than 5% of our voting securities and their affiliates. The policy provides that, prior to board consideration of a transaction with such a related party, the material facts as to the related party's relationship or interest in the transaction must be disclosed to the board, and the transaction will not be considered approved by the board unless a majority of the directors who are not interested in the transaction (if applicable) approve the transaction. Furthermore, when stockholders are entitled to vote on a transaction with a related party, the material facts of the related party's relationship or interest in the transaction must be disclosed to the stockholders, who must approve the transaction in good faith.

BENEFICIAL OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth information with respect to the beneficial ownership of our common stock and is based on an aggregate of 142,289,775 shares of our common stock issued and outstanding as of May 1, 2012. Beneficial ownership is determined in accordance with SEC rules, and generally includes voting or investment power with respect to our common stock. Shares of common stock subject to options, warrants, our Series A Preferred Stock and other convertible securities that are currently exercisable or convertible within 60 days are deemed to be outstanding and to be beneficially owned by the person holding the options, warrants or convertible securities for the purpose of computing the percentage ownership of the person, but are not treated as outstanding for the purpose of computing the percentage ownership of any other person.

The information below is based on the number of shares of our common stock beneficially owned by each person or entity on May 1, 2012 and the number of shares subject to any options and warrants granted to these individuals that are exercisable within 60 days after May 1, 2012, subject to any limitations on exercisability or conversion of derivative securities, including the limits on the conversion of our Series A Preferred Stock. Any such derivative securities are indicated by footnote. Except as otherwise noted in the footnotes below, the individual directors or executive officers or their family members had sole voting and investment power with respect to such securities.

	Amount and Nature of Beneficial Ownership	
Name and Address of Beneficial Owner	Number of Shares of Common Stock	Percentage
Greater than 5% Holders		
Advirna, LLC(1)	41,849,934	29.4%
Galena Biopharma, Inc.	33,479,947	23.5%
Tang Capital Partners, LP(2)	15,808,218(3)	9.999%(3)
RTW Investments, LLC(4)	15,808,218(5)	9.999%(5)
Directors, Officers and Named Executive Officers		
Mark J. Ahn, Ph.D.	-0-	-0-
Anastasia Khvorova, Ph.D.(6)	41,849,934(6)	29.4%
Geert Cauwenbergh, Dr. Med. Sc.	-0-	-0-
Pamela J. Pavco, Ph.D.	-0-	-0-
All directors and executive officers as a group (two persons)	-0-	-0-%

(1) The address of Advirna, LLC is 10 Rocklawn Road, Westborough, Massachusetts 01581.

(2) The address for Tang Capital Partners, LP ("**TCP**") is 4747 Executive Drive, Suite 510, San Diego, California 92121. Tang Capital Management, LLC is the general partner of TCP. Kevin C. Tang is the Managing Director of Tang Capital Management, LLC. Mr. Tang shares voting and investment power over the shares shown with TCP and Tang Capital Management, LLC and, as such, may be deemed to be a beneficial owner of such shares. Mr. Tang disclaims beneficial ownership of such shares, except to the extent of his pecuniary interest therein.

(3) Represents shares of common stock issuable upon the conversion of shares of Series A Preferred Stock that are owned of record by TCP. In accordance with the conversion limitation contained within the Series A Preferred Stock Certificate of Designations, in no event may TCP convert shares of Series A Preferred Stock into shares of our common stock if such conversion would result in beneficial ownership of more than 9.999%

of the then issued and outstanding shares of our common stock. This conversion limitation may not be waived and any purported conversion that is inconsistent with this conversion limitation is null and void. See "Certain Relationships and Related Party Transactions — Agreements with TCP and RTW."

(4) The address for RTW Investments, LLC ("**RTW**") is 1350 Avenue of the Americas, 28th Floor, New York, New York 10019. Roderick T. Wong is the Managing Member of. Mr. Wong has sole voting and investment power over the shares shown and, as such, may be deemed to be a beneficial owner of such shares.

(5) Represents shares of common stock issuable upon the conversion of shares of Series A Preferred Stock that are owned of record by RTW. In accordance with the conversion limitation contained within the Series A Preferred Stock Certificate of Designations, in no event may RTW convert shares of Series A Preferred Stock into shares of our common stock if such conversion would result in beneficial ownership of more than 9.999% of the then issued and outstanding shares of our common stock. This conversion limitation may not be waived and any purported conversion that is inconsistent with this conversion limitation is null and void. See "Certain Relationships and Related Party Transactions — Agreements with TCP and RTW."

(6) The address for Dr. Khvorova is c/o Advirna, LLC, 10 Rocklawn Road, Westborough, Massachusetts 01581. The shares shown are owned of record by Advirna, LLC. Dr. Khvorova is a director and 50% member of Advirna, LLC and, as such, may be deemed to be a beneficial owner of the shares held by Advirna.

DESCRIPTION OF CAPITAL STOCK

Authorized Capital Stock

Our authorized capital stock consists of 1,500,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share, of which 15,000 shares are designated as Series A Convertible Preferred Stock, or "**Series A Preferred Stock.**" As of May 1, 2012, 142,289,775 shares of our common stock were outstanding, assuming no exercise of stock options or Series A Preferred Stock, and 9,500 shares of our Series A Preferred Stock were outstanding.

Common Stock

The holders of our common stock are entitled to one vote for each share on all matters voted on by stockholders, including elections of directors, and, except as otherwise required by law or provided in any resolution adopted by our board with respect to any series of preferred stock, the holders of such shares will possess all voting power. Our certificate of incorporation does not provide for cumulative voting in the election of directors. The shares of common stock have no conversion rights or sinking fund provisions and are not liable for further call or assessment. Subject to any preferential rights of any outstanding series of our preferred stock created by our board from time to time, the holders of common stock are entitled to such dividends as may be declared from time to time by our board from funds available therefor and upon liquidation are entitled to receive pro rata all assets available for distribution to such holders. Our common stock is not redeemable. For a more complete discussion of our dividend policy, please see "Dividend Policy."

The holders of our common stock, other than Galena, have no preemptive rights. For any offering and sale of RXi securities that are sold in a capital raising transaction within one year following the completion of the spin-off transaction, Galena is entitled to preemptive rights to participate (to the extent permitted under the Securities Act) in each such subsequent offering. Pursuant to this preemptive right, Galena is entitled to purchase a portion of the securities offered in each subsequent offering equal to Galena's percentage ownership in our common stock, determined on an as-converted, fully diluted basis, immediately prior to the consummation of such subsequent offering.

The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock which we may designate and issue in the future.

Our amended and restated certificate of incorporation includes a provision permitting our board of directors to effect one or more reverse stock splits. If we implement a reverse stock split, the number of shares of our common stock held by each stockholder would be reduced by multiplying the number of shares held immediately before the reverse stock split by the appropriate ratio and then rounding down to the nearest whole share. We would then pay cash to each stockholder in lieu of any fractional interest in a share to which each stockholder would otherwise be entitled as a result of the reverse stock split. The reverse stock split would not affect any stockholder's percentage ownership interest or proportionate voting power, except to the extent that interests in fractional shares are paid in cash, and the rights pertaining to the outstanding shares of our common stock would be unchanged after the reverse stock split. Moreover, because the number of shares of authorized common stock would not be affected, a reverse stock split would result in an increase in the authorized, but unissued, shares of common stock as a percentage of total authorized shares. Each share of our common stock issued following a reverse stock split would be fully paid and non-assessable.

In addition to adjusting the number of shares of our common stock, in the event of a reverse stock split, we would adjust any options, warrants and preferred stock in accordance with the terms of these securities.

Preferred Stock

We are authorized to issue up to 10,000,000 shares of preferred stock, par value $0.0001 per share. Our board of directors, without further action by the holders of our common stock, may issue shares of our preferred stock in one or more series. Our board is vested with the authority to fix by resolution the designations, preferences and relative, participating, optional or other special rights, and such qualifications, limitations or restrictions thereof, including, without limitation, redemption rights, dividend rights, liquidation preferences and conversion or exchange rights of any class or series of preferred stock, and to fix the number of classes or series of preferred stock, the number of shares constituting any such class or series and the voting powers for each class or series.

The authority possessed by our board to issue preferred stock could potentially be used to discourage attempts by third parties to obtain control of RXi through a merger, tender offer, proxy contest or otherwise by making such attempts more difficult or more costly. Our board may issue preferred stock with voting rights or conversion rights that, if exercised, could adversely affect the voting power of the holders of common stock. There are no current agreements or understandings with respect to the issuance of preferred stock and our board has no present intention to issue any additional shares of preferred stock.

Series A Preferred Stock

We are presently authorized to issue Series A Convertible Preferred Stock ("**Series A Preferred Stock**"). As of May 1, 2012, TCP and RTW hold 9,000 shares and 500 shares, respectively, of Series A Preferred Stock.

The Series A Preferred Stock has a face value of $1,000 per share and will accrue dividends at a rate of 7% per annum from the date of issuance through the date of conversion or redemption, payable quarterly in shares of Series A Preferred Stock.

The holders of Series A Preferred Stock do not have any right to elect directors and have only limited voting rights, which consist primarily of the right to vote under certain protective provisions set forth in the Series A Preferred Stock Certificate of Designations (the "Certificate of Designations"), regarding: (i) any proposed amendment to the Series A Preferred Stock or its right and preferences; and (ii) any proposed "Deemed Liquidation Event" as defined in the Certificate of Designations.

The Series A Preferred Stock is convertible by a holder at any time into shares of RXi common stock. The Series A Preferred Stock will convert into RXi common stock at a rate of 73,127 shares per $1,000 of face value to be converted. The conversion rate will be adjusted for certain events, such as stock splits, stock dividends, reclassifications and recapitalizations, and is subject to full-ratchet anti-dilution protection such that any subsequent issuance of common stock at a price, or in the case of common stock equivalents, at an effective conversion price, below the effective conversion price of the Series A Preferred Stock at the time of such issuance automatically adjusts the conversion price of the Series A Preferred Stock to such lower price. A holder of Series A Preferred Stock may not convert its preferred stock to common stock if such conversion would result in the holder beneficially owning more than 9.999% of our then-issued and outstanding shares of common stock. This limitation on conversion may not be waived.

Upon a Liquidation Event (as defined in the Certificate of Designations), no other class or series of capital stock can receive any payment unless the Series A Preferred Stock has first received a payment in an amount equal to $1,000 per share, plus all accrued and unpaid dividends, if applicable.

Anti-Takeover Effects of Provisions of the Certificate of Incorporation and Bylaws

Certificate of Incorporation and Bylaw Provisions. Our amended and restated certificate of incorporation and bylaws include a number of provisions that may have the effect of encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts. They are intended to enhance our long-term value to our stockholders by increasing the likelihood of continued stability in the composition of our board of directors and its policies and discouraging certain types of transactions that may involve an actual or threatened acquisition of us. These provisions are also designed to reduce our vulnerability to an unsolicited acquisition proposal and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our stock that could result from actual or rumored takeover attempts. These provisions include the items described below.

Filling Vacancies. Any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of our board of directors, may only be filled by the affirmative vote of a majority of our directors then in office even if less than a quorum.

No Written Consent of Stockholders. Our amended and restated certificate of incorporation provides that all stockholder actions are required to be taken by a vote of the stockholders at an annual or special meeting, and that stockholders may not take any action by written consent in lieu of a meeting.

Meetings of Stockholders. Our amended and restated certificate of incorporation provides that only our board of directors or holders of 5% or more of our outstanding shares of common stock may call special meetings of stockholders and only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders. Our amended and restated bylaws will limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

Advance Notice Requirements. Our amended and restated bylaws include advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures provide that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the action is to be taken. Generally, to be timely, notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the annual meeting for the preceding year. The notice must contain certain information specified in the amended and restated bylaws.

Amendment to Bylaws and Certificate of Incorporation. As required by the Delaware General Corporation Law, or the "**DGCL**," any amendment of our certificate of incorporation must first be approved by a majority of our board of directors and, if required by law or our certificate of incorporation, thereafter be approved by a majority of the outstanding shares entitled to vote on the amendment, and a majority of the outstanding shares of each class entitled to vote thereon as a class. Our bylaws may be amended by the affirmative vote of a majority vote of the directors then in office, subject to any limitations set forth in the bylaws.

Blank Check Preferred Stock. Our amended and restated certificate of incorporation provides for 10,000,000 authorized shares of preferred stock, of which 15,000 shares are designated as Series A Preferred Stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest, or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of our company or our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer or insurgent stockholder or stockholder group. In this regard, our amended and restated certificate of incorporation grants our board of directors broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring, or preventing a change of control of us.

Delaware Business Combination Statute

Section 203 of the DGCL provides that, subject to exceptions set forth therein, an interested stockholder of a Delaware corporation shall not engage in any business combination, including mergers or consolidations or acquisitions of additional shares of the corporation, with the corporation for a three-year period following the date that such stockholder becomes an interested stockholder unless:

- Prior to such date, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- Upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, other than statutorily excluded shares; or
- On or subsequent to such date, the business combination is approved by the board of directors of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least 66-2/3% of the outstanding voting stock which is not owned by the interested stockholder.

Except as otherwise set forth in Section 203, an interested stockholder is defined to include:

- Any person that is the owner of 15% or more of the outstanding voting stock of the corporation, or is an affiliate or associate of the corporation and was the owner of 15% or more of the outstanding voting stock of the corporation at any time within three years immediately prior to the date of determination; and
- The affiliates and associates of any such person.

The restrictions contained in Section 203 are not applicable to any of our existing stockholders that will own 15% or more of our outstanding common stock upon the completion of the spin-off of RXi.

Section 203 may make it more difficult for a person who would be an interested stockholder to effect various business combinations with a corporation for a three-year period. We have not elected to be exempt from the restrictions imposed under Section 203. The provisions of Section 203 may encourage persons interested in acquiring us to negotiate in advance with our board, since the stockholder approval requirement would be avoided if a majority of the directors then in office approves either the business combination or the transaction which results in any such person becoming an interested stockholder. Such provisions also may have the effect of preventing changes in our management. It is possible that such provisions could make it more difficult to accomplish transactions, which our stockholders may otherwise deem to be in their best interests.

Transfer Agent and Registrar

Computershare Trust Company, N.A. is the transfer agent and registrar for our common stock.

MARKET PRICE OF THE REGISTRANT'S COMMON EQUITY

Our Common Stock has been quoted on the OTCBB Market under the symbol "RXII" since May 10, 2012. Prior to that date, there was no public trading market for our common stock. On May 17, 2012, the last reported sale price of our commons stock on the OTCBB was $0.12 per share. As of May 16, 2012, we had approximately 719 holders of record of our common stock.

DIVIDEND POLICY

We do not anticipate paying any cash dividends on our common stock in the foreseeable future. We expect to retain future earnings, if any, for use in our development activities and the operation of our business. The payment of any future dividends will be subject to the discretion of our board of directors and will depend, among other things, upon our results of operations, financial condition, cash requirements, prospects and other factors that our board of directors may deem relevant. Additionally, our ability to pay future dividends is subject to the terms of our Series A Preferred Stock and may be restricted by the terms of any future credit facility or other debt financing to which we are a party.

SHARES ELIGIBLE FOR FUTURE SALE

As of May 1, 2012, we had outstanding an aggregate of 142,289,775 shares of our common stock. Of these shares, 66,959,894 shares, which constitute the shares distributed pursuant to the spin-off transaction, are freely tradable without restriction or further registration under the Securities Act unless the shares are owned by our "affiliates" as that term is defined in Rule 144 under the Securities Act. Under the Securities Act, an "affiliate" of a company is a person who directly or indirectly controls, is controlled by or is under common control with that company. Such affiliates may include our directors, executive officers and principal stockholders.

Also as of May 1, 2012: (1) Galena owned 33,479,947 shares of our common stock; and (2) Advirna owned 41,849,934 shares of our common stock. In addition, TCP and RTW own shares of our Series A Preferred Stock that are convertible by either or both stockholders at any time into shares of RXi common stock, except to the extent that the holder would own more than 9.999% of the shares of our common stock outstanding immediately after giving effect to such conversion.

The shares of common stock described in the preceding paragraph are "restricted shares" within the meaning of Rule 144 under the Securities Act. Any shares of RXi common stock held by "affiliates" and any "restricted shares" may be sold in the public market only if registered or if they qualify for an exemption from registration under Rule 144, which is summarized below. Due to their respective ownership interests in RXi, both Advirna and Galena may be deemed to be affiliates for purposes of Rule 144. Galena has agreed not to sell or otherwise transfer its shares for a one-year period following the completion of the spin-off transaction.

Rule 144

In general, under Rule 144 of the Securities Act as currently in effect, once we have been subject to public company reporting requirements for at least 90 days, a person who is not deemed to have been one of our affiliates for purposes of the Securities Act at any time during 90 days preceding a sale and who has beneficially owned the restricted shares proposed to be sold for at least six months, including the holding period of any prior owner other than our affiliates, is entitled to sell such shares without complying with the manner of sale, volume limitation or notice provisions of Rule 144, subject to our compliance with the public information requirements of Rule 144. If

such a person has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then such person is entitled to sell such shares without complying with any of the requirements of Rule 144.

In general, under Rule 144, as currently in effect, our affiliates or persons selling shares on behalf of our affiliates are entitled to sell within any three-month period (after satisfying the six-month holding period described above with respect to restricted shares) a number of shares of common stock that does not exceed the greater of:

- 1% of the number of shares of common stock then outstanding; or
- the average weekly trading volume of our common stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

Registration Rights

We have agreed with TCP and RTW to file this registration statement with the SEC covering the resale of 20% of the shares of our common stock underlying their Series A Preferred Stock and to keep the registration statement effective at all times until the earlier of: (1) the date as of which TCP and RTW may sell all of their common stock covered by such registration statement without restriction pursuant to Rule 144; or (2) the date on which TCP and RTW have sold all of the common stock covered by such registration statement.

We also have granted to TCP and RTW what are commonly known as "piggyback" registration rights to include our shares currently owned by TCP and RTW in other registration statements that we may file with the SEC on behalf of our company or our security holders, provided such offering is underwritten or placed by a placement agent.

Employee Stock Plans

We intend to file a registration statement on Form S-8 under the Securities Act to register up to 90,000,000 shares of common stock that are issuable under our 2012 Incentive Plan. Shares issued under the 2012 Incentive Plan after the effective date of such registration statement, other than shares issued to affiliates, generally will be freely tradable without further registration under the Securities Act.

LEGAL MATTERS

Certain legal matters relating to the validity of the Shares offered by this prospectus will be passed upon for us by Ropes & Gray LLP, San Francisco, California.

EXPERTS

The financial statements as of December 31, 2011 and 2010 and for the years then ended and for the period from inception (January 1, 2003) through December 31, 2011 included in this Prospectus have been so included in reliance on the report of BDO USA, LLP, an independent registered public accounting firm, appearing elsewhere herein, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-1 under the Securities Act with the SEC to register the shares of RXi common stock covered by this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits and schedules thereto, as some items are omitted in accordance with the rules and regulations of the SEC. For further information about us and the RXi common stock, we refer you to the registration statement on Form S-1. Statements contained in this prospectus as to the contents of any contract, agreement or other document referred to are not necessarily complete, and in each instance reference is made to the copy of each contract, agreement or other document filed as an exhibit to the registration statement, each statement being qualified by this reference.

We are required to comply with the reporting requirements of the Exchange Act and will file annual, quarterly and other reports with the SEC. We are also subject to the proxy solicitation requirements of the Exchange Act. We will make available free of charge on our website our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or

15(d) of the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. We also intend to deliver to our holders of common stock annual reports containing consolidated financial statements prepared in accordance with United States generally accepted accounting principles and audited and reported on, with an opinion expressed thereto, by an independent registered public accounting firm.

You may read and copy all or any portion of the registration statement or any reports, statements or other information we file with the SEC at the SEC's public reference room at 100 F Street, NE, Washington, DE 20549. You can request copies of these documents upon payment of a duplicating fee, by writing to the SEC. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference rooms. Our SEC filings, including the registration statement, will also be available to you on the SEC's website at www.sec.gov. In addition, you may request a copy of these filings (excluding exhibits) at no cost by writing or telephoning us at the following address or telephone number:

RXi Pharmaceuticals Corporation
Investor Relations
60 Prescott Street
Worcester, Massachusetts 01605
Telephone: (508) 767-3861

We maintain a website at www.rxipharma.com. Our website and the information contained on that site, or connected to that site, is not part of or incorporated by reference into this prospectus.

No person is authorized to give any information or to make any representations other than those contained in this prospectus, and, if given or made, such information or representations must not be relied upon as having been authorized. Neither the delivery of this prospectus nor any distribution of securities made hereunder shall imply that there has been no change in the information set forth herein or in our affairs since the date of this prospectus.

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(A Development-Stage Company)

RXi PHARMACEUTICALS CORPORATION (REGISTRANT) AND PREDECESSOR (RNAi)
(A Development Stage Company)
CONDENSED BALANCE SHEETS
(Amounts in thousands, except share data)

	March 31, 2012 (Unaudited)	December 31, 2011
ASSETS		
Current assets:		
Cash and cash equivalents	$ 357	$ 556
Due from parent	597	597
Prepaid expenses and other current assets	58	186
Total current assets	1,012	1,339
Equipment and furnishings, net	315	355
Total assets	$ 1,327	$ 1,694
LIABILITIES AND STOCKHOLDER'S DEFICIT		
Current liabilities:		
Accounts payable	$ 747	$ 387
Accrued expense and other current liabilities	537	544
Deferred revenue	797	816
Current maturities of capital lease obligations	18	29
Total current liabilities	2,099	1,776
Convertible notes payable	1,000	500
Capital lease obligations, net of current maturities	5	5
Total liabilities	3,104	2,281
Commitments and contingencies		
Stockholder's deficit and divisional equity:		
Preferred stock, $0.0001 par value, 10,000,000 shares authorized; no shares issued and outstanding	—	—
Common stock, $0.0001 par value, 1,500,000,000 shares authorized; 100,439,841 issued and outstanding at March 31, 2012 and December 31, 2011, respectively	10	10
Additional paid-in capital	4,416	3,680
Deficit accumulated during the developmental stage	(6,203)	(4,277)
Total stockholder's deficit	(1,777)	(587)
Total liabilities and stockholder's deficit	$ 1,327	$ 1,694

See accompanying notes to financial statements.

RXi PHARMACEUTICALS CORPORATION (REGISTRANT) AND PREDECESSOR (RNAi)
(A Development Stage Company)
CONDENSED STATEMENTS OF EXPENSES
(Amounts in thousands, except share and per share data)
(Unaudited)

	Predecessor (RNAi) and RXi (Registrant)(1)	Predecessor (RNAi)	Predecessor (RNAi) and RXi (Registrant)(1)
	Three Months Ended March 31,		Period from January 1, 2003 (Date of Inception) to March 31,
	2012	2011	2012
Expenses:			
Research and development expense	$ 1,017	$ 1,941	$ 33,890
Research and development employee stock-based compensation expense	38	246	2,958
Research and development non-employee stock-based compensation expense (income)	99	(31)	6,083
Fair value of Parent Company common stock issued in exchange for licensing rights	—	—	3,954
Total research and development expense	1,154	2,156	46,885
General and administrative expense	674	1,921	26,141
General and administrative employee stock-based compensation expense	77	1,099	9,137
Fair value of Parent Company common stock and common stock warrants issued in exchange for general and administrative expenses	—	99	2,689
Total general and administrative expense	751	3,119	37,967
Loss from operations	(1,905)	(5,275)	(84,852)
Interest income (expense)	(22)	(1)	606
Other income	1	1,435	6,317
Net loss	$ (1,926)	$ (3,841)	$ (77,929)
Basic and diluted loss per share	$ (0.04)	$ (0.19)	N/A
Weighted average common shares outstanding: basic and diluted	47,967,499	20,316,170	N/A

(1) The statement of expenses for the period from January 1, 2003 (date of inception) to March 31, 2012 includes the results of operations of the carved-out Predecessor (RNAi) entity from the beginning of the periods presented to September 23, 2011 ($73,466) combined with the results of operations of RXi (Registrant) for the period September 24, 2011 to March 31, 2012 ($4,463).

See accompanying notes to financial statements.

RXi PHARMACEUTICALS CORPORATION (REGISTRANT) AND PREDECESSOR (RNAi)
(A Development Stage Company)

CONDENSED STATEMENTS OF CASH FLOWS
(Amounts in thousands)
(Unaudited)

	RXi (Registrant)	Predecessor (RNAi)	Predecessor (RNAi) and RXi (Registrant)(1)
	Three Months Ended March 31,		Period from January 1, 2003 (Date of Inception) through March 31,
	2012	2011	2012
Cash flows from operating activities:			
Net loss	$ (1,926)	$ (3,841)	$ (77,929)
Adjustment to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization expense	40	37	704
Loss on disposal of equipment	—	—	52
Non-cash rent expense	—	—	29
Accretion and receipt of bond discount	—	—	35
Non-cash stock-based compensation	214	1,314	18,180
Loss on exchange of equity instruments	—	—	900
Fair value of Parent Company's shares mandatorily redeemable for cash upon exercise of warrants	—	—	(785)
Fair value of Parent Company derivatives issued in exchange for services	—	76	2,385
Fair value of Parent Company's common stock issued in exchange for services	—	23	304
Change in fair value of derivatives of Parent Company issued in connection with various equity financings	—	(1,435)	(5,604)
Fair value of Parent Company's common stock issued in exchange for licensing rights	—	—	3,954
Change in assets and liabilities:			
Prepaid expenses	128	(133)	(42)
Accounts payable	360	2	747
Due to former parent	—	—	(207)
Deferred revenue	(19)	—	797
Accrued expenses and other current liabilities	(6)	930	1,172
Net cash used in operating activities	(1,209)	(3,027)	(55,308)
Cash flows from investing activities:			
Purchase of short-term investments	—	—	(37,532)
Maturities of short-term investments	—	—	37,497
Cash paid for purchase of equipment and furnishings	—	(40)	(745)
Disposal of equipment and furnishings	—	—	(1)
Cash refunded (paid) for lease deposit	—	—	(45)
Net cash used in investing activities	—	(40)	(826)
Cash flows from financing activities:			
Cash contributions from parent company, net	522	7,314	55,746
Proceeds from issuance of convertible notes payable	500	—	1,000
Repayments of capital lease obligations	(12)	(23)	(255)
Net cash provided by financing activities	1,010	7,291	56,491
Net (decrease) increase in cash and cash equivalents	(199)	4,224	357
Cash and cash equivalents at the beginning of period	556	6,891	—
Cash and cash equivalents at end of period	$ 357	$ 11,115	$ 357
Supplemental disclosure of cash flow information:			
Cash received during the period for interest	$ —	$ —	$ 724
Cash paid during the period for interest	$ —	$ 1	$ 8

(1) The statement of cash flow for the period from January 1, 2003 (date of inception) to March 31, 2012 include the cash flows of the carved-out Predecessor (RNAi) entity from the beginning of the periods presented to September 23, 2011 combined with the cash flows of RXi (Registrant) for the period September 24, 2011 to March 31, 2012.

See accompanying notes to financial statements.

	RXi (Registrant)	Predecessor (RNAi)	Predecessor (RNAi) and RXi (Registrant)(1)
	Three Months Ended March 31,		Period from January 1, 2003 (Date of Inception) through March 31,
	2012	2011	2012
Supplemental disclosure of non-cash investing and financing activities:			
Settlement of corporate formation expenses in exchange for common stock	$ —	$ —	$ 978
Fair value of derivatives issued in connection with parent company common stock	$ —	$ 4,212	$ 14,051
Fair value of parent company shares mandatorily redeemable for cash upon exercise of warrants	$ —	$ —	$ 785
Allocation of management expenses	$ —	$ —	$ 551
Equipment and furnishings exchanged for parent company common stock	$ —	$ —	$ 48
Equipment and furnishings acquired through capital lease	$ —	$ 44	$ 277
Value of Parent Company restricted stock units issued in lieu of bonuses included in accrued expenses	$ —	$ 427	$ 427
Reclassification of derivative liability upon elimination of obligation	$ —	$ —	$ 9,249
Value of parent company restricted stock units issued in lieu of cash bonuses	$ —	$ —	$ 207
Non-cash lease deposit	$ —	$ —	$ 50

(1) The statement of cash flow for the period from January 1, 2003 (date of inception) to March 31, 2012 include the cash flows of the carved-out Predecessor (RNAi) entity from the beginning of the periods presented to September 23, 2011 combined with the cash flows of RXi (Registrant) for the period September 24, 2011 to March 31, 2012.

See accompanying notes to financial statements.

RXi PHARMACEUTICALS CORPORATION (REGISTRANT) AND PREDECESSOR (RNAi)
(A Development Stage Company)

NOTES TO CONDENSED FINANCIAL STATEMENTS

(Unaudited)

1. Description of Business and Basis of Presentation

Prior to April 13, 2011, Galena Biopharma, Inc. ("Galena" or the "Parent Company") (formerly known as RXi Pharmaceuticals Corporation) engaged primarily in conducting discovery research and preclinical development activities based on RNAi, and Galena's financial statements for periods through April 13, 2011 primarily reflected assets, liabilities and results of operations attributable to Galena's RNAi-based assets, liabilities and results of operations. On April 13, 2011, Galena broadened its strategic direction by adding the development and commercialization of cancer therapies that utilize peptide-based immunotherapy products, including a main product candidate, NeuVax, for the treatment of various cancers. On September 24, 2011, Galena contributed to RXi Pharmaceuticals Corporation ("RXi," "Registrant," or the "Company"), a newly formed subsidiary of Galena, substantially all of Galena's RNAi-related technologies and assets. The newly formed RXi was incorporated on September 8, 2011 with the issuance of 100 initial shares at a price of $0.01 per share for total consideration of $1.00.

Accordingly, the historical financial information for the three months ended March 31, 2012 and 2011, as well as the cumulative period from inception (January 1, 2003) through March 31, 2012, has been "carved out" of the financial statements of Galena, as our "Predecessor," for such periods and includes activities through September 23, 2011. Such financial information is limited to Galena's RNAi-related activities, assets and liabilities only, and excludes activities, assets and liabilities that are attributable to Galena's cancer therapy activities. The financial information for the cumulative period from inception through March 31, 2012 includes activities through September 23, 2011 and also includes the results of RXi for the period from September 24, 2011 to December 31, 2011. RXi was formed on September 8, 2011 and was not engaged in any activities other than its initial incorporation from September 8, 2011 to September 23, 2011.

The carved-out financial information includes both direct and indirect expenses. The historical direct expenses consist primarily of the various costs for technology license agreements, sponsored research agreements and fees paid to scientific advisors, and employees directly involved in RNAi-related activities. Indirect expenses represent expenses incurred by Galena on behalf of the RNAi business that have been allocated to the RNAi business. The indirect expenses are based upon (1) estimates of the percentage of time spent by individual Galena employees working on RNAi business matters and (2) allocations of various expenses associated with each employee including salary, benefits, rent associated with an employee's office space, accounting and other general and administrative expenses. The percentage of time spent by individual Galena employees was then multiplied by the allocation of various expenses associated with those employees to develop an allocation of expense per employee and the sum of such allocations for these employees equals the total expense allocable to the RNAi business and reflected in the carved-out financial statements.

Management believes the assumptions underlying the allocations of indirect expenses in the carve-out financial information are reasonable; however, the financial position, results of operations, and cash flows may have been materially different if the RNAi business had operated as a stand-alone entity for the three months ended March 31, 2012.

RXi was formed on September 8, 2011 and was not engaged in any activities other than its initial incorporation from September 8, 2011 to September 23, 2011. The RNAi business operated as a division of Galena prior to September 24, 2011. The balance of $6,203,000 in deficit accumulated since incorporation at March 31, 2012 includes RXi's net loss of $4,463,000 for the period September 24, 2011 to March 31, 2012 and the Predecessor's cumulative net loss of $73,466,000 through September 23, 2011 offset by cash and non-cash equity transactions of $71,726,000.

To date, RXi's principal activities, including that of its Predecessor, have consisted of conducting discovery research and preclinical development activities utilizing the RNAi therapeutic platform, acquiring RNAi technologies and patent rights through exclusive, co-exclusive and non-exclusive licenses, recruiting an RNAi-focused management and scientific/clinical advisory team, capital raising activities and conducting business development activities aimed at establishing research and development partnerships with pharmaceutical and larger biotechnology companies.

The Company and its Predecessor have not generated any revenues since inception nor are any revenues expected for the foreseeable future and as such the Company is considered a development stage company for accounting purposes. The Company expects to incur significant operating losses for the foreseeable future while the Company advances its future product candidates from discovery through preclinical studies and clinical trials and seeks regulatory approval and potential commercialization, even if the Company is collaborating with pharmaceutical and larger biotechnology companies. The Company will need to generate significant revenues to achieve profitability and may never do so.

On September 24, 2011, RXi entered into a contribution agreement with Galena pursuant to which:

- Galena assigned and contributed to us substantially all of its RNAi-related technologies and assets, which consist primarily of novel RNAi compounds and licenses from Dharmacon, Inc., Northwestern University, the Carnegie Institute of Washington, and the University of Massachusetts Medical School relating to its RNAi technologies, as well as the lease of its Worcester, Massachusetts laboratory facility, fixed assets and other equipment located at the facility and its employment arrangements with certain scientific, corporate and administrative personnel who have become our employees, as well as research grants from the National Institute of Neurological Disorders and Stroke, National Institute of Allergy and Infectious Diseases, and the National Institute of General Medical Sciences of approximately $800,000 that are subject to the approval of the granting institutions, which was received in 2012; and
- RXi agreed to assume certain recent accrued expenses of the RXi-109 development program and all future obligations under the contributed licenses, employment arrangements and other agreements, and RXi agreed to make future milestone payments to Galena of up to $45 million, consisting of two one-time payments of $15 million and $30 million, respectively, if RXi achieves annual net sales equal to or greater than $500 million and $1 billion, respectively, of any covered products that may be developed with the contributed RNAi technologies.

On September 24, 2011, RXi entered into a securities purchase agreement with Galena, Tang Capital Partners, LP ("TCP") and RTW Investments, LLC ("RTW") pursuant to which:

- TCP and RTW agreed to purchase a total of 9,500 shares of RXi's Series A Convertible Preferred Stock (the "Series A Preferred Stock"), for an aggregate purchase price of $9,500,000, at the closing of the spin-off transaction (see below) and to lend RXi up to $1,500,000 to fund RXi's operations prior to the closing, with the outstanding principal and accrued interest on the loan converted into Series A Preferred Stock at the closing, at a conversion price of $1,000 per share, and such conversion applied to the $9,500,000 total investment by TCP and RTW;
- RXi agreed that the Series A Preferred Stock will be convertible by TCP or RTW at any time into shares of RXi common stock, except to the extent that the holder would own more than 9.999% of the shares of RXi common stock outstanding immediately after giving effect to such conversion. Without regard to this conversion limitation, the shares of the Series A Preferred Stock to be held by TCP and RTW would be convertible into shares of RXi common stock representing approximately 83% of the fully-diluted shares of RXi common stock;
- Galena contributed $1.5 million of cash to RXi;
- Galena agreed to distribute to its stockholders 8% of the fully diluted shares of common stock of RXi that will be outstanding immediately upon the completion of the spin-off transaction; and

- RXi agreed to reimburse, upon completion of the spin-off transaction, Galena for up to a total of $300,000, and TCP and RTW for a total of up to $100,000, of transaction costs relating to the contribution agreement with Galena, the securities purchase agreement summarized above and the transactions contemplated by those agreements.

As of April 27, 2012, the date of completion of RXi's spin-off from Galena, TCP and RTW had advanced $1,000,000 to RXi under the bridge loan arrangement. As of March 31, 2012, the Company had received $1,000,000 of the bridge loan from TCP and RTW and is classified as long-term on the balance sheet, as the amount was subsequently converted into preferred stock. On April 27, 2012, the Company issued 9,500 of Series A Preferred Stock to TCP and RTW upon the conversion of the $1,026,736 principal and accrued interest under the bridge notes and the receipt of the remaining $8,473,624 from TCP and RTW, as provided for in the securities purchase agreement. At the closing of the spin-off transaction, RXi reimbursed Galena and TCP $300,000 and $100,000, respectively, for transaction related expenses. The Company believes that the cash received from the securities purchase agreement should be sufficient to fund RXi's operations into the second quarter of 2013. In the future, RXi will be dependent on obtaining funding from third parties, such as proceeds from the sale of equity, funded research and development programs and payments under partnership and collaborative agreements, in order to maintain RXi's operations and meet RXi's obligations to licensors. There is no guarantee that debt, additional 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, RXi would be forced to scale back, or terminate the Company operations or to seek to merge with or to be acquired by another company.

As part of the transactions contemplated by the contribution and securities purchase agreements, on September 24, 2011, RXi entered into an agreement with Advirna, LLC ("**Advirna**"), a company affiliated with the Company's former Senior Vice President and Chief Scientific Officer, pursuant to which:

- Advirna assigned to RXi its existing patent and technology rights related to sd-rxRNA technology in exchange for RXi's agreement to pay Advirna an annual $100,000 maintenance fee and a one-time $350,000 milestone payment upon the future issuance of the first patent with valid claims covering the assigned patent and technology rights;
- RXi will also be required to pay a 1% royalty to Advirna for any licensing revenue received by RXi with respect to future licensing of the assigned Advirna patent and technology rights;
- RXi has granted back to Advirna a license under the assigned patent and technology for fields of use outside the fields of human therapeutics and diagnostics; and
- RXi issued to Advirna, upon the completion of the spin-off transaction, shares of RXi's common stock equal to approximately 5% of the fully diluted shares of RXi common stock assuming the conversion in full of all outstanding Series A Preferred Stock.

On September 24, 2011, RXi entered into employment agreements with Anastasia Khvorova, Ph.D., and Pamela Pavco, Ph.D., pursuant to which:

- Dr. Khvorova served until April 27, 2012 as RXi's Senior Vice President and Chief Scientific Officer; and
- Dr. Pavco serves as RXi's Senior Vice President of Pharmaceutical Development and is entitled to a grant of stock options to purchase 2% of RXi's fully-diluted shares of common stock immediately after the spin-off transaction, at an exercise price per share to be determined based on the fair value of RXi common stock at the date of grant.

Basis of Presentation

For the period from January 1, 2003 (date of inception) to December 31, 2006, the Predecessor financial information consists of various transactions of CytRx Corporation ("CytRx"), which were identified as direct expenses related to RNAi therapeutics and disaggregated ("carved out") from CytRx's financial statements. In

addition, various indirect costs related to RNAi therapeutics (mainly senior management and accounting) were estimated and included as part of the Predecessor carved-out financial information. For the period from April 3, 2006 (date of incorporation of Galena) through December 31, 2007, Galena was operating as a subsidiary of CytRx. CytRx is the former parent of Galena. Galena was formed by CytRx and four prominent RNAi researchers to pursue the development of proprietary therapeutics based on RNAi for the treatment of human diseases. The financial information for the period from April 3, 2006 (date of incorporation of Galena) to March 31, 2012 was compiled from Galena's books and records through September 23, 2011, and includes an allocation in 2007 of indirect costs from CytRx for overhead and general administrative costs provided through December 31, 2007 (that have been allocated based upon estimates developed by CytRx's management and include corporate salaries, benefits, accounting, rent and other general and administrative expenses). There are no Predecessor financial statements for the period from April 3, 2006 (date of incorporation of Galena) to December 31, 2006 as there was no activity. In addition, the cumulative period from inception (January 1, 2003) through March 31, 2012 includes the results of RXi, the registrant, for the period from September 24, 2011 to March 31, 2012. RXi was formed on September 8, 2011 and was not engaged in any activities other than its initial incorporation from September 8, 2011 to September 23, 2011. RXi's net loss for the period September 24, 2011 to March 31, 2012, included in the financial information for the cumulative period ended March 31, 2012, was $4,463,000.

In January 2012, the Company amended its certificate of incorporation to increase its authorized common shares from 1,000 shares to 1,500,000,000 shares and to provide for the authorization of 10,000,000 shares of preferred stock. On April 26, 2012, the Board of Directors declared a 1,004,397.41 for 1 split in the form of a stock dividend of the Company's common stock resulting in the distribution on April 26, 2012 of 100,439,841 additional shares to Galena, the Company's sole stockholder on the record date for the distribution. Contemporaneously, Galena distributed 66,959,894 shares of RXi common stock to its shareholders. Amounts per share and the number of common and preferred shares in the accompanying financial statements have been adjusted to give retroactive effect to the stock split and amount of authorized shares for all periods presented.

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.

Net loss per share

The Company accounts for and discloses net loss per common share in accordance with FASB ASC Topic 260 "*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.

To determine the shares outstanding for the Company for the periods prior to the distribution of the RXi common shares to the Galena stockholders, Galena's weighted average number of shares is multiplied by the distribution ratio of one share of RXi common stock for every one share of Galena common stock. Basic loss per share is computed by dividing the Company's losses by the weighted average number of shares outstanding during the period. When the effects are not anti-dilutive, diluted earnings per share is computed by dividing the Company's net earnings by the weighted average number of shares outstanding and the impact of all dilutive potential common shares. There were no potential dilutive common shares for all periods presented.

Comprehensive Loss

The Company's net loss is equal to its comprehensive loss for all periods presented.

2. Recent Accounting Pronouncements

Recently Adopted Accounting Pronouncements

In May 2011, the FASB issued Accounting Standards Updated ("ASU") 2011-04, *Fair Value Measurement* (Topic 820): *Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs*, a new accounting standard that clarifies the application of certain existing fair value measurement guidance and expands the disclosures for fair value measurements that are estimated using significant unobservable (Level 3) inputs. This new standard is effective on a prospective basis for annual and interim reporting periods beginning on or after December 15, 2011. The adoption of this new standard did not have a material impact on the Company's financial statements.

Recently Issued Accounting Pronouncements

In June 2011, the FASB issued ASU 2011-05, *Comprehensive Income* (Topic 220): *Presentation of Comprehensive Income*, a new accounting standard that eliminates the option to present the components of other comprehensive income as part of the statement of changes in stockholders' equity, requires the consecutive presentation of the statement of net income and other comprehensive income and requires an entity to present reclassification adjustments on the face of the financial statements from other comprehensive income to net income. The amendments in this new standard do not change the items that must be reported in other comprehensive income or when an item of other comprehensive income must be reclassified to net income nor do the amendments affect how earnings per share is calculated or presented. This new standard is required to be applied retrospectively and is effective for fiscal years and interim periods within those years beginning after December 15, 2011. The adoption of this standard did not impact the Company's financial statements as the Company's comprehensive loss is equal to the net loss for all periods presented.

3. Fair Value Measurements

The Company follows the provisions of Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 820, "*Fair Value Measurements and Disclosures*."

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. Level inputs are as defined as follows:

Level 1 — quoted prices in active markets for identical assets or liabilities.

Level 2 — other significant observable inputs for the assets or liabilities through corroboration with market data at the measurement date.

Level 3 — significant unobservable inputs that reflect management's best estimate of what market participants would use to price the assets or liabilities at the measurement date.

The Company categorized its cash equivalents as 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.

Description	March 31, 2012	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 53	$ 53	$ —	$ —
Total assets	$ 53	$ 53	$ —	$ —

Description	December 31, 2011	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 53	$ 53	$ —	$ —
Total assets	$ 53	$ 53	$ —	$ —

Fair Value of Financial Instruments

The carrying amounts reported in the balance sheet for cash equivalents, accounts payable, capital leases, and convertible notes payable approximate their fair values due to their short-term nature and market rates of interest.

4. Stock Based Compensation

The following stock based compensation information relates to stock options issued by Galena. Stock based compensation expense is allocated to the carved out financial statements based on an estimate of time spent by Galena employees, board members, scientific advisory board members, and outside consultants on RXi related matters. The Company and Galena follow the provisions of the FASB ASC Topic 718, "Compensation — *Stock Compensation*" ("ASC 718"), which requires the measurement and recognition of compensation expense for all stock-based payment awards made to employees and non-employee directors including employee stock options. Stock compensation expense based on the grant date fair value estimated in accordance with the provisions of ASC 718 is recognized as an expense over the requisite service period.

For stock options granted as consideration for services rendered by non-employees, Galena recognizes compensation expense in accordance with the requirements of FASB ASC Topic 505-50, *"Equity Based Payments to Non-Employees."*

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 Galena'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 nonemployees 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 and Galena are currently using the Black-Scholes option-pricing model to determine the fair value of all its option grants. For option grants issued in the three month period ended March 31, 2012 and 2011, the following assumptions were used:

	For the Three Months ended March 31,	
	2012	2011
Weighted average risk-free interest rate	1.01%	2.33%
Weighted average expected volatility	75.96%	112.95%
Weighted average expected lives (years)	5.96	5.76
Weighted average expected dividend yield	0.00%	0.00%

The weighted average fair value of options granted during the three-month period ended March 31, 2012 and 2011 was $0.47 and $1.20 per share, respectively.

Galena'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 ASC 718-10. 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 Galena 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. Galena has estimated an annualized forfeiture rate of 15.0% for options granted to its employees, 8.0% for options granted to senior management and no forfeiture rate for the directors. Galena 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, 2012 through March 31, 2012:

	Total Number of Shares	Weighted Average Exercise Price	Aggregate Intrinsic Value
Outstanding at January 1, 2012	5,153,387	$ 3.24	$ —
Granted	325,000	0.72	487,500
Exercised	—	—	—
Cancelled	—	—	—
Outstanding at March 31, 2012	5,478,387	3.09	$2,563,394
Options exercisable at March 31, 2012	4,505,142	3.56	$1,750,630

The aggregate intrinsic values of outstanding and exercisable options at March 31, 2012 were calculated based on the closing price of the Galena's common stock on March 30, 2012 of $2.22 per share less the exercise price of those shares. The aggregate intrinsic values of options exercised were calculated based on the difference, if any, between the exercise price of the underlying awards and the quoted price of the Galena's common stock on the date of exercise.

On January 23, 2012, the Company's board of directors and sole stockholder adopted the RXi Pharmaceuticals Corporation 2012 Long Term Incentive Plan (the "2012 Incentive Plan"). Under the 2012 Incentive Plan, the Company may grant incentive stock options, nonqualified stock options, cash awards, stock appreciation rights, restricted and unrestricted stock and stock unit awards and other stock-based awards. As of March 31, 2012, a maximum of 90,000,000 shares of common stock are authorized for issuance and available for future grants under our 2012 Incentive Plan. The Company's board of directors currently acts as the administrator of the Company's 2012 Incentive Plan.

The administrator has the power to select participants from among the key employees, directors and consultants of and advisors to the Company, establish the terms, conditions and vesting schedule, if applicable, of each award and to accelerate vesting or exercisability of any award. The administrator may at any time modify or amend the 2012 Incentive Plan or any award made thereunder in any respect, except where a participant's approval is required by law or where such termination or modification or amendment affects materially and adversely the rights of a participant under a previously granted award and such participant's consent has not been obtained.

5. Subsequent Events

In accordance with ASC 855-10, Subsequent Events, management has evaluated subsequent events through to the date these financial statements are filed. The Company did not have any material recognizable or unrecognizable subsequent events except as otherwise disclosed below and elsewhere in the notes to the financial statements.

Effective April 27, 2012, the Company entered into a separation agreement with Dr. Khvorova. In the separation agreement, Galena has agreed to pay severance to Dr. Khvorova equal to six months' salary and to pay the employer's share of her COBRA premiums for six months following the effective date of her separation. In the separation agreement, Dr. Khvorova agreed to forego the grant of the option to purchase shares of the Company's common stock that was contemplated by her former employment agreement with the Company.

Effective April 27, 2012, the Company entered into an employment agreement with Dr. Geert Cauwenbergh to serve as the Company's President and Chief Executive Officer at an annual salary of $360,000. Dr. Cauwenbergh will also be entitled to a grant of stock options to purchase 4% of the outstanding common stock of the Company as of such grant date (calculated on a fully-diluted, as converted basis), at an exercise price per share to be determined based on the fair value of the Company's common stock on the date of grant. Dr. Cauwenbergh's employment agreement also provides that during the term of his employment with the Company, he shall serve as a member of the Company's Board of Directors.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors
RXi Pharmaceuticals Corporation
Worcester, Massachusetts

We have audited the accompanying balance sheets of the Predecessor (RNAi) (the carve-out entity) and RXi Pharmaceuticals Corporation (Registrant) (collectively, the "Company", see Note 1), a development stage company, as of December 31, 2011 and 2010, respectively, and the related statements of expenses, divisional equity (deficit) and stockholder's deficit, and cash flows for the years then ended and for the period from inception (January 1, 2003) through December 31, 2011. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company at December 31, 2011 and 2010 and the results of its operations and its cash flows for the years then ended and for the period from inception (January 1, 2003) through December 31, 2011, in conformity with accounting principles generally accepted in the United States of America.

/s/ BDO USA, LLP
Boston, Massachusetts
May 7, 2012

RXi PHARMACEUTICALS CORPORATION (REGISTRANT) AND PREDECESSOR (RNAi)
(A Development Stage Company)
BALANCE SHEETS
(Amounts in thousands, except share data)

	RXi (Registrant) December 31, 2011	Predecessor (RNAi) December 31, 2010
ASSETS		
Current assets:		
Cash and cash equivalents	$ 556	$ 6,891
Due from parent	597	—
Prepaid expenses and other current assets	186	150
Total current assets	1,339	7,041
Equipment and furnishings, net of accumulated depreciation and amortization of and $646 and $491, in 2011 and 2010, respectively	355	419
Other assets	—	16
Total assets	$ 1,694	$ 7,476
LIABILITIES, STOCKHOLDER'S DEFICIT AND DIVISIONAL EQUITY		
Current liabilities:		
Accounts payable	$ 387	$ 724
Accrued expense and other current liabilities	544	1,113
Deferred revenue	816	—
Current maturities of capital lease obligations	29	51
Derivatives potentially settleable in cash	—	3,138
Total current liabilities	1,776	5,026
Convertible notes payable	500	—
Capital lease obligations, net of current maturities	5	20
Total liabilities	2,281	5,046
Commitments and contingencies (Notes 7, and 11) Stockholder's deficit and divisional equity:		
Preferred stock, $0.0001 par value, 10,000,000 shares authorized; none issued and outstanding		
Common stock, $0.0001 par value, 1,500,000,000 shares authorized; 100,439,841 issued and outstanding at December 31, 2011	10	—
Additional paid-in capital	3,680	—
Deficit accumulated since incorporation (Note 1)	(4,277)	—
Total stockholder's deficit	(587)	—
Total divisional equity	—	2,430
Total liabilities, stockholder's deficit and divisional equity	$ 1,694	$ 7,476

See accompanying notes to financial statements.

RXi PHARMACEUTICALS CORPORATION (REGISTRANT) AND PREDECESSOR (RNAi)
(A Development Stage Company)
STATEMENTS OF EXPENSES
(Amounts in thousands, except share and per share data)

	Predecessor (RNAi) and RXi (Registrant)(1)	Predecessor (RNAi)	Predecessor (RNAi) and RXi (Registrant)(1)
	Years Ended December 31,		Period from January 1, 2003 (Date of Inception) to December 31,
	2011	2010	2011
Expenses:			
Research and development expense	$ 6,190	$ 6,046	$ 32,873
Research and development employee stock-based compensation expense	513	1,084	2,920
Research and development non-employee stock-based compensation expense	(79)	743	5,984
Fair value of Parent Company common stock issued in exchange for licensing rights	—	—	3,954
Total research and development expense	6,624	7,873	45,731
General and administrative expense	4,357	5,493	25,467
Fair value of Parent Company common stock and common stock warrants issued for general and administrative expenses	114	718	2,689
General and administrative employee stock-based compensation expense	1,675	2,541	9,060
Total general and administrative expense	6,146	8,752	37,216
Loss from operations	(12,770)	(16,625)	(82,947)
Interest income	—	5	628
Other income, net	2,551	4,627	6,316
Loss before provision for income taxes	(10,219)	(11,993)	(76,003)
Provision for income taxes	—	—	—
Net loss	$ (10,219)	$ (11,993)	$ (76,003)
Basic and diluted loss per share	$ (0.28)	$ (0.67)	
Weighted average common shares outstanding: basic and diluted	36,334,413	17,833,381	

(1) The statement of expenses for the year ended December 31, 2011 and for the period from January 1, 2003 (date of inception) to December 31, 2011 includes the results of operations of the carved-out Predecessor (RNAi) entity from the beginning of the periods presented to September 23, 2011 combined with the results of operations of RXi (Registrant) for the period September 24, 2011 to December 31, 2011.

See accompanying notes to financial statements.

RXi PHARMACEUTICALS CORPORATION (REGISTRANT) AND PREDECESSOR (RNAi)
(A Development Stage Company)
STATEMENTS OF STOCKHOLDER'S DEFICIT FOR THE PERIOD FROM SEPTEMBER 24, 2011 TO DECEMBER 31, 2011, DIVISIONAL EQUITY FOR THE PERIOD FROM APRIL 3, 2006 TO SEPTEMBER 23, 2011 AND PARENT COMPANY'S NET DEFICIT FOR THE PERIOD FROM JANUARY 1, 2003 (DATE OF INCEPTION) TO DECEMBER 31, 2006
(Amounts in thousands, except share data)

	RXi (Registrant)				Predecessor (RNAi)	Predecessor (CytRx)	
	Common Stock		Additional Paid-in	Deficit Accumulated Since			
	Shares Issued	Amount	Capital	Incorporation	Divisional Equity	Parent Company's Net Deficit	Total
Inception, January 1, 2003					$ —	$ —	$ —
Net loss					—	(89)	(89)
Balance at December 31, 2003					—	(89)	(89)
Net loss					—	(3,272)	(3,272)
Net transactions with Parent Company					—	2,393	2,393
Balance at December 31, 2004					—	(968)	(968)
Net loss					—	(2,209)	(2,209)
Net transactions with Parent Company					—	2,727	2,727
Balance at December 31, 2005					—	(450)	(450)
Net loss					—	(2,405)	(2,405)
Net transactions with Parent Company					—	2,587	2,587
Balance at December 31, 2006					$ —	$ (268)	$ (268)
Balance at April 3, 2006					$ —	$ —	$ —
Cash contributions from Parent Company					2	—	2
Balance at December 31, 2006					2	—	2
Non-cash equity adjustments from Parent Company					4,318	—	4,318
Cash contributions from Parent Company					15,679	—	15,679
Stock-based compensation expense					1,814	—	1,814
Net loss					(10,990)	—	(10,990)
Balance at December 31, 2007					10,823	—	10,823
Non-cash equity adjustments from Parent Company					750	—	750
Cash contributions from Parent Company					7,944	—	7,944
Stock based compensation					3,824	—	3,824
Net loss					(14,373)	—	(14,373)
Balance at December 31, 2008					8,968	—	8,968
Non-cash equity adjustments from Parent Company, net					(1,756)	—	(1,756)
Cash contributions from Parent Company					7,714	—	7,714
Stock based compensation expense					4,202	—	4,202
Net loss					(18,387)	—	(18,387)
Balance at December 31, 2009					741	—	741
Non-cash equity adjustments from Parent Company, net					(2,326)	—	(2,326)
Cash contributions from Parent Company, net					11,640	—	11,640
Stock-based compensation expense					4,368	—	4,368
Net loss					(11,993)	—	(11,993)
Balance at December 31, 2010					2,430	—	2,430
Non-cash equity adjustments from Parent Company, net					(8,083)	—	(8,083)
Cash contributions to Parent Company, net					369	—	369
Stock-based compensation expense					1,987	—	1,987
Reclassification of derivative liability upon elimination of obligation					9,249	—	9,249
Net loss - Predecessor (RNAi)					(7,682)	—	(7,682)
Recapitalization of divisional deficit	100,439,841	$ 10		$ (1,740)	1,730	—	—
Stock-based compensation			122		—	—	122
Cash contribution from Parent Company			1,500		—	—	1,500
Expenses paid by Parent Company for RXi			2,058		—	—	2,058
Net loss - RXi (Registrant)				(2,537)	—	—	(2,537)
Balance at December 31, 2011	100,439,841	$ 10	$ 3,680	$ (4,277)	$ —	$ —	$ (587)

See accompanying notes to financial statements.

RXi PHARMACEUTICALS CORPORATION (REGISTRANT) AND PREDECESSOR (RNAi)
(A Development Stage Company)

STATEMENTS OF CASH FLOWS
(Amounts in thousands)

	Predecessor (RNAi) and RXi (Registrant)(1)	Predecessor (RNAi)	Predecessor (RNAi) and RXi (Registrant)(1)
	Years Ended December 31,		Period from January 1, 2003 (Date of Inception) through December 31,
	2011	2010	2011
Cash flows from operating activities :			
Net loss	$ (10,219)	$(11,993)	$ (76,003)
Adjustment to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization expense	163	172	664
Loss on disposal of equipment	40	—	52
Non-cash rent expense	—	—	29
Accretion and receipt of bond discount	—	—	35
Non-cash stock-based compensation	2,109	4,368	17,966
Loss on exchange of derivatives	900	—	900
Fair value of Parent Company's shares mandatorily redeemable for cash upon exercise of warrants	—	(785)	(785)
Fair value of Parent Company derivatives issued in exchange for services	91	718	2,385
Fair value of Parent Company's common stock issued in exchange for services	23	—	304
Change in fair value of derivatives of Parent Company issued in connection with various equity financings	(3,413)	(3,049)	(5,604)
Fair value of Parent Company's common stock issued in exchange for licensing rights	—	—	3,954
Changes in operating assets and liabilities:			
Prepaid expenses and other assets	(20)	(30)	(170)
Accounts payable	(337)	99	387
Due to former Parent Company	—	—	(207)
Accrued expenses and other current liabilities	(142)	243	1,178
Deferred revenue	816	—	816
Net cash used in operating activities	(9,989)	(10,257)	(54,099)
Cash flows from investing activities:			
Purchase of short-term investments	—	(5,990)	(37,532)
Maturities of short-term investments	—	5,990	37,497
Cash paid for purchase of equipment and furnishings	(59)	(106)	(745)
Disposal of equipment and furnishings	—	—	(1)
Cash refunded (paid) for lease deposit	—	—	(45)
Net cash used in investing activities	(59)	(106)	(826)
Cash flows from financing activities:			
Cash contributions from Parent Company, net	3,330	11,640	55,224
Proceeds from convertible note	500		500
Repayments of capital lease obligations	(117)	(70)	(243)
Net cash provided by financing activities	3,713	11,570	55,481
Net (decrease) increase in cash and cash equivalents	(6,335)	1,207	556
Cash and cash equivalents at the beginning of period	6,891	5,684	—
Cash and cash equivalents at end of period	$ 556	$ 6,891	$ 556
Supplemental disclosure of cash flow information:			
Cash received during the period for interest	$ —	$ —	$ 724
Cash paid during the period for interest	$ 1	$ —	$ 8

(1) The statements of cash flow for the year ended December 31, 2011 and for the period from January 1, 2003 (date of inception) to December 31, 2011 include the cash flows of the carved-out Predecessor (RNAi) entity from the beginning of the periods presented to September 23, 2011 combined with the cash flows of RXi (Registrant) for the period September 24, 2011 to December 31, 2011.

See accompanying notes to financial statements.

	Predecessor (RNAi) and RXi (Registrant)(1)	Predecessor (RNAi)	Predecessor (RNAi) and RXi (Registrant)(1)
	Years Ended December 31,		Period from January 1, 2003 (Date of Inception) through December 31,
	2011	2010	2011
	(Amounts in thousands)		
Supplemental disclosure of non-cash investing and financing activities:			
Settlement of corporate formation expenses in exchange for Parent Company common stock	$ —	$ —	$ 978
Fair value of derivatives issued in connection with Parent Company common stock	$ 8,722	$ 2,466	$ 14,051
Fair value of Parent Company shares mandatorily redeemable for cash upon exercise of warrants	$ —	$ 785	$ 785
Allocation of management expenses	$ —	$ —	$ 551
Equipment and furnishings exchanged for Parent Company common stock	$ —	$ —	$ 48
Equipment and furnishings acquired through capital lease	$ 80	$ 53	$ 277
Non-cash lease deposit	$ —	$ —	$ 50
Value of Parent Company restricted stock units and common stock issued in lieu of bonuses included in accrued expenses	$ 427	$	$ 474
Value of Parent Company restricted stock units issued in lieu of cash bonuses	$ —	$ 207	$ 207
Reclassification of derivative liability upon elimination of obligation	$ 9,249	$ —	$ 9,249

(1) The statements of cash flows for the years ended December 31, 2011 and for the period from January 1, 2003 (date of inception) to December 31, 2011 include the cash flows of the carved-out Predecessor (RNAi) entity from the beginning of the periods presented to September 23, 2011 combined with cash the flows of RXi (Registrant) for the period September 24, 2011 to December 31, 2011.

See accompanying notes to financial statements.

RXi PHARMACEUTICALS CORPORATION (REGISTRANT) AND PREDECESSOR (RNAi)
(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

1. Nature of Business

Prior to April 13, 2011, Galena Biopharma, Inc. ("Galena" or the "Parent Company") (formerly known as RXi Pharmaceuticals Corporation) engaged primarily in conducting discovery research and preclinical development activities based on RNAi, and Galena's financial statements for periods through April 13, 2011 primarily reflected assets, liabilities and results of operations attributable to Galena's RNAi-based assets, liabilities and results of operations. On April 13, 2011, Galena broadened its strategic direction by adding the development and commercialization of cancer therapies that utilize peptide-based immunotherapy products, including a main product candidate, NeuVax, for the treatment of various cancers. On September 24, 2011, Galena contributed to RXi Pharmaceuticals Corporation ("RXi," "Registrant," or the "Company"), a newly formed subsidiary of Galena, substantially all of Galena's RNAi-related technologies and assets. The newly formed RXi was incorporated on September 8, 2011 with the issuance of 100 initial shares at a price of $0.01 per share for total consideration of $1.00.

Accordingly, the historical financial information for the fiscal years ended December 31, 2011 and 2010, as well as the cumulative period from inception (January 1, 2003) through December 31, 2011, has been "carved out" of the financial statements of Galena, as our "Predecessor," for such periods, and includes activities through September 23, 2011. Such financial information is limited to Galena's RNAi-related activities, assets and liabilities only, and excludes activities, assets and liabilities that are attributable to Galena's cancer therapy activities. The financial information for the periods ended December 31, 2011 also includes the results of RXi for the period from September 24, 2011 to December 31, 2011. RXi was formed on September 8, 2011 and was not engaged in any activities other than its initial incorporation from September 8, 2011 to September 23, 2011.

The carved-out financial information includes both direct and indirect expenses. The historical direct expenses consist primarily of the various costs for technology license agreements, sponsored research agreements and fees paid to scientific advisors, and employees directly involved in RNAi-related activities. Indirect expenses represent expenses incurred by Galena on behalf of the RNAi business that have been allocated to the RNAi business. The indirect expenses are based upon (1) estimates of the percentage of time spent by individual Galena employees working on RNAi business matters and (2) allocations of various expenses associated with each employee including salary, benefits, rent associated with an employee's office space, accounting and other general and administrative expenses. The percentage of time spent by individual Galena employees was then multiplied by the allocation of various expenses associated with those employees to develop an allocation of expense per employee and the sum of such allocations for these employees equals the total expense allocable to the RNAi business and reflected in the carved-out financial statements.

Management believes the assumptions underlying the allocations of indirect expenses in the carve-out financial information are reasonable; however, the financial position, results of operations, and cash flows may have been materially different if the RNAi business had operated as a stand-alone entity for the year ended December 31, 2011.

The financial statements reflect the recapitalization of our Predecessor's divisional deficit as of September 24, 2011, the date Galena contributed assets to RXi. The recapitalization on September 24, 2011 reflects the elimination of the Predecessor's divisional deficit of $1,730,000 and the issuance of 100,439,841 shares of RXi common stock, par value $0.0001, with a corresponding charge of $1,740,000 to deficit accumulated since incorporation and increase in par value of $10,000. No amounts were reflected in additional paid-in capital due to the divisional deficit at the date of the recapitalization.

RXi was formed on September 8, 2011 and was not engaged in any activities other than its initial incorporation from September 8, 2011 to September 23, 2011. The RNAi business operated as a division of Galena prior to September 24, 2011. The balance of $4,277,000 in deficit accumulated since incorporation at December 31, 2011 includes RXi's net loss of $2,537,000 for the period September 24, 2011 to December 31, 2011 and the Predecessor's cumulative net loss of $73,466,000 through September 23, 2011 offset by cash and non-cash equity transactions of $71,726,000.

To date, RXi's principal activities including that of its Predecessor have consisted of conducting discovery research and preclinical development activities utilizing the RNAi therapeutic platform, acquiring RNAi technologies and patent rights through exclusive, co-exclusive and non-exclusive licenses, recruiting an RNAi-focused management and scientific/clinical advisory team, capital raising activities and conducting business development activities aimed at establishing research and development partnerships with pharmaceutical and larger biotechnology companies.

The Company and its Predecessor have not generated any revenues since inception nor are any revenues expected for the foreseeable future and as such the Company is considered a development stage company for accounting purposes. The Company expects to incur significant operating losses for the foreseeable future while the Company advances its future product candidates from discovery through preclinical studies and clinical trials and seeks regulatory approval and potential commercialization, even if the Company is collaborating with pharmaceutical and larger biotechnology companies. The Company will need to generate significant revenues to achieve profitability and may never do so.

On September 24, 2011, RXi entered into a contribution agreement with Galena pursuant to which:

- Galena assigned and contributed to us substantially all of its RNAi-related technologies and assets, which consist primarily of novel RNAi compounds and licenses from Dharmacon, Inc., Northwestern University, the Carnegie Institute of Washington, and the University of Massachusetts Medical School relating to its RNAi technologies, as well as the lease of its Worcester, Massachusetts laboratory facility, fixed assets and other equipment located at the facility and its employment arrangements with certain scientific, corporate and administrative personnel who have become our employees, as well as research grants from the National Institute of Neurological Disorders and Stroke, National Institute of Allergy and Infectious Diseases, and the National Institute of General Medical Sciences of approximately $800,000 that are subject to the approval of the granting institutions which was received in 2012; and
- RXi agreed to assume certain recent accrued expenses of the RXI-109 development program and all future obligations under the contributed licenses, employment arrangements and other agreements, and RXi agreed to make future milestone payments to Galena of up to $45 million, consisting of two one-time payments of $15 million and $30 million, respectively, if RXi achieves annual net sales equal to or greater than $500 million and $1 billion, respectively, of any covered products that may be developed with the contributed RNAi technologies.

On September 24, 2011, RXi entered into a securities purchase agreement with Galena, Tang Capital Partners, LP ("TCP") and RTW Investments, LLC ("RTW") pursuant to which:

- TCP and RTW agreed to purchase a total of 9,500 shares of RXi's Series A Convertible Preferred Stock (the "Series A Preferred Stock"), for an aggregate purchase price of $9,500,000, at the closing of the spin-off transaction (see below) and to lend RXi up to $1,500,000 to fund RXi's operations prior to the closing, with the outstanding principal and accrued interest on the loan to be converted into Series A Preferred Stock at the closing, at a conversion price of $1,000 per share, and such conversion will be applied to the $9,500,000 total investment by TCP and RTW;
- RXi agreed that the Series A Preferred Stock will be convertible by TCP or RTW at any time into shares of RXi common stock, except to the extent that the holder would own more than 9.999% of the shares of RXi common stock outstanding immediately after giving effect to such conversion. Without regard to this conversion limitation, the shares of the Series A Preferred Stock to be held by TCP and RTW would be convertible into shares of RXi common stock representing approximately 83% of the fully-diluted shares of RXi common stock upon the completion of the spin-off transaction;
- Galena contributed $1.5 million of cash to RXi;

- Galena agreed to distribute to its stockholders 8% of the fully-diluted shares of common stock of RXi that will be outstanding immediately upon the completion of the spin-off transaction; and
- RXi agreed to reimburse, upon completion of the spin-off transaction, Galena for up to a total of $300,000, and TCP and RTW for a total of up to $100,000, of transaction costs relating to the contribution agreement with Galena, the securities purchase agreement summarized above and the transactions contemplated by those agreements.

As of April 27, 2012, the date of completion of RXi's spin-off from Galena, TCP and RTW had advanced $1,000,000 to RXi under the bridge loan arrangement. As of December 31, 2011, the Company had received $500,000 of the bridge loan from TCP and RTW. This amount is classified as long-term on the balance sheet as of December 31, 2011, as the amount was subsequently converted into preferred stock. On April 27, 2012, the Company issued 9,500 of Series A Preferred Stock to TCP and RTW upon the conversion of the $1,026,736 principal and accrued interest under the bridge notes and the receipt of the remaining $8,473,624 from TCP and RTW, as provided for in the securities purchase agreement. At the closing of the spin-off transaction, RXi reimbursed Galena and TCP $300,000 and $100,000, respectively, for transaction related expenses. The Company believes that the cash received from the securities purchase agreement should be sufficient to fund RXi's operations into the second quarter of 2013. In the future, RXi will be dependent on obtaining funding from third parties, such as proceeds from the sale of equity, funded research and development programs and payments under partnership and collaborative agreements, in order to maintain RXi's operations and meet RXi's obligations to licensors. There is no guarantee that debt, additional 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, RXi would be forced to scale back, or terminate the Company operations or to seek to merge with or to be acquired by another company.

As part of the transactions contemplated by the contribution and securities purchase agreements, on September 24, 2011, RXi entered into an agreement with Advirna, LLC ("**Advirna**"), a company affiliated with the Company's former Senior Vice President and Chief Scientific Officer, pursuant to which:

- Advirna assigned to RXi its existing patent and technology rights related to sd-rxRNA technology in exchange for RXi's agreement to pay Advirna an annual $100,000 maintenance fee and a one-time $350,000 milestone payment upon the future issuance of the first patent with valid claims covering the assigned patent and technology rights;
- RXi will also be required to pay a 1% royalty to Advirna for any licensing revenue received by RXi with respect to future licensing of the assigned Advirna patent and technology rights;
- RXi has granted back to Advirna a license under the assigned patent and technology for fields of use outside the fields of human therapeutics and diagnostics; and
- RXi issued to Advirna, upon the completion of the spin-off transaction, shares of RXi's common stock equal to approximately 5% of the fully diluted shares of RXi common stock assuming the conversion in full of all outstanding Series A Preferred Stock.

On September 24, 2011, RXi entered into employment agreements with Anastasia Khvorova, Ph.D., and Pamela Pavco, Ph.D., pursuant to which:

- Dr. Khvorova served until April 27, 2012, as RXi's Senior Vice President and Chief Scientific Officer; and
- Dr. Pavco serves as RXi's Senior Vice President of Pharmaceutical Development and is entitled to a grant of stock options to purchase 2% of RXi's fully-diluted shares of common stock immediately after the spin-off transaction, at an exercise price per share to be determined based on the fair value of RXi common stock at the date of grant.

2. Summary of Significant Accounting Policies

Basis of Presentation — For the period from January 1, 2003 (date of inception) to December 31, 2006, the Predecessor financial information consists of various transactions of CytRx Corporation ("CytRx") which were identified as direct expenses related to RNAi therapeutics and disaggregated ("carved out") from CytRx's financial statements. In addition, various indirect costs related to RNAi therapeutics (mainly senior management and accounting) were estimated and included as part of the Predecessor carved-out financial information. For the period from April 3, 2006 (date of incorporation of Galena) through December 31, 2007, Galena was operating as a subsidiary of CytRx. CytRx is the former parent of Galena. Galena was formed by CytRx and four prominent RNAi researchers to pursue the development of proprietary therapeutics based on RNAi for the treatment of human diseases. The financial information for the period from April 3, 2006 (date of incorporation of Galena) to December 31, 2011 was compiled from Galena's books and records through September 23, 2011, and includes an allocation in 2007 of indirect costs from CytRx for overhead and general administrative costs provided through December 31, 2007 (that have been allocated based upon estimates developed by CytRx's management and include corporate salaries, benefits, accounting, rent and other general and administrative expenses). There are no Predecessor financial statements for the period from April 3, 2006 (date of incorporation of Galena) to December 31, 2006 as there was no activity. In addition, the financial information for the periods ended December 31, 2011 also includes the results of RXi, the registrant, for the period from September 24, 2011 to December 31, 2011. RXi was formed on September 8, 2011 and was not engaged in any activities other than its initial incorporation from September 8, 2011 to September 23, 2011. RXi's net loss for the period September 24, 2011 to December 31, 2011, included in the financial information for the periods ended December 31, 2011, was $2,537,000.

In January 2012, the Company amended its by-laws to increase its authorized common shares from 1,000 shares to 1,500,000,000 shares and to provide for the authorization of 10,000,000 shares of preferred stock. On April 26, 2012, the Board of Directors declared a 1,004,397.41 for 1 split in the form of a stock dividend of the Company's common stock resulting in the distribution on April 26, 2012 of 100,439,841 additional shares to Galena, the Company's sole stockholder on the record date for the distribution. Contemporaneously, Galena distributed 66,959,894 shares of RXi common stock to its shareholders. Amounts per share and the number of common and preferred shares in the accompanying financial statements have been adjusted to give retroactive effect to the stock split and amount of authorized shares for all periods presented.

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 expenses during the reporting period. Actual results could differ materially from those estimates.

Cash and Cash Equivalents — The Company considers all highly-liquid debt instruments with an original maturity of 90 days or less to be cash equivalents. Cash equivalents consist primarily of amounts invested in money market accounts.

Fair Value of Financial Instruments — The carrying amounts reported in the balance sheet for cash equivalents, accounts payable, capital leases and convertible notes payable approximate their fair values due to their short-term nature and market rates of interest.

Equipment and Furnishings — Equipment and furnishings are stated at cost and depreciated using the straight-line method based on the estimated useful lives (generally three to five years for equipment and furniture) of the related assets.

Depreciation and amortization expense for the years ended December 31, 2011 and 2010 was approximately $163,000 and $172,000, respectively.

Impairment of Long-Lived Assets — The Company reviews long-lived assets, including finite lived intangible assets, for impairment on an annual basis, as of December 31, or on an interim basis if an event occurs that might reduce the fair value of such assets below their carrying values. An impairment loss would be recognized based on the difference between the carrying value of the asset and its estimated fair value, which would be determined based on either discounted future cash flows or other appropriate fair value methods. The Company believes no impairment existed as of December 31, 2011 and 2010.

Patents and Patent Application Costs — Although the Company believes that its patents and underlying technology have continuing value, the amount of future benefits to be derived from the patents is uncertain. Patent costs are, therefore, expensed as incurred.

Stock-based Compensation — Stock-based compensation was allocated to the RXi Pharmaceuticals Corporation and Predecessor carved-out financial statements in a similar manner as other indirect expenses.

RXi and Galena follow the provisions of the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") Topic 718, "*Compensation — Stock Compensation*" ("ASC 718"), which requires the measurement and recognition of compensation expense for all stock based payment awards made to employees and non-employee directors, including employee stock options. Stock compensation expense based on the grant date fair value estimated in accordance with the provisions of ASC 718 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 FASB ASC Topic 505-50 ("ASC 505-50"), "*Equity Based Payments to Non-Employees*". 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.

Derivative Financial Instruments — During the normal course of business, from time to time, Galena issues warrants and options to vendors as consideration to perform services. It may also issue warrants as part of a debt or equity financing. The Company does not enter into any derivative contracts for speculative purposes.

The Company recognizes all derivatives as assets or liabilities measured at fair value with changes in fair value of derivatives reflected as current period income or loss unless the derivatives qualify for hedge accounting and are accounted for as such. In accordance with FASB ASC Topic 815-40, "*Derivatives and Hedging — Contracts in Entity's Own Stock,*" the value of these derivatives is required to be recorded as a liability, as the holders have an option to put the derivatives back to the Company for cash upon the occurrence of certain events set forth in the agreement.

Obligations to Repurchase Shares of Galena's Equity Securities — In accordance with FASB ASC Topic 480-10, *"Distinguishing Liabilities from Equity,"* the Company recognizes all obligations to repurchase shares of Galena's equity securities allocated to the Company that require or may require settlement of the obligation by transferring assets, as liabilities or assets in some circumstances measured at fair value with changes in fair value reflected as current period income or loss and are accounted for as such.

Deferred Revenue — Deferred revenue consists of advance payments received under government grants. The Company will recognize revenue when the obligations under the grants are fulfilled.

Research and Development Expenses — Research and development costs are expensed as incurred. Included in research and development costs are wages, benefits, facilities, supplies, external services, and other operating costs and overhead directly related to the Company's research and development departments, as well as costs to acquire technology licenses.

Income Taxes — The Company recognizes liabilities or assets for the deferred tax consequences of temporary differences between the tax basis of assets or liabilities and their reported amounts in the financial statements in accordance with FASB ASC 740-10, *"Accounting for Income Taxes" ("ASC 740-10").* These temporary differences will result in taxable or deductible amounts in future years when the reported amounts of the assets or liabilities are recovered or settled. *ASC 740-10* requires that a valuation allowance be established when management determines

that it is more likely than not that all or a portion of a deferred asset will not be realized. RXi evaluates the realizability of its net deferred income tax assets and valuation allowances as necessary, at least on an annual basis. During this evaluation, the Company reviews its forecasts of income in conjunction with other positive and negative evidence surrounding the realizability of its deferred income tax assets to determine if a valuation allowance is required. Adjustments to the valuation allowance will increase or decrease the Company's income tax provision or benefit. The recognition and measurement of benefits related to the Company's tax positions requires significant judgment, as uncertainties often exist with respect to new laws, new interpretations of existing laws, and rulings by taxing authorities. Differences between actual results and RXi's assumptions or changes in the Company's assumptions in future periods are recorded in the period they become known.

RXi calculated its income taxes under the separate return method and accounted for deferred tax assets and liabilities under the asset and liability method described above.

Concentrations of Credit Risk — Financial instruments that potentially subject the Company to significant concentrations of credit risk consist principally of cash and cash equivalents. The Company maintains cash balances in several accounts with one bank, which at times are in excess of federally insured limits. The Company's investment policy requires investment in any debt securities be at least "investment grade" by national ratings services. All of the non-interest bearing cash balances were fully insured at December 31, 2011 due to temporary federal program in effect from December 31, 2010 through December 31 2012. Under the program, there is no limit to the amount of insurance for eligible accounts. Beginning 2013, insurance coverage will revert to $250,000 per depositor at each financial institution, and the non-interest bearing cash balances may again exceed federally insured limits.

Comprehensive Loss — The Company's comprehensive loss is equal to its net loss for all periods presented.

Parent Company's Net Deficit — The Parent Company's Net Deficit of the Predecessor consists of CytRx's initial investment in Galena and subsequent changes in Galena's net investment resulting from Galena being an integrated part of CytRx. All disbursements for the Predecessor were made by CytRx.

Non-cash equity adjustments from Parent Company — Non-cash equity adjustments from Parent Company consist of credits for employee and non-employee stock-based awards of Galena stock options, common stock and warrants issued to individuals engaged in RNAi activities, net of charges for the fair value of Galena warrants that were allocated to the RNAi business and accounted for as a cost of equity at the time of issuance.

Net loss per share — The Company accounts for and discloses net loss per common share in accordance with FASB ASC Topic 260 "*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.

To determine the shares outstanding for the Company for the periods prior to the distribution of the RXi common shares to the Galena stockholders, Galena's weighted average number of shares is multiplied by the distribution ratio of one share of RXi common stock for every one share of Galena common stock. Basic loss per share is computed by dividing the Company's losses by the weighted average number of shares outstanding during the period. When the effects are not anti-dilutive, diluted earnings per share is computed by dividing the Company's net earnings by the weighted average number of shares outstanding and the impact of all dilutive potential common shares. There were no potential dilutive common shares for all periods presented.

3. Recent Accounting Pronouncements

Recently Issued Accounting Pronouncements

In May 2011, the FASB issued ASU 2011-04, Fair Value Measurement (Topic 820): *Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and IFRSs*, a new accounting standard that clarifies the application of certain existing fair value measurement guidance and expands

the disclosures for fair value measurements that are estimated using significant unobservable (Level 3) inputs. This new standard is effective on a prospective basis for annual and interim reporting periods beginning on or after December 15, 2011. The Company does not expect that the adoption of this new standard will have a material impact on its financial statements.

In June 2011, the FASB issued ASU 2011-05, Comprehensive Income (Topic 220): *Presentation of Comprehensive Income*, a new accounting standard that eliminates the option to present the components of other comprehensive income as part of the statement of changes in stockholders' equity, requires the consecutive presentation of the statement of net income and other comprehensive income and requires an entity to present reclassification adjustments on the face of the financial statements from other comprehensive income to net income. The amendments in this new standard do not change the items that must be reported in other comprehensive income or when an item of other comprehensive income must be reclassified to net income nor do the amendments affect how earnings per share is calculated or presented. This new standard is required to be applied retrospectively and is effective for fiscal years and interim periods within those years beginning after December 15, 2011. As this new standard only requires enhanced disclosure, the adoption of this standard will not impact the Company's financial statements.

4. Fair Value Measurements

In January 2010, the FASB issued ASU 2010-06, "*Improving Disclosures about Fair Value Measurements*" ("ASU 2010-06"). The standard amends FASB ASC Topic 820, "*Fair Value Measurements and Disclosures*" ("ASC 820"), to require additional disclosures related to transfers in and out of Levels 1 and 2 and for activity in Level 3 and clarifies other existing disclosure requirements. The Company adopted ASU 2010-06 beginning January 1, 2010. This update had no impact on the Company's financial statements.

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. Level inputs are as defined as follows:

Level 1 — quoted prices in active markets for identical assets or liabilities;

Level 2 — other significant observable inputs for the assets or liabilities through corroboration with market data at the measurement date;

Level 3 — significant unobservable inputs that reflect management's best estimate of what market participants would use to price the assets or liabilities at the measurement date.

The Company categorized its cash equivalents as 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. The Company categorized its derivatives potentially settleable in cash, which were issued by Galena and allocated to the Company, as a Level 2 hierarchy. The derivatives are measured at market value of Galena's stock on a recurring basis using the fixed monetary amount of each derivative that would be received by Galena under the conditions specified in the stock redemption agreement and are being marked to market each quarter-end until they are completely settled. The derivatives are valued using the Black-Scholes method, using assumptions consistent with our application of ASC 718.

Description	December 31, 2011	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 53	$ 53	$ —	$ —
Total assets	$ 53	$ 53	$ —	$ —

Description	December 31, 2010	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
Assets:				
Cash equivalents	$ 6,891	$6,891	$ —	$ —
Total assets	$ 6,891	$6,891	$ —	$ —
Allocated derivative liabilities to Company for:				
Parent Company derivatives potentially settleable in cash	$ 3,138	$ —	$ 3,138	$ —
Total liabilities	$ 3,138	$ —	$ 3,138	$ —

5. Capital Lease Obligations

The Company acquires equipment under capital leases, which is included in equipment and furnishings in the balance sheet. The cost and accumulated amortization of capitalized leased equipment was approximately $236,000 and $93,000 at December 31, 2011, respectively, and $196,000 and $56,000 at December 31, 2010, respectively. Amortization expense for capitalized leased equipment was approximately $53,000 and $39,000 for the years ended December 31, 2011 and 2010, respectively. During the years ended December 31, 2011 and 2010, the interest expense on these capital leases was negligible. Future minimum lease payments under the capital leases are $29,000 and $5,000 for the years ending December 31, 2012 and 2013, respectively.

6. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consist of the following (in thousands):

	December 31, 2011	2010
Professional fees	$142	$ 313
Research and development costs	93	60
Payroll related costs	309	740
Total accrued expenses and other current liabilities	$544	$1,113

7. Commitments and Contingencies

The Company acquires assets still in development and enters into research and development arrangements with third parties that often require milestone and royalty payments based on the progress of the asset through development stages. Milestone payments may be required, for example, upon approval of the product for marketing by a regulatory agency. In certain agreements, the Company is required to make royalty payments based upon a percentage of the sales. Because of the contingent nature of these payments, they are not included in the table of contractual obligations shown below (see also Note 11).

These arrangements may be material individually, and in the unlikely event that milestones for multiple products covered by these arrangements were reached in the same period, the aggregate charge to expense could be material to the results of operations. In addition, these arrangements often give the Company the discretion to unilaterally terminate development of the product, which would allow the Company to avoid making the contingent payments; however, the Company is unlikely to cease development if the compound successfully achieves clinical testing objectives. The Company's contractual obligations that will require future cash payments as of December 31, 2011 are as follows (in thousands):

	Operating Leases(1)	Non-Cancelable Employment Agreements(2)	Subtotal	Cancelable License Agreements(3)	Total
2012	$ 98	$ 628	$ 726	$ 153	$ 879
2013	—	—	—	153	153
2014	—	—	—	138	138
2015	—	—	—	138	138
2016	—	—	—	138	138
2017 and Thereafter	—	—	—	1,273	1,273
Total	$ 98	$ 628	$ 726	$ 1,993	$2,719

(1) Operating leases are primarily facility and equipment related obligations with third party vendors. Operating lease expenses during the years ended December 31, 2011 and 2010 were approximately $220,000 and $274,000, respectively.

(2) Employment agreement obligations include management contracts, as well as scientific advisory board member compensation agreements. Certain agreements, which have been revised from time to time, provide for minimum salary levels, adjusted annually at the discretion of the Board of Directors, as well as for minimum bonuses that are payable.

(3) License agreements generally relate to the Company's obligations associated with RNAi. The Company continually assesses the progress of its licensed technology and the progress of its research and development efforts as it relates to its licensed technology and may terminate with notice to the licensor at any time. In the event these licenses are terminated, no amounts will be due.

The Company applies the disclosure provisions FASB ASC Topic 460 ("ASC 460"), "*Guarantor's Accounting and Disclosure Requirements for Guarantees, Including Indirect Guarantees of Indebtedness of Others*", to its agreements that contain guarantee or indemnification clauses. The Company provides (i) indemnifications of varying scope and size to certain investors and other parties for certain losses suffered or incurred by the indemnified party in connection with various types of third-party claims and (ii) indemnifications of varying scope and size to officers and directors against third party claims arising from the services they provide to us. These indemnifications give rise only to the disclosure provisions of ASC 460. To date, the Company has not incurred costs as a result of these obligations and does not expect to incur material costs in the future. Accordingly, the Company has not accrued any liabilities in its financial statements related to these indemnifications.

8. Stockholder's Equity

2009 Registered Direct Offering — On March 17, 2009, Galena entered into a placement agency agreement, which was subsequently amended on May 26, 2009 and July 22, 2009, with Rodman & Renshaw, LLC ("Rodman") as the exclusive placement agent, relating to a proposed offering by Galena of new securities to potential investors. On July 30, 2009, Galena entered into definitive agreements for the sale and issuance by Galena to certain investors of 2,385,715 units, with each unit consisting of one share of Galena's common stock and a warrant to purchase 0.40 of a share of common stock, at a purchase price of $3.50 per unit (the "2009 Offering"). The 2009 Offering closed on August 4, 2009. The warrants have an exercise price of $4.50 per share and are exercisable for a period beginning on February 3, 2010 until their expiration on August 3, 2014. Galena raised gross proceeds of approximately $8,350,000 in the 2009 Offering and net cash proceeds, after deducting the placement agents' fees and other offering expenses payable by Galena, of approximately $7.7 million. In connection with the transaction, Galena issued a warrant to purchase a total of 954,285 shares of common stock.

As part of the placement agency agreement, Galena issued a warrant to purchase 23,857 shares of Galena's common stock to Rodman. The warrant has an exercise price of $4.38 per share. The warrant is immediately vested and is exercisable until its expiration on August 3, 2014.

The Company follows the guidance of ASC Topic 815-40, as certain warrants issued in connection with the stock offering on August 4, 2009 were determined not to be indexed to Galena's common stock as they are potentially settleable in cash. The fair value of the warrants at the dates of issuance totaling $2,863,000 was recorded as a derivative liability and was determined by the Black-Scholes option pricing model. Due to the fact that Galena has limited trading history, Galena's expected stock volatility assumption is based on a combination of implied volatilities of similar entities whose share or option prices are publically traded. Galena used a weighted average expected stock volatility of 122.69%. The expected life assumption is based on the contract term of five years. The dividend yield of zero is based on the fact that Galena has no present intention to pay cash dividends in the future. The risk free rate of 1.72% used for the warrant is equal to the zero coupon rate in effect at the time of the grant.

The decrease in the fair value of the warrants from the date of issuance to September 24, 2011 is $2,586,000, of which $1,666,000 has been included in other income (expense) in the accompanying statements of expenses for the year ended December 31, 2011. The fair value of these warrants at September 24, 2011 of $277,000 was reclassified to divisional deficit immediately prior to the recapitalization of the Company, as the Company was effectively released of any liability or obligation to settle the warrants pursuant to the contribution agreement with Galena entered into on this date. The fair value of the warrants was determined by the Black-Scholes option pricing model. Due to the fact that Galena has limited trading history, Galena's expected stock volatility assumption is based on a combination of implied volatilities of similar entities whose shares or options are publicly traded. Galena used a weighted average expected stock volatility of 98.87%. The expected life assumption is based on the remaining contract term of 2.8 years. The dividend yield of zero is based on the fact that Galena has no present intention to pay cash dividends. The risk free rate of 0.37% used for the warrants is equal to the zero coupon rate in effect on the date of the re-measurement. All changes related to the value of these warrants have been allocated entirely to the Company.

2010 Registered Direct Offering — On March 22, 2010, Galena entered into a placement agency agreement relating to a proposed offering by Galena of new securities to potential investors. On March 23, 2010, Galena entered into definitive agreements for the sale and issuance by Galena to certain investors of 2,700,000 units, with each unit consisting of one share of Galena's common stock and a warrant to purchase 0.20 of a share of Galena's common stock, at a purchase price of $6.00 per unit (the "2010 Offering"). The 2010 Offering closed on March 26, 2010. Galena issued warrants to purchase 540,000 shares of Galena's common stock at an exercise price of $6.00 per share, which are exercisable beginning on September 26, 2010, until their expiration on March 26, 2016. Galena raised gross proceeds of approximately $16.2 million in the 2010 Offering and net cash proceeds, after deducting the placement agent fees and other offering expenses payable by Galena, of approximately $15.2 million.

As part of the 2010 Offering, Galena entered in a stock redemption agreement whereby Galena was required to use 25% of the net proceeds from the 2010 Offering to repurchase 675,000 shares of Galena's common stock held by CytRx Shares of common stock that are mandatorily redeemable upon the exercise of warrants issued in the 2010 Offering, under the stock redemption agreement, were determined to embody an obligation that may require Galena

to settle the obligation by transferring assets, and, as such, shall be classified as a liability. The fair value of the common stock potentially redeemable under the stock redemption agreement totaling $785,000 was recorded as a derivative liability was determined using the fixed monetary amount of each warrant multiplied by assumptions regarding the number and timing of warrants to be exercised. On December 29, 2010, CytRx sold all of their shares held in Galena, thus reducing the potential redemption liability to zero as December 31, 2010. The Company recorded a gain of $785,000 as other income as a result of this settlement.

Certain warrants issued in connection with the 2010 Offering were determined not to be indexed to Galena's common stock as they are potentially settleable in cash. The fair value of the warrants at the dates of issuance totaling $2,466,000 was recorded as a derivative liability and a cost of equity and was determined by the Black-Scholes option pricing model. Due to the fact that Galena has limited trading history, Galena's expected stock volatility assumption is based on a combination of implied volatilities of similar entities whose share or option prices are publicly traded. Galena used a weighted average expected stock volatility of 119.49%. The expected life assumption is based on the contract term of 6.5 years. The dividend yield of zero is based on the fact that Galena has no present intention to pay cash dividends. The risk free rate of 3.22% used for the warrant is equal to the zero coupon rate in effect at the time of the grant.

The decrease in the fair value of the warrants from date of issuance to September 24, 2011 is $2,152,000, of which $881,000 has been included in other income (expense) in the accompanying statements of expenses for the year ended December 31, 2011. The fair value of these warrants of $314,000 at September 24, 2011 was reclassified to divisional deficit immediately prior to the recapitalization of the Company, as the Company was effectively released of any liability or obligation to settle the warrants pursuant to the contribution agreement with Galena entered into on this date. The fair value of the warrants was determined by the Black-Scholes option pricing model. Due to the fact that Galena has limited trading history, Galena's expected stock volatility assumption is based on a combination of implied volatilities of similar entities whose shares or options are publicly traded. Galena used a weighted average expected stock volatility of 98.87%. The expected life assumption is based on the remaining contract term of 5.0 years. The dividend yield of zero is based on the fact that Galena has no present intention to pay cash dividends. The risk free rate of 0.89% used for the warrants is equal to the zero coupon rate in effect on the date of the re-measurement. All changes related to the value of these warrants have been allocated entirely to the Company.

2011 Offerings — On March 4, 2011, Galena closed an underwritten public offering of 6,000,000 units at a price to the public of $1.35 per unit for gross proceeds of $8.1 million (the "March 2011 Offering"). The offering provided approximately $7.3 million to Galena after deducting the underwriting discounts and commissions and offering expenses. Each unit consists of (i) one share of common stock, (ii) a thirteen-month warrant to purchase 0.50 of a share of common stock at an exercise price of $1.70 per share (subject to anti-dilution adjustment) and (iii) a five-year warrant to purchase 0.50 of a share of common stock at an exercise price of $1.87 per share (subject to anti-dilution adjustment). On April 15, 2011, the holders of outstanding warrants issued in the March 2011 Offering to purchase an aggregate of 3,450,000 shares of common stock agreed to exchange such warrants for warrants exercisable for the same number of shares as those being exchanged, but otherwise on the same terms of the warrants sold in Galena's April 2011 Offering described below. Prior to the exchange, the Company recorded a decrease in fair value of $1,000,000 related to the exchanged warrants. Upon the exchange, the Company recorded a loss of $900,000, which represented the difference between the adjusted fair value of the March 2011 warrants as compared to the fair value of the April 2011 warrants received in the exchange. As a result of a subsequent offering that was completed on April 15, 2011, the exercise price of the remaining 2,550,000 outstanding warrants sold in the March 2011 Offering was reduced to $1.00 per share as a result of the anti-dilution adjustment.

The thirteen-month and five-year warrants issued in connection with the March 2011 Offering were determined not to be indexed to Galena's common stock as they are potentially settleable in cash. The fair value of the remaining 2,550,000 warrants at the date of issuance totaling $1,790,000 was recorded as a derivative liability and was determined using the Black-Scholes option pricing model. Due to the fact that Galena has limited trading history, Galena's expected stock volatility assumption is based on a combination of implied volatilities of similar entities whose shares or options are publicly traded. Galena used a weighted average expected stock volatility of 113.25%. The expected life assumption is based on the contract term of 1.08 years used for the thirteen-month warrants and 5 years used for the five-year warrants. The dividend yield of zero is based on the fact that we have no present intention to pay cash dividends. The risk free rate of 0.26% used for the thirteen-month warrants and 2.17% used for the five-year warrants is equal to the zero coupon rate in effect at the time of the grant. In July 2011, 75,000 of the thirteen-month warrants were exercised at $1.00 per common share which resulted in a $34,000 reduction of

the derivative liability. In July 2011, 75,000 of the five-year warrants were exercised at $1.00 per common share, which resulted in a $68,000 reduction in the derivative liability. The decrease in the fair value of the warrants from date of issuance to September 24, 2011 of $625,000 has been included in other income (expense) in the accompanying statements of expenses for the year ended December 31, 2011. The fair value of these warrants of $1,165,000 at September 24, 2011 was reclassified to divisional deficit immediately prior to the recapitalization of the Company, as the Company was effectively released of any liability or obligation to settle the warrants pursuant to the contribution agreement with Galena entered into on this date. The fair value of the warrants was determined using the Black-Scholes option pricing model. Due to the fact that Galena has limited trading history, Galena's expected stock volatility assumption is based on a combination of implied volatilities of similar entities whose shares or options are publicly traded. Galena used a weighted average expected stock volatility of 98.87%. The expected life assumption is based on the remaining contract term of 0.5 years used for the thirteen-month warrants and 4.4 years used for the five-year warrants. The dividend yield of zero is based on the fact that Galena has no present intention to pay cash dividends. The risk free rate of 0.02% used for the thirteen-month warrants and 0.63% used for the five-year warrants is equal to the zero coupon rate in effect on the date of the re-measurement. All changes related to the value of these warrants have been allocated entirely to the Company.

On April 20, 2011, Galena completed an underwritten public offering of 11,950,000 units at a price to the public of $1.00 per unit, for gross proceeds of approximately $12 million (the "April 2011 Offering"). Each unit consisted of one share of common stock and a warrant to purchase one share of common stock at an exercise price of $1.00 per share. The shares of common stock and warrants were immediately separable and no separate units were issued. The warrants are exercisable beginning one year and one day from the date of issuance, but only if Galena's stockholders approve an increase in the number of authorized shares of common stock of Galena, and expire on the sixth anniversary of the date of issuance. Net proceeds, after underwriting discounts and commissions and other offering expenses, were approximately $10.9 million. In connection with the April Offering, Galena agreed to hold a stockholders meeting no later than July 31, 2011, in order to seek stockholder approval for an amendment to Galena's Amended and Restated Certificate of Incorporation to increase the authorized number of shares of its common stock. The Board of Directors of Galena subsequently adopted an amendment to increase the authorized shares of common stock to 125,000,000, which was presented to and approved by the stockholders of Galena at the 2011 Annual Meeting of Stockholders held on July 15, 2011.

The warrants issued in connection with the April 2011 Offering, including the warrants issued in exchanged for the March 2011 warrants, were determined not to be indexed to Galena's common stock as they are potentially settleable in cash. A portion of the liability was allocated to the Company based on the expected use of proceeds at the time the Offering was completed. The fair value of the warrants at the dates of issuance allocated to the Company totaling $6,932,000 was recorded as a derivative liability and was determined using the Black-Scholes option pricing model. Due to the fact that the Company has limited trading history, Galena's expected stock volatility assumption is based on a combination of implied volatilities of similar entities whose shares or options are publicly traded. Galena used a weighted average expected stock volatility of 99.04%. The expected life assumption is based on the contract term of 7.0 years. The dividend yield of zero is based on the fact that we have no present intention to pay cash dividends. The risk free rate of 2.81% used for the warrants is equal to the zero coupon rate in effect at the time of the grant. The increase in the fair value of the warrants allocated to the Company from date of issuance to September 24, 2011 is $561,000, which has been included in other income (expense) in the accompanying statements of expenses for the year ended December 31, 2011. The fair value of the warrants of $7,493,000 at September 24, 2011 was reclassified to divisional deficit immediately prior to the recapitalization of the Company, as the Company was effectively released of any liability or obligation to settle the warrants pursuant to the contribution agreement with Galena entered into on this date. The fair value of the warrants was determined by the Black-Scholes option pricing model. Due to the fact that Galena has limited trading history, Galena's expected stock volatility assumption is based on a combination of implied volatilities of similar entities whose shares or options are publicly traded. Galena used a weighted average expected stock volatility of 98.87%. The expected life assumption is based on the remaining contract term of 6.56 years. The dividend yield of zero is based on the fact that Galena has no present intention to pay cash dividends. The risk free rate of 1.35% used for the warrants is equal to the zero coupon rate in effect on the date of the re-measurement. Additionally, in connection with the previously discussed exchange, the Company recorded a loss of approximately $900,000 which accounts for the remaining change in value during the period.

Other Derivatives

On February 1, 2010, Galena issued 250,000 warrants to an investment bank as consideration for investment and business advisory services. The warrants have an exercise $5.66 per share and expire five years from the date of issuance on February 1, 2015. The warrants vested as to 62,500 shares upon issuance, and vested at a rate of 20,833 shares per month starting on the 90 day anniversary of issuance, and are exercisable for a period of five years. All shares were vested at December 31, 2010. Galena has also agreed to give the holder of the warrants unlimited "piggy back" registration rights with respect to the shares of Common Stock underlying the warrants in any registration statement the Galena files in connection with an underwritten offering of the common stock. The fair value of these warrants has been estimated based on the Black-Scholes options pricing model and changes in the fair value until fully vested are recorded in the statement of expenses in accordance with the requirements of ASC Topic 718 and ASC Topic 505-50. Total expense related to these warrants was approximately $700,000 during the year ended December 31, 2010 and has been allocated entirely to the Company.

On February 1, 2011, Galena issued 150,000 warrants to an investment bank as consideration for investment and business advisory services. The warrants have an exercise $2.10 per share and expire five years from the date of issuance on February 1, 2016. The warrants vested as to 37,500 shares upon issuance, and vested at a rate of 12,500 shares per month starting on the 90 day anniversary of issuance, and are exercisable for a period of five years. All shares were vested at December 31, 2011. Galena has also agreed to give the holder of the warrants unlimited "piggy back" registration rights with respect to the shares of Common Stock underlying the warrants in any registration statement the Galena files in connection with an underwritten offering of the common stock. The fair value of these warrants has been estimated based on the Black-Scholes options pricing model and changes in the fair value until fully vested are recorded in the statement of expenses in accordance with the requirements of ASC Topic 718 and ASC Topic 505-50. Total expense related to these warrants was approximately $108,000 during the year ended December 31, 2011, of which $91,000 has been allocated to the Company.

9. Stock-Based Compensation

The following stock based compensation information relates to stock options issued by Galena. Stock based compensation expense is allocated to the carved out financial statements based on an estimate of time spent by Galena employees, board members, scientific advisory board members, and outside consultants on RXi related matters. Galena follows the provisions of the FASB ASC Topic 718, "Compensation — *Stock Compensation*" ("ASC 718"), which requires the measurement and recognition of compensation expense for all stock-based payment awards made to employees and non-employee directors including employee stock options. Stock compensation expense based on the grant date fair value estimated in accordance with the provisions of ASC 718 is recognized as an expense over the requisite service period.

For stock options granted as consideration for services rendered by non-employees, Galena recognizes compensation expense in accordance with the requirements of FASB ASC Topic 505-50, "*Equity Based Payments to Non-Employees.*"

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 Galena'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.

Galena is currently using the Black-Scholes option-pricing model to determine the fair value of all its option grants. For option grants issued for the years ended December 31, 2011 and 2010, the following assumptions were used:

	Year Ended December 31,	
	2011	2010
Weighted-average risk-free interest rate	0.97% - 3.16%	1.88% - 3.28%
Weighted-average expected volatility	98.61% - 113.87%	118.3 - 133.62%
Weighted-average expected lives (years)	4.71 - 6.25	6 - 10
Weighted-average expected dividend yield	0.00%	0.00%

The weighted-average fair value of options granted during the years ended December 31, 2011 and 2010 was $0.98 and $4.31 per share, respectively.

Galena'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 ASC 718-10. 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 Galena has never paid cash dividends and presently has no intention of paying cash dividends in the future. The risk-free interest rate used for each grant was also based upon prevailing short-term interest rates. Galena has estimated an annualized forfeiture rate of 15% for options granted to its employees, 8% for options granted to senior management and no forfeiture rate for the directors. The Company 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 the activity of Galena's stock option plan for options allocated to the Company for the period January 1, 2010 to December 31, 2011:

	Stock Options	Weighted Average Exercise Price
Outstanding — January 1, 2010	3,582,339	5.16
Granted	926,768	4.81
Exercised	(53,500)	4.75
Forfeited	(122,471)	4.85
Outstanding — December 31, 2010	4,333,136	5.10
Granted	2,312,750	0.90
Exercised	—	—
Forfeited	(1,492,499)	4.99
Outstanding — December 31, 2011	5,153,387	$ 3.24
Exercisable — December 31, 2010	3,155,900	$ 5.22
Exercisable — December 31, 2011	4,286,690	$ 3.62

The weighted-average remaining contractual life of options outstanding and exercisable at December 31, 2011 was 8.28 years and 7.81 years, respectively. The weighted average remaining contractual life of options outstanding and exercisable at December 31, 2010 was 7.35 years and 7.09 years, respectively.

The aggregate intrinsic value of outstanding options as of December 31, 2011 and 2010 was $0 and $137,000, respectively. The aggregate intrinsic value of exercisable options as of December 31, 2011 and 2010 was $0 and $34,000, respectively. The aggregate intrinsic value is calculated based on the positive difference between the closing fair market value of the Parent Company's common stock and the exercise price of the underlying options.

The aggregate intrinsic value of options exercised during 2010 was approximately $164,000. No options were exercised during the period ended December 31, 2011.

RXi recorded approximately $2,111,000 and $4,368,000 of stock-based compensation for the years ended December 31, 2011 and 2010, respectively. As of December 31, 2011, there was $398,000 of unrecognized compensation cost related to outstanding options that is expected to be recognized as a component of RXi's operating expenses through 2014.

On November 4, 2009, as part of a planned succession in leadership, Tod Woolf, Ph.D., resigned as Galena's President, Chief Executive Officer and a member of Galena's Board of Directors. According to the Separation Agreement between Dr. Woolf and Galena, Dr. Woolf received in one lump sum payment his full severance equivalent to a six (6) month salary ($187,500), six (6) months acceleration of vesting of all of his outstanding

unvested stock options of Galena as of November 4, 2009, and an offer to join the Company's Scientific Advisory Board (SAB) for 3 years (the "New Position"). In addition, and as part of the Separation Agreement, Galena agreed to extend the exercise period for all of Dr. Woolf's vested Stock Options as of November 4, 2009, to the later of: (i) a period of two (2) years from his resignation (until November 4, 2011); or (ii) ninety (90) days following the end of the term of the SAB Agreement (February 4, 2013) or such earlier date as the SAB Agreement may be terminated pursuant to the terms of the SAB Agreement provided Dr. Woolf has not violated the non-competition provisions of the SAB Agreement prior to the date of exercise (whether or not the SAB Agreement is still in effect at that time). Notwithstanding any provision of Galena's 2007 Incentive Plan, the Company also agreed that Dr. Woolf's previously awarded stock options shall continue to vest during his continuing role in Galena in the New Position. The option modification resulted in an incremental value of the options of approximately $153,000. As of December 31, 2011, there were 21,890 shares subject to future vesting. Total expense for the years ended December 31, 2011 and 2010 was $65,000 and $193,000, respectively.

As of December 31, 2011, an aggregate of 8,750,000 shares of common stock were reserved for issuance under the Galena Biopharma, Inc. 2007 Incentive Plan, including 6,163,137 shares subject to outstanding common stock options granted under this plan and 1,299,717 shares available for future grants. The administrator of the plan determines the times when an option may become exercisable. Vesting periods of options granted to date include vesting upon grant to vesting at the end of a four year period. The options will expire, unless previously exercised, no later than ten years from the grant date. Galena is using unissued shares for all shares issued for options, restricted share awards and ESPP issuances.

Restricted Stock Units — In addition to options to purchase shares of common stock, Galena may grant restricted stock units ("RSUs") as part of its compensation package. Each RSU is granted at the fair market value based on the date of grant. Vesting is determined on a grant by grant basis.

In March 2011, Galena granted a total of 220,729 RSUs. The RSUs had an aggregate intrinsic value of $256,000. In 2010, Galena granted a total of 43,541. The RSUs granted in 2010 had an aggregate intrinsic value of $112,000. As of December 31, 2011 and 2010, all of the RSUs had vested in full.

10. Income Taxes

The components of federal and state income tax expense are as follows (in thousands):

	As of December 31,	
	2011	2010
Current		
Federal	$ —	$ —
State	—	—
Total current	—	—
Deferred		
Federal	(884)	(4,853)
State	(229)	(1,283)
Total deferred	(1,113)	(6,136)
Valuation allowance	1,113	6,136
Total income tax expense	$ —	$ —

The components of net deferred tax assets are as follows (in thousands):

	As of December 31,	
	2011	2010
Net operating loss carryforwards	$ 986	$ 13,328
Tax credit carryforwards	—	1,061
Stock based compensation	—	5,864
Other timing differences	127	104
Licensing deduction deferral	—	3,264
Gross deferred tax assets	1,113	23,621
Valuation allowance	(1,113)	(23,621)
Net deferred tax asset	$ —	$ —

Prior to the incorporation of RXi in September 2011, the deferred tax assets of RXi were carved-out of the financial statements of Galena. Accordingly, the deferred tax assets at December 31, 2010 are not necessarily reflective of the deferred tax assets of RXi after its incorporation. RXi's deferred tax assets at December 31, 2011 consisted primarily of its net operating loss carryforwards and certain accruals that for tax purposes are not deductible until future payment is made.

The Company incurred net operating losses since inception. At December 31, 2011, RXi had domestic, federal and state net operating loss carryforwards of approximately $2.5 million available to reduce future taxable income expiring in 2021. Net operating loss and research and development tax credit carryforwards generated prior to September 8, 2011 were retained by Galena and not available to RXi. Based on an assessment of all available evidence including, but not limited to the Company's limited operating history in its core business and lack of profitability, uncertainties of the commercial viability of its technology, the impact of government regulation and healthcare reform initiatives, and other risks normally associated with biotechnology companies, the Company has concluded that it is more likely than not that these net operating loss carry forwards and credits will not be realized and, as a result, a 100% deferred income tax valuation allowance has been recorded against these assets.

The Company adopted certain provisions of the *ASC 740,* effective January 1, 2007 which clarifies the accounting for uncertainty in income taxes recognized in financial statements and requires the impact of a tax position to be recognized in the financial statements if that position is more likely than not of being sustained by the taxing authority. The adoption of *ASC 740-10* did not have any effect on the Company's financial position or results of operations.

Galena files income tax returns in the U.S. federal, Massachusetts, and Oregon jurisdictions. Galena is subject to tax examinations for the 2007 tax year and beyond. Galena does not believe there will be any material changes in its unrecognized tax positions over the next 12 months. Galena has not incurred any interest or penalties. In the event that Galena is assessed interest or penalties at some point in the future, they will be classified in the financial statements as general and administrative expense.

The operating results of the RXi for the year ended December 31, 2011 will be included in Galena's tax return for the year ended December 31, 2011. No tax provision has been recorded for RXi for the year ended December 31, 2011 due to both Galena's and RXi's loss for the year.

11. License Agreements

As part of its business, Galena enters into numerous licensing agreements. These license agreements with third parties often require milestone and royalty payments based on the progress of the asset through development stages. Milestone payments may be required, for example, upon approval of the product for marketing by a regulatory agency. In certain agreements, Galena is required to make royalty payments based upon a percentage of net sales.

The expenditures required under these arrangements may be material individually in the event that Galena develops product candidates covered by the intellectual property licensed under any such arrangement, and in the unlikely event that milestones for multiple products covered by these arrangements were reached in the same period, the aggregate charge to expense could be material to the results of operations. In addition, these arrangements often

give Galena the discretion to unilaterally terminate development of the product, which would allow Galena to avoid making the contingent payments; however, Galena is unlikely to cease development if the compound successfully achieves clinical testing objectives.

During the year ended December 31, 2007, Galena entered into a license agreement with Cold Spring Harbor Laboratory ("CSHL") for small hairpin RNA, or "shRNA", for which Galena paid $50,000 and agreed to make future milestone and royalty payments upon successful development and commercialization of products. Galena also entered into four exclusive license agreements and an invention disclosure agreement with the University of Massachusetts Medical School ("UMMS") for which the Company paid cash of $453,000 and issued 462,112 shares of its common stock valued at $2.3 million, or $5.00 per share. For each RNAi product developed in connection with the license granted by CSHL, the possible aggregate milestone payments equal $2,650,000. The invention disclosure agreement has an initial term of three years and provides the option to negotiate licenses to certain RNAi technologies discovered at UMMS. During the year ended December 31, 2011, Galena cancelled several of its licenses with UMMS. Upon the signing of the Contribution Agreement on September 24, 2011, one of the remaining UMMS licenses was transferred to RXi and the CSHL license agreement was retained by Galena and not transferred to RXi.

On August 29, 2007, Galena entered into a license agreement with TriLink Biotechnologies, Inc. ("TriLink") for three RNAi chemistry technologies all for therapeutic RNAi applications, for which Galena paid $100,000 and agreed to pay yearly maintenance fees of $30,000, as well as future clinical milestone payments and royalty payments based on sales of therapeutic products developed from the licensed technologies. There was no expense recorded in 2010 and 2011. Upon the signing of the Contribution Agreement on September 24, 2011, the TriLink license agreement was retained by Galena and not transferred to RXi.

In October 2007, Galena entered into a license agreement with Dharmacon, Inc. (now part of Thermo Fisher Scientific Inc.), pursuant to which Galena obtained an exclusive license to certain RNAi sequences to a number of target genes for the development of Galena's rxRNA compounds. Further, Galena has obtained the right to license additional RNAi sequences, under the same terms, disclosed by Thermo Fisher Scientific Inc. in its pending patent applications against target genes and has received an option for exclusivity for other siRNA configurations. As consideration for this license, Galena paid an up-front fee of $150,000 and agreed to pay future clinical milestone payments and royalty payments based on sales of siRNA compositions developed in connection with the licensed technology. No amounts were expensed in 2010 and 2011 related to this license.

In November 2007, Galena entered into a license agreement with Life Technologies, Inc., ("Life Technologies") pursuant to which the Company was granted rights under four patents relating to RNA target sequences, RNA chemical modifications, RNA configurations and/or RNA delivery to cells. As consideration for this license, Galena paid an up-front fee of $250,000 and agreed to pay yearly maintenance fees of the same amount beginning in 2008. Further, Galena is obligated to pay a fee for each additional gene target added to the license as well as a fee on the first and second anniversaries on the date of which consent to add the gene target to the list of those covered by the license was granted. Galena has also been granted, for each gene target, an option to secure preclinical rights and/or the clinical rights, for which RXi would be required to pay additional fees. Further, Galena is required to make future clinical milestone payments and royalty payments based on sales of therapeutic products developed from the licensed technologies. The Company expensed $187,500 and $62,500 for the years ended December 31, 2011 and 2010, respectively, related to this license. Upon the signing of the Contribution Agreement on September 24, 2011, the Life Technologies license agreement was retained by Galena and not transferred to RXi.

On October 3, 2008, Galena acquired co-exclusive rights to technology for the oral delivery of RNAi therapeutics from UMMS. As consideration for this license, Galena agreed to pay a total license fee of $2,500,000 over a 12 month period, which can be paid in cash, in equity or a combination thereof, provided that a specified amount of the license fee must be made in cash. This Agreement was amended on July 1, 2009, allowing Galena to extend the periods for which certain milestone payments are due to UMMS. Payments made in equity may only be made if, at the time of such payment, the shares of common stock issuable upon conversion of the warrant have been registered for resale under the Securities Act of 1933. No warrants have been issued under this agreement. There were no expenses recorded for the years ended December 31, 2011 and 2010. On March 14, 2011, Galena exercised its right to terminate the license by providing written notice to UMMS.

In September, 2009, Galena entered into a Patent and Technology Assignment Agreement with Advirna, LLC ("Advirna"), a Colorado limited liability company co-founded by RXi's former Chief Scientific Officer. Pursuant to the terms of the agreement, Advirna assigned to Galena certain patent and technology rights related to chemically modified polynucleotides (the "Rights") and Galena granted to Advirna a fully paid-up license to the Rights in a specified field. During the year ended December 31, 2011, the Company paid and expensed $100,000 annual maintenance fee under this agreement. There was no expense recorded for the year ended December 31, 2010.

As part of the transactions contemplated by the contribution and securities purchase agreements, on September 24, 2011, RXi entered into an agreement with Advirna pursuant to which:

- Advirna assigned to RXi its existing patent and technology rights related to *sd*-rxRNA technology in exchange for RXi's agreement to pay Advirna an annual $100,000 maintenance fee and a one-time $350,000 milestone payment upon the future issuance of the first patent with valid claims covering the assigned patent and technology rights;
- RXi will also be required to pay a 1% royalty to Advirna for any licensing revenue received by RXi with respect to future licensing of the assigned Advirna patent and technology rights;
- RXi has granted back to Advirna a license under the assigned patent and technology for fields of use outside the fields of human therapeutics and diagnostics; and
- RXi issued to Advirna, upon the completion of the spin-off transaction, 41,849,934 shares of RXi's common stock representing approximately 5% of the fully diluted shares of RXi common stock assuming the conversion in full of all outstanding Series A Preferred Stock.

12. Related Party Transactions

Galena and Advirna, co-founded by RXi's former Senior Vice President and Chief Scientific Officer, were parties to an option agreement whereby Galena paid $5,000 in 2008 for consideration to be granted the exclusive worldwide rights to license certain technology and $75,000 for the initial maintenance in 2009 under a Patent and Technology Assignment Agreement with Advirna entered into in September 2009. As part of the transactions contemplated by the contribution and securities purchase agreements, on September 24, 2011, RXi entered into an agreement with Advirna pursuant to which Advirna assigned to RXi its existing patent and technology rights related to *sd*-rxRNA technology in exchange for RXi's agreement to pay Advirna an annual maintenance fee and other consideration upon the achievement of certain milestones (see also Note 11).

On February 26, 2007, Galena entered into Scientific Advisory Board Agreements (the "SAB Agreements"), with four of its founders. At the time of the execution of the SAB Agreements, each of the founders were beneficial owners of more than five percent of Galena's outstanding stock. Pursuant to the SAB Agreements, on May 23, 2007, Galena granted to each of the founders a stock option under the 2007 Plan to purchase 52,832 shares of its common stock. In addition, under the SAB Agreements, Galena will grant each of the founders a stock option under the 2007 Plan to purchase 52,832 shares of its common stock on February 26, 2008, June 5, 2009 and June 4, 2010 with a per share exercise price equal to the closing price of such stock on the public market on the date of grant unless a founder terminates a SAB Agreement without good reason (as defined) or Galena terminates a SAB Agreement with cause (as defined therein) in which case no further option grants will be made to the founder.

All options granted pursuant to the SAB Agreements are fully vested on the date of grant and have a term of ten years. The fair value of stock options granted during 2010 under the SAB Agreement for each founder is approximately $142,000 which was estimated using the Black-Scholes option-pricing model as more fully discussed above under significant accounting policies and the stock based compensation footnote. Included in the Company's financial statements for the year ended December 31, 2010 is approximately $566,000 of expense related to the granting of these stock options. No options under the SAB agreements were issued during the year ended December 31, 2011.

Additionally, pursuant to a letter agreement between Galena and each founder dated as of April 30, 2007, the "SAB Letters", in further consideration of the services to be rendered by the founders under the SAB Agreements,

Galena granted additional stock options on May 23, 2007 under the 2007 Plan to each of the founders to purchase 26,416 shares of its common stock. Unless a founder terminates a SAB Agreement without good reason (as defined) or the Company terminates a SAB Agreement with cause (as defined therein), the options granted pursuant to the SAB Letters will fully vest from and after April 29, 2012 and will have a term of ten years from the date of grant. At December 31, 2011 and 2010, the fair market value of stock options under the SAB Agreement for each founder is approximately $5,000 and $52,400, respectively, which was estimated using the Black-Scholes option-pricing model as more fully discussed above under the summary of significant accounting policies and the stock based compensation footnote. Included in the Company's financial statements for the years ended December 31, 2011 and 2010 is approximately $159,000 and $60,000 of income, respectively, related to these stock options.

13. Subsequent Events

Effective April 27, 2012, the Company entered into a separation agreement with Dr. Khvorova. In the separation agreement, Galena has agreed to pay severance to Dr. Khvorova equal to six months' salary and to pay the employer's share of her COBRA premiums for six months following the effective date of her separation. In the separation agreement, Dr. Khvorova agreed to forego the grant of the option to purchase shares of the Company's common stock that was contemplated by her former employment agreement with the Company.

Effective April 27, 2012, the Company entered into an employment agreement with Dr. Geert Cauwenbergh to serve as the Company's President and Chief Executive Officer at an annual salary of $360,000. Dr. Cauwenbergh will also be entitled to a grant of stock options to purchase 4% of the outstanding common stock of the Company as of such grant date (calculated on a fully-diluted, as converted basis), at an exercise price per share to be determined based on the fair value of the Company's common stock on the date of grant. Dr. Cauwenbergh's employment agreement also provides that during the term of his employment with the Company, he shall serve as a member of the Company's Board of Directors.

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RXI Pharmaceuticals Corporation

138,941,780 Shares of Common Stock

PROSPECTUS

July 6, 2012