UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

Form 10-K

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

For the fiscal year ended December 31, 2010

Commission File Number 000-13789

MARINA BIOTECH, INC.

(Exact name of registrant as specified in its charter)

Delaware	**11-2658569**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
3830 Monte Villa Parkway Bothell, Washington	**98021**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code:
(425) 908-3600

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $0.006 par value	The Nasdaq Stock Market LLC
Preferred Stock Purchase Rights, $0.01 par value	The Nasdaq Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act:

Title of Each Class
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☑

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes ☐ No ☑

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☐ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☑

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

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act.) Yes ☐ No ☑

The aggregate market value of the voting stock held by non-affiliates of the Registrant was approximately $43.9 million as of June 30, 2010 based upon the closing price of $3.60 per share on the Nasdaq Global Market reported on June 30, 2010.

As of March 17, 2011, there were 34,364,514 shares of the Registrant's $0.006 par value common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE
None

MARINA BIOTECH, INC.

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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These forward-looking statements reflect our current views with respect to future events or our financial performance, and involve certain known and unknown risks, uncertainties and other factors, including those identified below, those discussed in Item 1A of this report under the heading "Risk Factors," and those discussed in our other filings with the Securities and Exchange Commission, which may cause our or our industry's actual or future results, levels of activity, performance or achievements to differ materially from those expressed or implied by any forward-looking statements or from historical results. We intend such forward-looking statements to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act and Section 21E of the Exchange Act. Forward-looking statements include information concerning our possible or assumed future results of operations and statements preceded by, followed by, or that include the words "may," "will," "could," "would," "should," "believe," "expect," "plan," "anticipate," "intend," "estimate," "predict," "potential" or similar expressions.

Forward-looking statements are inherently subject to risks and uncertainties, many of which we cannot predict with accuracy and some of which we might not even anticipate. Although we believe that the expectations reflected in such forward-looking statements are based upon reasonable assumptions at the time made, we can give no assurance that such expectations will be achieved. Future events and actual results, financial and otherwise, may differ materially from the results discussed in the forward-looking statements. Readers are cautioned not to place undue reliance on these forward-looking statements. We undertake no obligation to publicly update or revise any forward-looking statements after the date of this Annual Report on Form 10-K or to conform them to actual results, new information, future events or otherwise, except as otherwise required by securities and other applicable laws.

The following factors, among others, could cause our or our industry's future results to differ materially from historical results or those anticipated:

- *our ability to obtain additional funding for our company;*
- *our ability to attract and/or maintain manufacturing, research, development and commercialization partners;*
- *the ability of our company and/or a partner to successfully complete product research and development, including pre-clinical and clinical studies and commercialization;*
- *the ability of our company and/or a partner to obtain required governmental approvals, including product and patent approvals;*
- *the ability of our company and/or a partner to develop and commercialize products prior to, and that can compete favorably with those of, our competitors;*
- *the timing of costs and expenses related to our research and development programs;*
- *the timing and recognition of revenue from milestone payments and other sources not related to product sales;*
- *our ability to attract and retain our key officers and employees;*
- *costs associated with any product liability claims, patent prosecution, patent infringement lawsuits and other lawsuits; and*
- *our ability to maintain our listing on The Nasdaq Global Market.*

These factors are the important factors of which we are currently aware that could cause actual results, performance or achievements to differ materially from those expressed in any of our forward-looking statements. We operate in a continually changing business environment, and new risk factors emerge from time to time. Other unknown or unpredictable factors also could have material adverse effects on our future results, performance or achievements. We cannot assure you that projected results or events will be achieved or will occur.

PART I

ITEM 1. *Business.*

OVERVIEW AND BUSINESS STRATEGY

We are a biotechnology company focused on the discovery, development and commercialization of oligonucleotide therapies based on gene silencing approaches such as RNA interference (RNAi) and blocking messenger RNA (mRNA) transcription. Our goal is to improve human health through the development of these nucleic acid-based therapeutics as well as the drug delivery technologies that together provide superior treatment options for patients. We have multiple proprietary technologies integrated into a broad oligonucleotide-based drug discovery platform, with the capability to deliver these novel therapeutics via systemic, local and oral administration to target a wide range of human diseases based on the unique characteristics of the cells and organs involved in each disease.

Our pipeline includes a clinical program in Familial Adenomatous Polyposis (FAP) and two preclinical programs in malignant ascites and bladder cancer, respectively. In February 2011, we entered an exclusive agreement with Debiopharm Group for the development and commercialization of the bladder cancer program.

Our team of approximately 30 scientists brings expertise in molecular and cellular biology, microbiology, oligonucleotide, nucleoside, lipid, peptide and alkylated amino acid chemistry, pharmacology, bioinformatics, pre-clinical and clinical development, regulatory affairs and quality control, in addition to an experienced pharmaceutical management team.

In addition to our own, internally developed technologies, we strategically in-license and further develop nucleic acid- and delivery-related technologies, forming an integrated drug discovery platform. We are currently employing our platform for the discovery of multiple nucleic-based therapeutics including RNAi-, microRNA- and single stranded oligonucleotide-based drugs.

Our business strategy is two-fold. First, we strive to establish collaborations and strategic partnerships with pharmaceutical and biotechnology companies in the area of nucleic acid-based therapeutics to: (1) generate revenue and non-dilutive financing; (2) gain access to technical resources; and (3) further validate our drug discovery platforms. Secondly, we expect to advance our own pipeline of nucleic acid-based therapeutics as a foundation upon which to improve all aspects of our drug discovery platform and to have the opportunity to commercialize drug therapies. In terms of collaborations and strategic partnerships, the Debiopharm Group is fully funding the development of the bladder cancer program using our proprietary DiLA^2 delivery technology for local administration which includes the potential for significant milestones, and ProNAi Therapeutics, a licensee of certain of our technology, is funding their Phase 1 clinical trial using our proprietary SMARTICLES® delivery technology for systemic administration, which does not provide any financial benefit to us but continues to validate and advance our SMARTICLES® delivery technology. With these relationships financing the advancement of several of our small interfering RNA (siRNA) proprietary delivery technologies, we are focusing resources on the Phase 1b/2a clinical trial of CEQ508 in Familial Adenomatous Polyposis (FAP) as well as the development of our Conformationally Restricted Nucleotide technology (CRN) for the development of single-stranded oligonucleotide therapies.

In 2010 we entered into five early collaborative efforts (a sixth had been initiated in 2009) with major pharmaceutical companies and a biotechnology company to evaluate our DiLA^2 and SMARTICLES delivery technologies for local and systemic delivery of siRNA. Four of the six efforts continued into 2011, and our goal continues to be the establishment of a strategic partnership with at least one of these companies in 2011. We expect to structure certain of our collaborative agreements to receive upfront non-refundable payments, research and development funding, milestone payments and royalties on commercial sales of products.

With respect to collaborations and strategic partnerships our concept is to provide multiple therapeutic options based on a partner's target and indication. We can apply our broad capabilities to pursue the most

appropriate nucleic acid therapeutic approach to a specific, often undruggable, target for a specific indication. Each approach, i.e. RNAi, microRNA or single-strand oligonucleotide, has its advantages and disadvantages and we can utilize our broad capabilities to screen across multiple modalities to identify the most effective therapeutic. We believe this capability makes us extremely unique in the sector.

In 2010, we acquired Cequent Pharmaceuticals, Inc. and its *TransKingdom* RNA™ interference (*tk*RNAi) platform and FAP clinical program, the intellectual property related to CRN technology from Valeant Pharmaceuticals and the intellectual property related to SMARTICLES from Novosom. Additionally, we licensed one of our nasal legacy assets, carbetocin, to Cypress Biosciences.

In order to protect our innovations, which encompass a broad platform of both nucleic acid constructs and delivery technologies, as well as the drug products that may emerge from that platform; we aggressively continue to build upon our extensive and enabling intellectual property ("IP") estate.

We believe we have established ourselves as a leading nucleic acid-based therapeutics company by leveraging our broad and proven expertise to create an industry-leading integrated nucleic acid-based drug discovery platform, which is protected by a strong IP position and validated through licensing agreements with two large international pharmaceutical companies, our FAP phase 1b/2a clinical trial, the bladder cancer research and license agreement with Debiopharm Group and the phase 1 ProNAi trial using our SMARTICLES delivery technology.

RESEARCH AND DEVELOPMENT

Our research and development personnel are organized into functional teams that include pharmacology, toxicology, chemistry, formulation, cell biology, bioinformatics, process development, preclinical and clinical development and project management. We conduct our research and development activities at our headquarters in Bothell, Washington and in Cambridge, Massachusetts. We anticipate that our research and development expenses will decrease in 2011 compared to 2010 due to cost containment and cost cutting measures and our cash burn will also decrease due to funding and potential milestones resulting from the Debiopharm collaboration and cost containment and cost cutting measures.

NUCLEIC ACID-BASED THERAPEUTICS

Overview

Nucleic acid-based therapeutics act on mRNA to degrade protein expression and can target any gene with a high degree of specificity; these technologies include RNAi, microRNA (miRNA mimetics and antagomirs), and single stranded oligonucleotides which function through a translational inhibition mechanism.

We are developing novel technologies and therapeutics based predominately on the Nobel Prize-winning discovery of RNA interference (RNAi). The discovery of RNAi, in 1998, has led not only to its widespread use in the research of biological mechanisms and target validation but also to its application in down regulating the expression of certain disease-causing proteins found in a wide spectrum of diseases including inflammation, cancer, and metabolic dysfunction. RNAi-based therapeutics work through a naturally occurring process within cells that has the effect of reducing levels of messenger RNA (mRNA) required for the production of proteins. RNAi enables the targeting of disease at a genetic level and thus is highly specific to particular disease-causing proteins. Like RNAi-based therapeutics, single stranded oligonucleotides also interact with mRNA and interfere with protein translation. MicroRNAs (miRNA), on the other hand, are small non-coding RNAs that are important in gene regulation and protein translation. Antagomir (or miRNA antagonists) therapeutics targeting a specific miRNA can potentially down regulate multiple proteins associated with the genes under the control of the miRNA target. Conversely, miRNA mimetics increase the level of a miRNA in the cell and can thereby potentially up regulate multiple proteins associated with the genes under the control of that miRNA target. The advantage of a miRNA mimetic is significant in that few human therapeutics are designed to increase proteins

where a protein deficiency has led to disease. Nucleic acid-based therapeutics which target a gene to prevent the expression of the protein unlike small molecules or protein drugs which are aimed at inhibiting the unwanted protein or blocking the receptor on which the protein acts.

The strategy behind our acquisition of key intellectual property and technologies over the past year has been to position us to provide multiple nucleic acid-based therapeutic alternatives to the pharmaceutical companies difficult to target and undruggable target needs. We feel we are establishing one of the broadest nucleic acid platforms in the sector with validation on several fronts: (1) Debiopharm licensing our preclinical bladder cancer program with our UsiRNA/DiLA^2 platform, (2) ProNAi Therapeutics using our SMARTICLES delivery technology for systemic administration of a DNAi oligonucleotide in a Phase 1 trial to treat solid tumors and (3) our own Phase 1 program in Familial Adenomatous Polyposis using our *tk*RNAi system. In addition, we are advancing our proprietary chemistry for single-stranded constructs (antagomirs and single-stranded oligonucleotides). At this time, several nucleic acid-based therapeutics are being evaluated in human clinical trials.

We intend to build on our pre-clinical oncology successes and move a second pre-clinical program, malignant ascites, toward early clinical studies. In addition, we will continue to increase the breadth and capabilities of our drug discovery platform including further demonstration of the unique advantages and potency of the UsiRNA construct, increasing the breadth of the delivery platform, and advancing additional proprietary chemistry and delivery technologies. Our business model anticipates that the advancement of a therapeutic pipeline, either through partnerships or on our own, will continue to provide proof of concept for our drug discovery platform as well as value for shareholders.

Nucleic Acid-Based Drug Discovery Platform

We are making advances in both areas crucial to the development of nucleic acid-based therapeutics: constructs and delivery technologies. Although each area is equally important to the development of an effective therapeutic, the scientific challenges of delivery appear to be one of the most significant obstacles to the broad use of nucleic acid-based therapeutics in the treatment of human diseases.

UsiRNA Constructs. Our UsiRNAs, similar to siRNAs but with substitution of UNA bases in place of RNA bases in key regions of the duplex, have shown important advantages in terms of efficacy and safety, when compared to standard siRNA molecules and modifications. UsiRNAs are highly active in rodent-based disease models, non-disease rodent models, and non-human primates. UsiRNAs function by RNAi to cleave their mRNA target and decrease the production of the protein associated with the target, and in the case of bladder and liver cancer the UsiRNAs decrease tumor growth. UsiRNAs have demonstrated a lower potential for cytokine induction and provide resistance to nuclease degradation, two effects that are often prominent with standard siRNAs. Most important, substitution with UNA at specific sites greatly increases the specificity for RNAi and improves their profile for therapeutic use. Substitution in the passenger strand can eliminate the ability of this strand to participate in RNAi and thereby the potential for unwanted effects on other targets or compete with guide strand activity by loading into the intracellular RNAi machinery. Substitution of UNA within the guide strand can eliminate microRNA-like effects that occur with standard siRNA; microRNA-like off-target activity cannot often be addressed by bioinformatics and can result in severe loss of activity if addressed with chemical modification of RNA. Overall, these data indicate that the appropriate substitution of UNA in place of RNA, in a double-stranded RNA, maintains potent activity and could ultimately lead to effective protein down regulation with lower total doses and under conditions of greater specificity and safety.

Conformationally Restricted Nucleotides (CRN). CRNs are novel nucleotide analogs in which the flexible ribose sugar is locked into a rigid conformation by a small chemical linker. By restricting the flexibility of the ribose ring, CRNs can impart a helix-type structure typically found in naturally occurring RNA. For single stranded oligonucleotide therapeutics, the impact of CRN substitution dramatically increases the therapeutics' affinity for the target mRNA or miRNA while imparting significant resistance to nuclease degradation. Additionally, CRNs significantly improve the thermal stability of duplexed constructs, such as siRNAs.

Delivery. We have two lipid-based delivery platforms. The first platform utilizes amino-liposomal delivery technology and incorporates a novel and proprietary molecule we call DiLA^2 (Di-Alkylated Amino Acid). Our scientists designed this molecule based on amino acid (e.g., peptide/protein-based) chemistry. A DiLA^2-based liposome has several potential advantages over other liposomes, such as: (1) a structure that may enable safe and natural metabolism by the body; (2) the ability to adjust liposome size, shape, and circulation time, to influence bio-distribution; and (3) the ability to attach molecules that can influence other delivery-related attributes such as targeting and cellular uptake. Our siRNA formulations using different members of the DiLA^2 family have demonstrated safe and effective delivery in rodents with metabolic targets (e.g., ApoB) and in cancer models using both local and systemic routes of administration. Safe and effective delivery with DiLA^2-based formulations has also been achieved in non-human primates.

The second platform, SMARTICLES, defines a novel class of liposomes that are fully charge-reversible particles allowing delivery of active substance (siRNA, single-stranded oligonucleotides, etc.) inside the cell either by local or systemic administration. SMARTICLES are designed to ensure stable passage through the bloodstream and release of the nucleic acid payload within the target cell where it can exert its therapeutic effect by engaging either the RNAi pathway or directly with mRNA.

In addition to our lipid-based delivery platforms, we have used peptides for both the formation of stable siRNA nanoparticles as well as targeting moieties for siRNA molecules. Research includes the use of peptide technology to "condense" siRNAs into compact and potent nanoparticles; screening of our proprietary phage display library for targeting peptides; and internal discovery and development of peptides and other compounds recognized as having targeting or cellular uptake properties. The goal, in the use of such technologies, is to minimize the amount of final drug required to produce a therapeutic response by increasing the potency of the siRNA as well as directing more of the final drug product to the intended site of action.

*tauRNAi Platform. tau*RNA interference (*tau*RNAi) provides an avenue across potential biological barriers by incorporating our proprietary and highly effective DiLA^2-based liposome and UsiRNA construct technologies into a single platform for RNAi. By merging the two technologies, we are able to tailor both UsiRNA construct and DiLA^2-based liposome characteristics to target specific tissues and diseases resulting from over expression of proteins in those tissues. Maximal therapeutic effect can result from optimization of the UsiRNA through strategic placement of UNAs and CRNs thus providing stability to nucleases, mitigation of cytokine responses, and reduction of off-target effects, while maintaining exceptional activity against the intended target. Appropriate choice of the DiLA^2 molecule enables the optimization of charge, size, and other characteristics of the liposome for delivery to a particular tissue or tumor type. Further improvements can arise from the selection of liposome components as well as the manufacturing processes for the drug product.

*TransKingdom RNA™ interference (tkRNAi) platform. tk*RNAi is a broad-reaching platform that can be used to develop highly specific drug products for a diverse set of diseases. The *tk*RNAi platform involves the modification of bacteria to deliver short-hairpin RNA (shRNA) to cells of the intestinal tract. A significant advantage of the *tk*RNAi platform is oral (by mouth) delivery making this platform extremely patient friendly while harnessing the full potential of the RNAi process. The *tk*RNAi platform has demonstrated *in vivo* mRNA down regulation of both inflammatory and cancer targets thus providing a unique opportunity to develop RNAi-based therapeutics against such diseases as Crohn's Disease, ulcerative colitis and colon cancer. The *tk*RNAi platform produced CEQ508 which is currently in clinical development for the treatment of Familial Adenomatous Polyposis.

Clinical Program. CEQ508 is being developed for the treatment of Familial Adenomatous Polyposis (FAP), a hereditary condition that occurs in approximately 1:10,000 persons worldwide. FAP is caused by mutations in the Adenomatous Polyposis Coli (*APC*) gene. As a result of these mutations, epithelial cells lining the intestinal tract have increased levels of the protein ß-catenin, which in turn, results in uncontrolled cell growth. Proliferation (uncontrolled cell growth) of the epithelial cells results in the formation of numerous (hundreds to thousands) non-cancerous growths (polyps) throughout the large intestine. By age 35, 95% of individuals with

FAP have developed polyps and most will experience adverse effects including increased risk of bleeding and the potential for anemia. In more severe cases, obstruction of the intestines, abdominal pain, and severe bouts of diarrhea or constipation can occur. FAP patients are also at an increased risk of various cancers but specifically colon cancer. If measures are not taken to prevent the formation of polyps or to remove the polyps, nearly 100% of FAP patients will develop colon cancer. For many patients, complete colectomy (surgical removal of the entire large intestine), usually performed in the late teenage years or early twenties, is the only viable option for treatment. However, surgical intervention is not curative as the risk of polyps forming in the remaining portions of the intestinal tract and in the small intestine continues after colectomy.

CEQ508 is the first drug candidate in a novel class of therapeutic agents utilizing the tkRNAi platform and the first orally administered RNAi-based therapeutic. CEQ508 comprises attenuated bacteria that are engineered to enter into dysplastic tissue and release a payload of short-hairpin RNA (shRNA), a mediator in the RNAi pathway. The shRNA targets the mRNA of ß-catenin, which is known to be dysregulated in classical FAP. CEQ508 is being developed as an orally administered treatment to reduce the levels of ß-catenin protein in the epithelial cells of the small and large intestine. Upon enrollment in the phase 1b/2a clinical trial, patients will be placed in one of four dose-escalating cohorts. Following completion of the dose escalation phase, the trial plan calls for a stable-dose phase in which patients will receive the highest safe dose. CEQ508 will be administered daily in an oral suspension for 28 consecutive days.

The FDA granted orphan drug designation to CEQ508 for the treatment of FAP. Orphan drug designation entitles Marina Biotech to seven years of marketing exclusivity for CEQ508 for the treatment of FAP upon regulatory approval, as well as the opportunity to apply for grant funding from the U.S. government to defray costs of clinical trial expenses, tax credits for clinical research expenses and potential exemption from the FDA's prescription drug application fee.

Market for Familial Adenomatous Polyposis (FAP) Therapeutics

FAP is a hereditary, precancerous condition that occurs in approximately 1:10,000 persons worldwide for which there is no generally acceptable pharmaceutical treatment option and for which surgical resection – a colectomy – is the only viable option for treatment. However, even with surgical intervention, the risk of developing extra-colonic tumors remains very high. The goal of a therapeutic approach is to prevent or delay the rapid disease progression. FAP manifests itself in early teens with the appearance of hundreds to thousands of polyps in the colorectal region of intestines, which have a high rate of carcinoma transformation. By age 35, 95% of individuals with FAP have developed polyps. Without surgical intervention, the mean age of colon cancer onset is 39 years of age. Most people with the genetic condition are in registries maintained in clinics and state institutions. Based on limited prevalence data we believe the U.S. FAP patient population is approximately 40,000 patients.

Market for Bladder Cancer Therapeutics

Bladder cancer is the 4th most common cancer in men and 9th most common in women in the U.S., making this disease the 5th most common cancer overall in the U.S. Estimated new cases and deaths in 2009 were approximately 71,000 and 14,000, respectively. Bladder cancer has a similar incidence throughout the world, with estimates of 350,000 new patients each year. The majority of cases, approximately 70%, are classified as non-muscle invasive disease in which the tumor is confined to the cells (urothelium) and immediate supporting structures lining the interior of the bladder. Surgical resection of tumors is the primary therapy for non-muscle invasive bladder cancer and long-term survival rates are quite high compared to many other cancers. However, surgery is not curative with 50% to 70% of patients having recurrence of disease and 10% to 50% having progression to more severe disease. The combination of long-term survival but persistent monitoring for recurrence or progression renders bladder cancer one of the most expensive cancers on a cost per patient basis and one of the most expensive cancers in terms of total health care expenditures.

Market for Malignant Ascites

Malignant ascites, or malignancy related ascites, occurs when fluid accumulates in the abdomen as a result of cancer; most prevalent in ovarian, pancreatic and gastric cancers. Ascites results from an imbalance in fluid production and resorption, generally occurs in the late stage of the disease and has a significant impact on quality of life. Current therapeutic options are limited to palliative care, focused primarily on fluid management. Nucleic acid-based therapeutics provide an opportunity to treat the underlying causes of malignant ascites. The National Cancer Institute estimates that approximately 21,000 ovarian, 40,000 pancreatic and 21,000 gastric cancers will be diagnosed in 2010. It is estimated that the prevalence of malignant ascites is 38%, 21% and 18% respectively, for each of these cancers.

RNAi Partnering and Licensing Agreements

Our business strategy is to enter into collaborations and strategic partnerships with pharmaceutical and biotechnology companies to: (1) generate revenue and non-dilutive financing; (2) gain access to technical resources or intellectual property (IP); and (3) validate our drug discovery platform.

Debiopharm — In February 2011, we entered into a Research and License Agreement (the "Agreement") with Debiopharm S.A., a Swiss corporation ("Debiopharm"), pursuant to which we granted to Debiopharm an exclusive license to develop and commercialize our pre-clinical program in bladder cancer, for all uses in humans and animals for the prevention and treatment of superficial (non-muscle invasive) bladder cancer, in consideration of the payment by Debiopharm to us of up to $25 million based on predefined research and development milestones, royalties from the sales of products resulting under the Agreement and sublicensing payments. Among other things, the Agreement provides for certain licenses of our UsiRNA and liposomal delivery technologies. Debiopharm will have full responsibility for the development and commercialization of any products arising from the partnership, and will fund all of our research and development costs for the bladder cancer program beginning in February 2011.

Valeant Pharmaceuticals. — In March 2010, we acquired intellectual property related to Conformationally Restricted Nucleotides (CRN) from Valeant Pharmaceuticals North America in consideration of payment of a non-refundable licensing fee of $0.5 million due in equal portions in April and July 2010, which were included in research and development expense in 2010 and have been paid in full. Subject to meeting of certain milestones triggering the obligation to make any such payments, we may be obligated to make a product development milestone payment of $5.0 million within 180 days of FDA approval of a New Drug Application for our first CRN related product and another product development milestone payment of $2.0 million within 180 days of FDA approval of a New Drug Application covering our second CRN related product. As of December 31, 2010, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions triggering any such milestone payment obligations have not been satisfied. Valeant is entitled to receive earn-outs in the low single digits based upon future commercial sales and earn-outs in the low double digits based upon future revenue from sublicensing. Under the agreement we are required to use commercially reasonable efforts to develop and commercialize at least one covered product. If we have not made earn-out payments of at least $5.0 million prior to the sixth anniversary of the date of the agreement, we are required to pay Valeant an annual amount equal to $50,000 per assigned patent which shall be creditable against other payment obligations. The term of our financial obligations under the agreement shall end, on a country-by-country basis, when there is no longer any valid claim in such country. We may terminate the agreement upon 30 days' notice, or upon 10 days' notice in the event of adverse results from clinical studies. Upon termination, we are obligated to make all payments accrued as of the effective date of such termination but shall have no future payment obligations.

Novosom — In July 2010, we entered into an agreement pursuant to which we acquired the intellectual property of Novosom AG ("Novosom") of Halle, Germany for Novosom's SMARTICLES® liposomal-based delivery system, which significantly broadens the number of approaches we may take for systemic and local

delivery of our proprietary UsiRNA therapeutics. We issued an aggregate of 1,419,487 shares of our common stock to Novosom as consideration for the acquired assets. The shares had an aggregate value equal to approximately $3.8 million, which was recorded as research and development expense. As additional consideration for the acquired assets, we will pay to Novosom an amount equal to 30% of the value of each upfront (or combined) payment actually received by us in respect of the license of liposomal-based delivery technology or related product or disposition of the liposomal-based delivery technology by us, up to a maximum of $3.3 million, which amount will be paid in shares of our common stock, or a combination of cash and shares of our common stock, at our discretion.

Roche — In February 2009, we entered into an agreement with F. Hoffmann-La Roche Inc., a New Jersey corporation, and F. Hoffmann-La Roche Ltd., a Swiss corporation (collectively, "Roche"), pursuant to which we granted to Roche a worldwide, irrevocable, non-exclusive license to a portion of our technology platform, for the development of RNAi-based therapeutics, in consideration of the payment of a one-time, non-refundable licensing fee of $5.0 million. No additional royalties are payable to us under the agreement. The agreement will expire on a country-by-country basis upon the expiration date of the last to expire of the licensed patents in such country. Either party may terminate the agreement for material breach by the other party (subject to a 30-day cure period), or upon certain events involving the bankruptcy or insolvency of the other party. We believe this agreement represents strong third-party validation of the siRNA construct aspect of our RNAi drug discovery platform.

Novartis — In March 2009, we entered into an agreement with Novartis Institutes for BioMedical Research, Inc. ("Novartis"), pursuant to which we granted to Novartis a worldwide, non-exclusive, irrevocable, perpetual, royalty-free, fully paid-up license, with the right to grant sublicenses, to our DiLA^2 -based siRNA delivery platform in consideration of a one-time, non-refundable fee of $7.25 million, which was recognized as license fee revenue in 2009. Novartis may terminate this agreement immediately upon written notice to us. We believe this agreement represents strong third-party validation of the siRNA delivery aspect of our RNAi drug discovery platform. Additionally, we entered into a separate agreement with Novartis to provide them with an exclusive period in which to negotiate a potential research and development collaboration as well as possible broader licensing rights related to our RNAi drug delivery platform. This exclusive period expired in 2009. Approximately $0.3 million was recognized as license fee revenue in 2009 under this separate agreement.

University of Michigan — In May 2008, we entered into an exclusive license agreement to IP from the University of Michigan covering cationic peptides for enhanced delivery of nucleic acids. These peptides have unique characteristics that we believe play an important role in improving the efficacy of delivery of RNAi-based therapeutics. We are currently using these peptides to create siRNA nanoparticles to enhance mRNA knockdown. Together with the DiLA^2 technology, these delivery peptides may improve the therapeutic potential of our drug candidates. In connection with the agreement, we paid a license issue fee of $120,000, which was paid in full in three equal installments. An additional fee of $25,000 is payable annually and creditable against royalty payments.

Subject to the meeting of certain milestones triggering the obligation to make any such payments, we may be obligated to make product development milestone payments of up to $425,000 in the aggregate for each product developed under a licensed patent under this agreement. As of December 31, 2010, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions triggering any such milestone payment obligations have not been satisfied. The royalty payment required to be made by us to the University of Michigan under this agreement is a percentage of net sales in the low single digits.

We sublicensed the IP under this agreement to Novartis on a nonexclusive basis in March 2009, at which time we paid an additional one–time fee of $362,500 to the University of Michigan, which eliminated the obligation to pay the University of Michigan any future royalties or milestones with respect to the Novartis sublicense. This fee was included in research and development expense.

This agreement will terminate on the expiration date of the last to expire patent licensed under the agreement, which expiration date is in 2019. Under the agreement, we agreed to use diligent and commercially reasonable efforts to exploit the patent rights and bring licensed products to market. If we fail to meet certain research and development milestones, the University of Michigan may terminate the agreement subject to a thirty day cure period. In addition, the University of Michigan may terminate this license upon written notice if the first commercial sale of a product does not occur on or before May 2017. We may terminate this agreement at any time upon ninety days written notice.

University of Helsinki — In June 2008, we entered into a collaboration agreement with Dr. Pirjo Laakkonen and the Biomedicum Helsinki. The goal of the work involves our patented phage display library, the Trp Cage library, for the identification of peptides to target particular tissues or organs for a given disease. In December 2009, we received a patent allowance in the US covering a targeting peptide for preferential delivery to lung tissues that was identified by us using the Trp Cage Library. We believe the Trp Cage library will be a source of additional peptides for evaluation in our delivery programs, and we will have a strong IP position for these peptides and their use. In 2010, we extended the term of the agreement and it will now terminate in June 2012. Either party may terminate the agreement for material breach by the other party, subject to a 30-day cure period.

Under this agreement, we may be obligated to make product development milestone payments of up to €275,000 in the aggregate for each product developed under this research agreement if certain milestones are met. As of December 31, 2010, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions that would trigger any such milestone payment obligations have not been satisfied. In addition, upon the first commercial sale of a product, we are required to pay an advance of €250,000 against which future royalties will be credited. The percentage royalty payment required to be made by us to the University of Helsinki under the terms of this agreement is a percentage of gross revenues derived from work performed under the Helsinki Agreement in the low single digits.

Ribotask ApS — In June 2009, we announced the revision of the October 2008 agreement in which we had acquired the intellectual property related to Unlocked Nucleobase Analogs (UNA) from Ribotask ApS, a privately held Danish company. The original agreement provided us with exclusive rights for the development and commercialization of therapeutics incorporating UNAs. The amended agreement eliminated our obligation to pay all milestone and royalty payments and provided full financial and transactional control of our proprietary UNA technology. Our UsiRNA construct has been verified in multiple cell types and *in vivo* models to be highly potent and efficacious for RNAi. Substitution of UNA within siRNA, creating the UsiRNA construct, has been shown to provide greater target specificity. We believe this proprietary construct provides unique advantages for RNAi-based therapeutics and is an essential part of our business strategy and ultimate success.

In June 2010, we expanded our rights under the previous agreement with Ribotask to include exclusive rights to the development and commercialization of UNA-based diagnostics. In connection with this amendment, we agreed to pay Ribotask $750,000 in three equal payments of $250,000 each. In March 2011, we amended the agreement with Ribotask to change the payment terms for the diagnostic rights. The first payment of $250,000 was made in November 2010. The remaining payments will be made as follows: a payment of $50,000 at execution of the amendment with the remaining $400,000 to be paid in eight monthly payments of $50,000 beginning May 1, 2011. In addition we issued 113,766 shares of our common stock valued at approximately $80,000 to Ribotask on March 3, 2011; for which we filed a resale registration statement on Form S-3 on March 14, 2011.

Under the October 2008 agreement we made payments to Ribotask totaling $500,000. We sublicensed the IP under this agreement to Roche on a nonexclusive basis in February 2009, at which time we paid an additional $250,000 to Ribotask, which eliminated the obligation to pay Ribotask future royalties or milestones with respect to the Roche sublicense. In connection with the June 2009 amendment, we issued 151,515 shares of our common stock valued at approximately $1.0 million to Ribotask ApS and agreed to pay $1.0 million in four installments of $250,000 each due at various intervals through July 2010.

In connection with our agreements, as amended, we granted Ribotask a royalty-bearing, world-wide exclusive license to use the assigned patents to develop and sell products intended solely for use as reagents or for testing. The royalty rates to be paid to us by Ribotask are in the low single digits and to date we have not recognized any revenue under this agreement, as amended.

With the newly acquired exclusive rights to UNA technology combined with the exclusive rights to Conformationally Restricted Nucleotide (CRN) technology for both therapeutics and diagnostics acquired in March 2010 from Valeant Pharmaceuticals, we have established one of the few intellectual property portfolios supporting a nucleic acid-based personalized medicine platform with the ability to pursue proprietary nucleic acid-based therapeutics and diagnostics.

University of British Columbia — In November 2009, we expanded and extended a previous agreement established in 2008 with University of British Columbia/Vancouver Prostate Centre (VPC) in the area of bladder cancer. The VPC is a National Centre for Excellence for translational research and this agreement provides us access to cutting-edge bladder cancer models and evaluation techniques and interactions with world-renowned researchers and clinicians. Data derived from studies conducted under this agreement have already demonstrated the potency of UsiRNAs and DiLA^2 -based delivery for inhibition of target mRNA and reduction in tumor growth. The focus of the expanded agreement will be the evaluation of additional critical targets in bladder cancer and the therapeutic impact on tumor biology and growth. The research agreement requires that we make payments for work completed under an agreed work plan. Through December 31, 2010, we have recognized approximately $0.2 million as research and development expense under this agreement. The agreement may be terminated by either party with ninety days written notice. The current contract period has been extended and will now terminate November 30, 2011.

PROPRIETARY RIGHTS AND INTELLECTUAL PROPERTY

We rely primarily on patents and contractual obligations with employees and third parties to protect our proprietary rights. We have sought, and intend to continue to seek, appropriate patent protection for important and strategic components of our proprietary technologies by filing patent applications in the U.S. and certain foreign countries. There can be no assurance that any of our patents will guarantee protection or market exclusivity for our products and product candidates. We also use license agreements both to access external technologies and to convey certain intellectual property rights to others. Our financial success will be dependent in part on our ability to obtain commercially valuable patent claims and to protect our intellectual property rights and to operate without infringing upon the proprietary rights of others. As of March 14, 2011, we owned or controlled 70 issued or allowed patents, as described in the following table, and we also owned or controlled 54 pending U.S. patent applications, including provisional patent applications, to protect our RNAi proprietary technologies.

Estimated Expiration	No. of Issued Patents	Jurisdiction
2012	1	Germany
2014	1	U.S.
2018	1	U.S.
2019	2	U.S.
2020	1	U.S.
2021	1	U.S.
2022	2	U.S.
	2	Australia
	3	Austria
	1	Belgium
	1	Canada
	2	China
	4	EPO
	3	France
	3	Germany
	1	Ireland
	1	Italy
	1	Japan
	3	Netherlands
	2	Singapore
	1	Spain
	2	Switzerland
	3	U.K.
2023	3	U.S.
	1	Austria
	1	EPO
	1	France
	1	Germany
	1	Italy
	1	Netherlands
	1	Switzerland
	1	U.K.
2024	2	U.S.
	1	China
2025	3	U.S.
	1	EPO
	1	Japan
	1	Korea
	1	Mexico
	1	New Zealand
2026	1	Australia
	2	New Zealand
2027	2	U.S.
2028	1	U.S.

The patents listed in the table above will expire in the United States generally between 2014 and 2028, subject to any potential patent term extensions and/or supplemental protection certificates that would extend the terms of the patents in countries where such extensions may become available.

Our patents and patent applications are directed to compositions of matter, formulations, methods of use and/or methods of manufacturing, as appropriate. The patent positions of pharmaceutical and biotechnology companies, including ours, are generally uncertain and involve complex legal and factual questions. Our business could be negatively impacted by any of the following:

- the claims of any patents that are issued may not provide meaningful protection, may not provide a basis for commercially viable products or may not provide us with any competitive advantages;
- our patents may be challenged by third parties;
- others may have patents that relate to our technology or business that may prevent us from marketing our product candidates unless we are able to obtain a license to those patents;
- the pending patent applications to which we have rights may not result in issued patents; and
- we may not be successful in developing additional proprietary technologies that are patentable.

In addition, others may independently develop similar or alternative technologies, duplicate any of our technologies and, if patents are licensed or issued to us, design around the patented technologies licensed to or developed by us. Moreover, we could incur substantial costs in litigation if we have to defend ourselves in patent suits brought by third parties or if we initiate such suits.

COMPETITION

There are a growing number of biotechnology companies in this space and a few large pharmaceutical companies with internal programs. The competition includes companies focused on constructs (double-stranded {siRNA and miRNA mimetics} or single-stranded {antagomirs and translational inhibition oligonucleotides}) or delivery. However, we believe only a small number can claim a drug discovery platform (constructs and delivery), and only Marina Biotech is in the unique position of having multiple drug discovery platforms directed at multiple RNA-based therapeutic modalities and thereby have the ability to develop the most appropriate therapeutic for a specific undruggable target for a specific indication.

A sampling of competitors includes Alnylam Pharmaceuticals, Benitec, Dicerna Pharmaceuticals, Quark Pharmaceuticals, Regulus, RXi Pharmaceuticals, Silence Therapeutics, and Tekmira Pharmaceuticals. The pharmaceutical companies with internal oligonucleotide R&D programs include AstraZeneca, GlaxoSmithKline, Novartis and Merck.

Universities and public and private research institutions are also potential competitors. While these organizations primarily have educational objectives, they may develop proprietary technologies related to the drug delivery field or secure protection that we may need for development of our technologies and products. We may attempt to license one or more of these proprietary technologies, but these licenses may not be available to us on acceptable terms, if at all.

Some of our competitors have substantially greater resources and experience, manufacturing capabilities, regulatory expertise, sales and marketing resources, and established collaborative arrangements with pharmaceutical companies. Our competitors, either alone or with their collaboration partners, may succeed in developing product candidates that are similar or preferable in effectiveness, safety, cost and ease of commercialization, and our competitors may obtain IP protection or commercialize competitive products sooner than we do.

LEGACY INTRANASAL TECHNOLOGIES AND THERAPEUTICS

Our efforts to divest and monetize our legacy nasal drug delivery programs and capabilities including:

Cypress Bioscience, Inc. — In August 2010 we entered into an Asset Purchase Agreement with Cypress Bioscience, Inc. (“Cypress”) under which Cypress acquired our patent rights and technology related to

carbetocin, a long-acting analog of oxytocin, a naturally produced hormone that may benefit individuals with autism. Under the agreement, we received an upfront payment of $750,000 and we could receive milestone payments up to $27 million. Cypress will be responsible for all future development and IP related expenses. In addition, Cypress will pay us royalties, in the single digits, on commercial sales.

Par Pharmaceutical — In 2009 we entered into an Asset Purchase Agreement with Par Pharmaceutical ("Par") pursuant to which, among other things, we were entitled to receive earn-out payments for five years based on commercial sales of calcitonin. In December 2010, we entered into an amendment of the Asset Purchase Agreement under which Par agreed to pay us a lump-sum cash payment of $700,000 in lieu of profit sharing for the remainder of the earn-out payment period, which we recognized as revenue in 2010.

GOVERNMENT REGULATION

Government authorities in the U.S. and other countries extensively regulate the research, development, testing, manufacture, labeling, promotion, advertising, distribution and marketing, among other things, of drugs and biologic products. All of our foreseeable product candidates are expected to be regulated as drug products.

In the U.S., the FDA regulates drug products under the Federal Food, Drug and Cosmetic Act (the "FDCA"), and other laws within the Public Health Service Act. Failure to comply with applicable U.S. requirements, both before and after approval, may subject us to administrative and judicial sanctions, such as a delay in approving or refusal by the FDA to approve pending applications, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, and/or criminal prosecutions. Before our drug products are marketed they must be approved by the FDA. The steps required before a novel drug product is approved by the FDA include: (1) pre-clinical laboratory, animal, and formulation tests; (2) submission to the FDA of an Investigational New Drug Application ("IND") for human clinical testing, which must become effective before human clinical trials may begin; (3) adequate and well-controlled clinical trials to establish the safety and effectiveness of the product for each indication for which approval is sought; (4) submission to the FDA of an New Drug Application ("NDA"); (5) satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the drug product is produced to assess compliance with cGMP; and FDA review and finally (6) approval of an NDA.

Pre-clinical tests include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies. The results of the pre-clinical tests, together with manufacturing information and analytical data, are submitted to the FDA as part of an IND, which must become effective before human clinical trials may begin. An IND will automatically become effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions, such as the conduct of the trials as outlined in the IND. In such a case, the IND sponsor and the FDA must resolve any outstanding FDA concerns or questions before clinical trials can proceed. There can be no assurance that submission of an IND will result in FDA authorization to commence clinical trials. Once an IND is in effect, each clinical trial to be conducted under the IND must be submitted to the FDA, which may or may not allow the trial to proceed.

Clinical trials involve the administration of the investigational drug to human subjects under the supervision of qualified physician-investigators and healthcare personnel. Clinical trials are typically conducted in three defined phases, but the phases may overlap or be combined. Phase 1 usually involves the initial administration of the investigational drug or biologic product to healthy individuals to evaluate its safety, dosage tolerance and pharmacodynamics. Phase 2 usually involves trials in a limited patient population, with the disease or condition for which the test material is being developed, to evaluate dosage tolerance and appropriate dosage; identify possible adverse side effects and safety risks; and preliminarily evaluate the effectiveness of the drug or biologic for specific indications. Phase 3 trials usually further evaluate effectiveness and test further for safety by administering the drug or biologic candidate in its final form in an expanded patient population. Our product development partners, the FDA, or we may suspend clinical trials at any time on various grounds, including any situation where we believe that patients are being exposed to an unacceptable health risk or are obtaining no medical benefit from the test material.

Assuming successful completion of the required clinical testing, the results of the pre-clinical trials and the clinical trials, together with other detailed information, including information on the manufacture and composition of the product, are submitted to the FDA in the form of an NDA requesting approval to market the product for one or more indications. Before approving an application, the FDA will usually inspect the facilities where the product is manufactured, and will not approve the product unless cGMP compliance is satisfactory. If the FDA determines the NDA is not acceptable, the FDA may outline the deficiencies in the NDA and often will request additional information. If the FDA approves the NDA, certain changes to the approved product, such as adding new indications, manufacturing changes or additional labeling claims are subject to further FDA review and approval. The testing and approval process requires substantial time, effort and financial resources, and we cannot be sure that any approval will be granted on a timely basis, if at all. Under the Orphan Drug Act, the FDA may grant orphan drug designation to a drug intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the U.S. and for which there is no reasonable expectation that the cost of developing and making available in the U.S. a drug for this type of disease or condition will be recovered from sales in the U.S. for that drug. Orphan drug designation must be requested before submitting an NDA. After the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications, including a full BLA, to market the same drug for the same indication, except in very limited circumstances, for seven years. The FDA granted orphan drug designation to CEQ508 for the treatment of FAP in December 2010.

In addition, regardless of the type of approval, we and our partners are required to comply with a number of FDA requirements both before and after approval. For example, we are required to report certain adverse reactions and production problems, if any, to the FDA, and to comply with certain requirements concerning advertising and promotion for our products. In addition, quality control and manufacturing procedures must continue to conform to cGMP after approval, and the FDA periodically inspects manufacturing facilities to assess compliance with cGMP. Accordingly, manufacturers must continue to expend time, money and effort in all areas of regulatory compliance, including production and quality control to comply with cGMP. In addition, discovery of problems, such as safety problems, may result in changes in labeling or restrictions on a product manufacturer or NDA holder, including removal of the product from the market.

PRODUCT LIABILITY

We currently have product liability insurance coverage for CEQ508 in the amount of $5 million per occurrence and a $5 million aggregate limitation, subject to a deductible of $10,000 per occurrence, with an aggregate deductible of $50,000. To satisfy our agreement with Par, we were required to maintain product liability coverage at a $5 million level until February 2011 and for Merck & Co., we were required to maintain such coverage at a $20 million level until March 2011. To satisfy these requirements we have purchased extended reporting period coverage, in the amount of $20 million per occurrence with a $20 million aggregate limitation, subject to a deductible of $25,000 per occurrence. This coverage is only for products tested, manufactured or marketed prior to December 1, 2008, and only for claims reported until March 1, 2011.

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.

EMPLOYEES

As of March 15, 2011, we had 45 full-time employees, of which approximately 30 are engaged in R&D, and the others are engaged in support functions including finance, administration, information technology, human resources, business development, corporate and investor relations and legal affairs. None of our employees is covered by a collective bargaining agreement.

COMPANY INFORMATION

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy these reports, proxy statements and other information at the SEC's Public Reference Room at 100 F Street N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 or e-mail the SEC at publicinfo@sec.gov for more information on the operation of the public reference room. Our SEC filings are also available at the SEC's website at http://www.sec.gov. Our Internet address is http://www.marinabio.com. There we make available, free of charge, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC.

ITEM 1A. ***Risk Factors.***

Risks Relating to being an Early State Drug Development Company and Managing Growth

We have no history of profitability and there is a potential for fluctuation in operating results.

We have experienced significant operating losses since inception and have an accumulated deficit of $290.8 million at December 31, 2010. In the third quarter of 2008 we suspended all research and clinical development of our intranasal programs and incurred a restructuring charge to exit a facility which was used primarily for our intranasal activities. As of September 30, 2008, our accumulated deficit, which was primarily related to clinical development of our intranasal programs, was approximately $241.8 million. We currently have no revenues from product sales and will not have any such revenues unless and until a marketable product is successfully developed, receives regulatory approvals, and is successfully manufactured and distributed to the market. We expect to continue to experience losses for the foreseeable future. See "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Forward-Looking Statements".

We are developing products based on RNA interference technology. The process of developing such products requires significant research and development efforts, including basic research, pre-clinical and clinical development, and regulatory approval. These activities, together with our sales, marketing, general and administrative expenses, have resulted in operating losses in the past, and there can be no assurance that we can achieve profitability in the future. Our ability to achieve profitability depends on our ability, alone or with our collaborators, to develop our drug candidates, conduct pre-clinical development and clinical trials, obtain necessary regulatory approvals, and manufacture, distribute, market and sell our drug products. We cannot assure you that we will be successful at any of these activities or predict if or when we will ever become profitable.

We do not generate operating income and will require additional financing in the future. If additional capital is not available, we may have to curtail or cease operations.

Our business currently does not generate the cash that is necessary to finance our operations. We incurred net losses of approximately $8.0 million in 2009 and $27.8 million in 2010. Subject to the success of our research and development programs and potential licensing or partnering transactions, we will need to raise significant additional capital to:

- fund research and development activities relating to our RNAi drug discovery platform and the development of our product candidates, including clinical and pre-clinical trials;
- obtain regulatory approval for our product candidates;
- protect our intellectual property;
- attract and retain highly-qualified scientists;
- respond effectively to competitive pressures; and
- acquire complementary businesses or technologies.

Our future capital needs depend on many factors, including:

- the scope, duration and expenditures associated with our research and development;
- continued scientific progress in these programs;
- the outcome of potential partnering or licensing transactions, if any;
- competing technological developments;
- our proprietary patent position, if any, in our products; and
- the regulatory approval process for our products.

We believe that our existing cash and cash equivalents should be sufficient to fund our operations into the second quarter of 2011. We may seek to raise necessary funds through public or private equity offerings, debt financings or additional strategic alliances and licensing arrangements. We may not be able to obtain additional financing on terms favorable to us, if at all. General market conditions may make it very difficult for us to seek financing from the capital markets, and the terms of any financing may adversely affect the holdings or the rights of our stockholders. For example, if we raise additional funds by issuing equity securities, further dilution to our stockholders will result. In addition, as a condition to providing additional funds to us, future investors may demand, and may be granted, rights superior to those of existing stockholders. Debt financing, if available, may involve restrictive covenants that could limit our flexibility in conducting future business activities and, in the event of insolvency, would be paid before holders of equity securities received any distribution of corporate assets. We may be required to relinquish rights to our technologies or drug candidates, or grant licenses on terms that are not favorable to us, in order to raise additional funds through alliance, joint venture or licensing arrangements. If adequate funds are not available, we may have to delay, reduce or eliminate one or more of our research or development programs or reduce overall overhead expenses. These actions would likely reduce the market price of our common stock.

Our independent registered public accounting firm has expressed substantial doubt about our ability to continue as a going concern.

Our independent registered public accounting firm, in its audit opinion issued in connection with our consolidated balance sheets as of December 31, 2010 and 2009 and our consolidated statements of operations, stockholders' equity (deficit) and cash flows for the years ended December 31, 2010 and 2009, has expressed substantial doubt about our ability to continue as a going concern given our net losses, accumulated deficit and negative cash flows. The accompanying consolidated financial statements were prepared on the basis of a going concern, which contemplates the realization of assets and the satisfaction of liabilities and commitments in the normal course of business, and accordingly do not contain any adjustments which may result due to the outcome of this uncertainty.

If we lose our key personnel, or if we are unable to attract and retain additional personnel, then we may be unable to successfully develop our business.

If we are unable to retain one or more of our executive officers, including J. Michael French, our President and Chief Executive Officer, Peter S. Garcia, our Chief Financial Officer and Secretary, Dr. Barry Polisky, our Chief Scientific Officer, or any of our other key managers or key technical personnel, our business could be seriously harmed. We have entered into employment agreements with Messrs. French and Garcia and with Dr. Polisky. Whether or not a member of management has executed an employment agreement, there can be no assurance that we will be able to retain our key managers or key technical personnel or replace any of them if we lose their services for any reason. Although we make a significant effort and allocate substantial resources to recruit candidates, competition for competent managers and technical personnel is intense. Failure to attract and retain our key personnel may compromise our ability to negotiate and enter into additional collaborative arrangements, delay our ongoing discovery research efforts, delay pre-clinical or clinical testing of our product candidates, delay the regulatory approval process or prevent us from successfully commercializing our product candidates. In addition, if we have to replace any of these individuals, we may not be able to replace knowledge that they have about our operations.

We may encounter difficulties managing our growth, which could adversely affect our business.

We currently have approximately 45 full-time-equivalent employees, and we expect that as we seek to increase the number of product candidates we are developing we will need to expand our operations in the future. If our business grows, it may place a strain on us, our management and our resources. Our ability to effectively manage our operations, relationships, growth and various projects requires us to continue to improve our operational, financial and management controls, and our reporting systems and procedures, and to attract and

retain sufficient numbers of talented employees. We may not be able to successfully implement these tasks on a larger scale and, accordingly, we may not achieve our research, development and commercialization goals. If we do not improve our operational, financial and management information systems, or fail to effectively monitor or manage our growth, our business could suffer significantly.

If we make strategic acquisitions, we will incur a variety of costs and might never realize the anticipated benefits.

Despite our acquisition of Cequent Pharmaceuticals, Inc. in July 2010, we have limited experience in independently identifying acquisition candidates and integrating the operations of acquisition candidates with our company. If appropriate opportunities become available, we might attempt to acquire approved products, additional drug candidates, technologies or businesses that we believe are a strategic fit with our business. If we pursue any transaction of that sort, the process of negotiating the acquisition and integrating an acquired product, drug candidate, technology or business might result in operating difficulties and expenditures and might require significant management attention that would otherwise be available for ongoing development of our business, whether or not any such transaction is ever consummated. Moreover, we might never realize the anticipated benefits of any acquisition. Future acquisitions could result in potentially dilutive issuances of equity securities, the incurrence of debt, contingent liabilities, or impairment expenses related to goodwill, and impairment or amortization expenses related to other intangible assets, which could harm our financial condition.

Failure of our internal control over financial reporting could harm our business and financial results.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process to provide reasonable assurance regarding the reliability of financial reporting for external purposes in accordance with accounting principles generally accepted in the United States. Internal control over financial reporting includes maintaining records that in reasonable detail accurately and fairly reflect our transactions; providing reasonable assurance that transactions are recorded as necessary for preparation of the financial statements; providing reasonable assurance that receipts and expenditures of our assets are made in accordance with management authorization; and providing reasonable assurance that unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements would be prevented or detected on a timely basis. Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our financial statements would be prevented or detected. Our growth and entry into new products, technologies and markets will place significant additional pressure on our system of internal control over financial reporting. Any failure to maintain an effective system of internal control over financial reporting could limit our ability to report our financial results accurately and timely or to detect and prevent fraud.

Our business and operations could suffer in the event of system failures.

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. Such events could cause interruption of our operations. For example, the loss of pre-clinical trial data or data from completed or ongoing clinical trials for our product candidates could result in delays in our regulatory filings and development efforts and significantly increase our costs. To the extent that any disruption or security breach were to result in a loss of or damage to our data, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the development of our product candidates could be delayed.

Risks Related to the Development and Regulatory Approval of our Drug Candidates

RNAi-based drug development is unproven and may never lead to marketable products.

Our future success depends on the successful development of products based on RNAi technology. Neither we nor any other company has received regulatory approval to market therapeutics utilizing siRNAs. The scientific discoveries that form the basis for our efforts to discover and develop new siRNA drugs are relatively new. The scientific evidence to support the feasibility of developing drugs based on these discoveries is both preliminary and limited. Skepticism as to the feasibility of developing RNAi therapeutics has been expressed in scientific literature.

Relatively few product candidates based on RNAi technology have ever been tested in animals or humans, none of which have received regulatory approval. We currently have only limited data suggesting that we can introduce typical drug-like properties and characteristics into siRNAs, such as favorable distribution within the body or tissues or the ability to enter cells and exert their intended effects. In addition, RNA-based compounds 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 harmful ways. We may make significant expenditures trying to develop RNA-based technologies without success. As a result, we may never succeed in developing a marketable product. If we do not successfully develop and commercialize drugs based upon our RNA-based drug candidates, we may not become profitable and the value of our common stock will likely decline.

Further, our focus solely on RNAi technology for developing drugs, as opposed to multiple, more proven technologies for drug development, increases the risks associated with the ownership of our common stock. If we are not successful in developing a product candidate using RNAi technology, we may be required to change the scope and direction of our product development activities. In that case, we may not be able to identify and implement successfully an alternative product development strategy.

All of our programs, other than our program for CEQ508, are in pre-clinical studies or early stage research. If we are unable to develop and commercialize our product candidates, our business will be adversely affected.

A key element of our strategy is to discover, develop and commercialize a portfolio of new products. We are seeking to do so through our internal research programs and intend to explore strategic collaborations for the development of new products. Whether or not any product candidates are ultimately identified, research programs to identify new disease targets and product candidates require substantial technical, financial and human resources. Our research programs may initially show promise in identifying potential product candidates, yet fail to yield a successful commercial product for many reasons, including the following:

- competitors may develop alternatives that render our product candidates obsolete;
- a product candidate may not have a sustainable intellectual property position in major markets;
- a product candidate may, after additional studies, be shown to have harmful side effects or other characteristics that indicate it is unlikely to be effective;
- a product candidate may not receive regulatory approval;
- a product candidate may not be capable of production in commercial quantities at an acceptable cost, or at all; or
- a product candidate may not be accepted by patients, the medical community or third-party payors.

Upon entering into clinical trials, clinical trials of our product candidates would be expensive and time-consuming, and the results of any of these trials would be uncertain.

Our research and development programs are at an early stage. Before obtaining regulatory approval for the sale of our product candidates, we must conduct, at our own expense, extensive pre-clinical tests and clinical trials to demonstrate the safety and efficacy in humans of our product candidates. Pre-clinical and clinical testing in patients is a long, expensive and uncertain process, and the historical failure rate for product candidates is high. The length of time generally varies substantially according to the type of drug, complexity of clinical trial design, regulatory compliance requirements, intended use of the drug candidate and rate of patient enrollment for the clinical trials.

A failure of one or more of our pre-clinical studies or clinical trials can occur at any stage of testing. We may experience numerous unforeseen events during, or as a result of, the pre-clinical testing and the clinical trial process that could delay or prevent our ability to receive regulatory approval or potentially commercialize our product candidates, including:

- regulators may not authorize us to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- our pre-clinical tests or clinical trials may produce negative or inconclusive results, and we may decide, or a regulator may require us, to conduct additional pre-clinical testing or clinical trials, or we may abandon projects that we previously expected to be promising;
- enrollment in our clinical trials may be slower than we anticipate or participants may drop out of our clinical trials at a higher rate than we anticipate, resulting in significant delays;
- our third party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner;
- our product candidates may have very different chemical and pharmacological properties in humans than in laboratory testing and may interact with human biological systems in unforeseen, ineffective or harmful ways;
- we might have to suspend or terminate our clinical trials if the participants are being exposed to unacceptable health risks;
- regulators, including the FDA, may require that we hold, suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements;
- the cost of our clinical trials may be greater than we anticipate;
- the supply or quality of our drug candidates or other materials necessary to conduct our clinical trials may be insufficient or inadequate; and
- effects of product candidates may not have the desired effects or may include undesirable side effects or the product candidates may have other unexpected characteristics.

Further, even if the results of our pre-clinical studies or clinical trials are initially positive, it is possible that we will obtain different results in the later stages of drug development or that results seen in clinical trials will not continue with longer term treatment. Drugs in late stages of clinical development may fail to show the desired safety and efficacy traits despite having progressed through initial clinical testing. For example, positive results in early Phase 1 or Phase 2 clinical trials may not be repeated in larger Phase 2 or Phase 3 clinical trials. All of our potential drug candidates are prone to the risks of failure inherent in drug development. The clinical trials of any or all of our drugs or drug candidates could be unsuccessful, which would prevent us from commercializing these drugs. The FDA conducts its own independent analysis of some or all of the pre-clinical and clinical trial data submitted in a regulatory filing and often comes to different and potentially more negative conclusions than the analysis performed by the drug sponsor. Our failure to develop safe, commercially viable

drugs approved by the FDA would substantially impair our ability to generate revenues and sustain our operations and would materially harm our business and adversely affect our stock price. In addition, significant delays in pre-clinical studies and clinical trials will impede our ability to seek regulatory approvals, commercialize our drug candidates and generate revenue, as well as substantially increase our development costs.

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 adversely affected.

Following any initial FDA or foreign regulatory approval of any drugs we may develop, we will also be 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 candidates will also be subject to periodic review and inspection by regulatory authorities, including 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. Our product promotion, advertising and labeling also will be subject to regulatory requirements and continuing regulatory review. 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 extensive U.S. and foreign government regulation, including the requirement of approval before our products may be manufactured or marketed.

We, our present and future collaboration partners, and the drug product candidates developed by us or in collaboration with partners are subject to extensive regulation by governmental authorities in the U.S. and other countries. Failure to comply with applicable requirements could result in, among other things, any of the following actions: warning letters, fines and other civil penalties, unanticipated expenditures, delays in approving or refusal to approve a product candidate, product recall or seizure, interruption of manufacturing or clinical trials, operating restrictions, injunctions and criminal prosecution.

Our product candidates cannot be marketed in the U.S. without FDA approval or clearance, and they cannot be marketed in foreign countries without applicable regulatory approval. Neither the FDA nor any foreign regulatory authority has approved any of our product candidates. Our product candidates are in pre-clinical and early clinical development, and will have to be approved by the FDA or applicable foreign regulatory authorities before they can be marketed in the U.S. or abroad. Obtaining regulatory approval requires substantial time, effort, and financial resources, and may be subject to both expected and unforeseen delays, including, without limitation, citizen's petitions or other filings with the FDA, and there can be no assurance that any approval will be granted on a timely basis, if at all, or that delays will be resolved favorably or in a timely manner. If our product candidates are not approved in a timely fashion, or are not approved at all, our business and financial condition may be adversely affected. We, our present and future collaboration partners or the FDA may suspend or terminate human clinical trials at any time on various grounds, including a finding that the patients are being exposed to an unacceptable health risk.

In addition, both before and after regulatory approval, we, our collaboration partners and our product candidates are subject to numerous requirements by the FDA and foreign regulatory authorities covering, among other things, testing, manufacturing, quality control, labeling, advertising, promotion, distribution and export. These requirements may change and additional government regulations may be promulgated that could affect us, our collaboration partners or our product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the U.S. or abroad. There can be no assurance that we will not be required to incur significant costs to comply with such laws and regulations in the future or that such laws or regulations will not have a material adverse effect upon our business.

We use hazardous chemicals and biological materials in our business. Any disputes relating to improper use, handling, storage or disposal of these materials could be time-consuming and costly.

Our research and development operations involve the use of hazardous and biological, potentially infectious, materials. We are subject to the risk of accidental contamination or discharge or any resultant injury from these materials. Federal, state and local laws and regulations govern the use, manufacture, storage, handling and disposal of these materials and specific waste products. We could be subject to damages, fines or penalties in the event of an improper or unauthorized release of, or exposure of individuals to, these hazardous materials, and our liability could be substantial. The costs of complying with these current and future environmental laws and regulations may be significant, thereby impairing our business.

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 biohazardous materials. We maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of these materials. The limits of our workers' compensation insurance are mandated by state law, and our workers' compensation liability is capped at these state-mandated limits. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials. Additional federal, state and local laws and regulations affecting our operations may be adopted in the future. We may incur substantial costs to comply with, and substantial fines or penalties if we violate, any of these laws or regulations.

Failure to comply with foreign regulatory requirements governing human clinical trials and marketing approval for drugs could prevent us from selling our drug candidates in foreign markets, which may adversely affect our operating results and financial condition.

The requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement for marketing our drug candidates outside the U.S. vary greatly from country to country. We have limited experience in obtaining foreign regulatory approvals. The time required to obtain approvals outside the U.S. may differ from that required to obtain FDA approval. We may not obtain foreign regulatory approvals on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other countries or by the FDA. Failure to comply with these regulatory requirements or obtain required approvals could impair our ability to develop foreign markets for our drug candidates and may have a material adverse effect on our financial condition or results of operations.

Risks Related to our Dependence on Third Parties

We may become dependent on our collaborative arrangements with third parties for a substantial portion of our revenue, and our development and commercialization activities may be delayed or reduced if we fail to initiate, negotiate or maintain successful collaborative arrangements.

We may become dependent on possible future collaborators to develop and commercialize many of our product candidates and to provide the regulatory compliance, sales, marketing and distribution capabilities required for the success of our business. If we fail to secure or maintain successful collaborative arrangements, our development and commercialization activities will be delayed, reduced or terminated, and our revenues could be materially and adversely impacted.

Over the next several years, we may depend on these types of collaboration partnerships for a significant portion of our revenue. The expected future milestone payments and cost reimbursements from collaboration agreements could provide an important source of financing for our research and development programs, thereby facilitating the application of our technology to the development and commercialization of our products. These collaborative agreements might be terminated either by us or by our partners upon the satisfaction of certain

notice requirements. Our partners may not be precluded from independently pursuing competing products and drug delivery approaches or technologies. Even if our partners continue their contributions to our collaborative arrangements, of which there can be no assurance, they may nevertheless determine not to actively pursue the development or commercialization of any resulting products. Our partners may fail to perform their obligations under the collaborative arrangements or may be slow in performing their obligations. In addition, our partners may experience financial difficulties at any time that could prevent them from having available funds to contribute to these collaborations. If our collaboration partners fail to conduct their commercialization, regulatory compliance, sales and marketing or distribution activities successfully and in a timely manner, or if they terminate or materially modify their agreements with us, the development and commercialization of one or more product candidates could be delayed, curtailed or terminated because we may not have sufficient financial resources or capabilities to continue such development and commercialization on our own.

For example, in February 2011, we entered into an exclusive research and license agreement with Debiopharm S.A. concerning the development and commercialization of our pre-clinical program in bladder cancer, pursuant to which we and Debiopharm will work together to advance to market an RNAi-based therapy for the treatment of non-muscle invasive bladder cancer. Under the agreement, Debiopharm will have full responsibility for the development and commercialization of any products arising from the partnership, and will fund all of our research and development costs for the bladder cancer program beginning in February 2011. Debiopharm also agreed to pay to us up to $25 million based on predefined research and development milestones as well as royalties on the sales of products resulting from the partnership. If Debiopharn terminates this agreement or fails to perform its obligations thereunder, we may not be able to advance our bladder cancer program as scheduled, or at all. If that were to occur, we may not receive any revenues from our bladder cancer program or our agreement with Debiopharm, including any milestone or royalty payments.

An interruption in the supply of our raw and bulk materials needed for our product candidates could cause our product development to be slowed or stopped.

We currently obtain supplies of critical raw and bulk materials used in our research and development efforts from several suppliers. However, we do not have long-term contracts with any of these suppliers. While our existing arrangements supply sufficient quantities of raw and bulk materials needed to accomplish the current preclinical and clinical development of our product candidates, there can be no assurance that we would have the capability to manufacture sufficient quantities of our product candidates to meet our needs if our suppliers are unable or unwilling to supply such materials. Any delay or disruption in the availability of raw or bulk materials could slow or stop research and development of the relevant product.

We rely and anticipate that we will continue to rely on third parties to conduct our clinical trials, and those third parties may not perform satisfactorily, including failing to meet established deadlines for the completion of such clinical trials.

We are, and anticipate that we will continue to be, dependent on contract research organizations, third-party vendors and investigators for pre-clinical testing and clinical trials related to our drug discovery and development efforts. These parties are not our employees and we cannot control the amount or timing of resources that they devote to our programs. If they fail to devote sufficient time and resources to our drug development programs or if their performance is substandard, it will delay the development and commercialization of our product candidates. The parties with which we contract for execution of our clinical trials play a significant role in the conduct of the trials and the subsequent collection and analysis of data. Their failure to meet their obligations could adversely affect clinical development of our product candidates. Moreover, these parties also may have relationships with other commercial entities, some of which may compete with us. If they assist our competitors, it could harm our competitive position.

If we were to lose our relationship with any one or more of these parties, we could experience a significant delay in both identifying another comparable provider and then contracting for its services. We may then be

unable to retain an alternative provider on reasonable terms, if at all. Even if we locate an alternative provider, is it likely that this provider may need additional time to respond to our needs and may not provide the same type or level of service as the original provider. In addition, any provider that we retain will be subject to Good Laboratory Practices, or cGLP, and similar foreign standards and we do not have control over compliance with these regulations by these providers. Consequently, if these practices and standards are not adhered to by these providers, the development and commercialization of our product candidates could be delayed.

We have very limited experience in marketing, selling or distributing our products, and we may need to rely on marketing partners or contract sales companies.

Even if we are able to develop our products and obtain necessary regulatory approvals, we have very limited experience or capabilities in marketing, selling or distributing our products. We currently have no sales, marketing and distribution infrastructure. Accordingly, we will be dependent on our ability to build this capability ourselves, which would require the investment of significant financial and management resources, or to find collaborative marketing partners or contract sales companies for commercial sale of our internally-developed products. Even if we find a potential marketing partner, of which there can be no assurance, we may not be able to negotiate a licensing contract on favorable terms to justify our investment or achieve adequate revenues.

We have very limited manufacturing experience or resources and we must incur significant costs to develop this expertise or rely on third parties to manufacture our products.

We have very limited manufacturing experience. Our internal manufacturing capabilities are limited to small-scale production of non-cGMP material for use in *in vitro* and *in vivo* experiments. Some of our product candidates utilize specialized formulations whose scale-up and manufacturing could be very difficult. We also have very limited experience in such scale-up and manufacturing, requiring us to depend on a limited number of third parties, who might not be able to deliver in a timely manner, or at all. In order to develop products, apply for regulatory approvals and commercialize our products, we will need to develop, contract for, or otherwise arrange for the necessary manufacturing capabilities. We may manufacture clinical trial materials ourselves or we may rely on others to manufacture the materials we will require for any clinical trials that we initiate. There are a limited number of manufacturers that supply synthetic siRNAs. We currently rely on several contract manufacturers for our supply of synthetic siRNAs. There are risks inherent in pharmaceutical manufacturing that could affect the ability of our contract manufacturers to meet our delivery time requirements or provide adequate amounts of material to meet our needs. Included in these risks are synthesis and purification failures and contamination during the manufacturing process, which could result in unusable product and cause delays in our development process, as well as additional expense to us. To fulfill our siRNA requirements, we may also need to secure alternative suppliers of synthetic siRNAs. In addition to the manufacture of the synthetic siRNAs, we may have additional manufacturing requirements related to the technology required to deliver the siRNA to the relevant cell or tissue type. In some cases, the delivery technology we utilize is highly specialized or proprietary, and for technical and legal reasons, we may have access to only one or a limited number of potential manufacturers for such delivery technology. Failure by these manufacturers to properly formulate our siRNAs for delivery could also result in unusable product and cause delays in our discovery and development process, as well as additional expense to us.

The manufacturing process for any products that we may develop is subject to the FDA and foreign regulatory authority approval process and we will need to contract with manufacturers who can meet all applicable FDA and foreign regulatory authority requirements on an ongoing basis. In addition, if we receive the necessary regulatory approval for any product candidate, we also expect to rely on third parties, including our commercial collaborators, to produce materials required for commercial supply. We may experience difficulty in obtaining adequate manufacturing capacity for our needs. If we are unable to obtain or maintain contract manufacturing for these product candidates, or to do so on commercially reasonable terms, we may not be able to successfully develop and commercialize our products.

To the extent that we enter into manufacturing arrangements with third parties, we will depend on these third parties to perform their obligations in a timely manner and consistent with regulatory requirements, including those related to quality control and quality assurance. The failure of a third-party manufacturer to perform its obligations as expected could adversely affect our business in a number of ways, including:

- we may not be able to initiate or continue pre-clinical and clinical trials of products that are under development;
- we may be delayed in submitting regulatory applications, or receiving regulatory approvals, for our product candidates;
- we may lose the cooperation of our collaborators;
- our products could be the subject of inspections by regulatory authorities;
- we may be required to cease distribution or recall some or all batches of our products; and
- ultimately, we may not be able to meet commercial demands for our products.

If a third-party manufacturer with whom we contract fails to perform its obligations, we may be forced to manufacture the materials ourselves, for which we may not have the capabilities or resources, or enter into an agreement with a different third-party manufacturer, which we may not be able to do on reasonable terms, if at all. In some cases, the technical skills required to manufacture our product may be unique to the original manufacturer and we may have difficulty transferring such skills to a back-up or alternate supplier, or we may be unable to transfer such skills at all. In addition, if we are required to change manufacturers for any reason, we will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. The delays associated with the verification of a new manufacturer could negatively affect our ability to develop product candidates in a timely manner or within budget. Furthermore, a manufacturer may possess technology related to the manufacture of our product candidate that such manufacturer owns independently. This would increase our reliance on such manufacturer or require us to obtain a license from such manufacturer in order to have another third party manufacture our products.

Risks Related to our Intellectual Property and Other Legal Matters

If we are unable to adequately protect our proprietary technology from legal challenges, infringement or alternative technologies, our competitive position may be hurt and our operating results may be negatively impacted.

We specialize in the development and delivery of therapeutics based on RNA-based technologies, and rely on the issuance of patents, both in the U.S. and internationally, for protection against competitive technologies. Although we believe we exercise the necessary due diligence in our patent filings, our proprietary position is not established until the appropriate regulatory authorities actually issue a patent, which may take several years from initial filing or may never occur.

Moreover, even the established patent positions of pharmaceutical companies are generally uncertain and involve complex legal and factual issues. Although we believe our issued patents are valid, third parties may infringe our patents or may initiate proceedings challenging the validity or enforceability of our patents. The issuance of a patent is not conclusive as to its claim scope, validity or enforceability. Challenges raised in patent infringement litigation we initiate or in proceedings initiated by third parties may result in determinations that our patents have not been infringed or that they are invalid, unenforceable or otherwise subject to limitations. In the event of any such determinations, third parties may be able to use the discoveries or technologies claimed in our patents without paying us licensing fees or royalties, which could significantly diminish the value of these discoveries or technologies. As a result of such determinations, we may be enjoined from pursuing research, development or commercialization of potential products or may be required to obtain licenses, if available, to the third party patents or to develop or obtain alternative technology. Responding to challenges initiated by third parties may require significant expenditures and divert the attention of our management and key personnel from other business concerns.

Furthermore, it is possible others will infringe or otherwise circumvent our issued patents and that we will be unable to fund the cost of litigation against them or that we would elect not to pursue litigation. In addition, enforcing our patents against third parties may require significant expenditures regardless of the outcome of such efforts. We also cannot assure you that others have not filed patent applications for technology covered by our pending applications or that we were the first to invent the technology. There may also exist third party patents or patent applications relevant to our potential products that may block or compete with the technologies covered by our patent applications and third parties may independently develop IP similar to our patented IP, which could result in, among other things, interference proceedings in the U.S. Patent and Trademark Office to determine priority of invention.

In addition, we may not be able to protect our established and pending patent positions from competitive technologies, which may provide more effective therapeutic benefit to patients and which may therefore make our products, technology and proprietary position obsolete.

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

If we are unable to adequately protect our proprietary intellectual property from legal challenges, infringement or alternative technologies, we will not be able to compete effectively in the drug discovery and development business.

Because intellectual property rights are of limited duration, expiration of intellectual property rights and licenses will negatively impact our operating results.

Intellectual property rights, such as patents and license agreements based on those patents, generally are of limited duration. Our operating results depend on our patents and IP licenses. Therefore, the expiration or other loss of rights associated with IP and IP licenses can negatively impact our business.

Our patent applications may be inadequate in terms of priority, scope or commercial value.

We apply for patents covering our discoveries and technologies as we deem appropriate. However, we may fail to apply for patents on important discoveries or technologies in a timely fashion or at all. Also, our pending patent applications may not result in the issuance of any patents. These applications may not be sufficient to meet the statutory requirements for patentability, and therefore we may be unable to obtain enforceable patents covering the related discoveries or technologies we may want to commercialize. In addition, because patent applications are maintained in secrecy for approximately 18 months after filing, other parties may have filed patent applications relating to inventions before our applications covering the same or similar inventions. In addition, foreign patent applications are often published initially in local languages, and until an English

language translation is available it can be impossible to determine the significance of a third party invention. Any patent applications filed by third parties may prevail over our patent applications or may result in patents that issue alongside patents issued to us, leading to uncertainty over the scope of the patents or the freedom to practice the claimed inventions.

Although we have in-licensed a number of issued patents, the discoveries or technologies covered by these patents may not have any therapeutic or commercial value. Also, issued patents may not provide commercially meaningful protection against competitors. Other parties may be able to design around our issued patents or independently develop products having effects similar or identical to our patented product candidates. In addition, the scope of our patents is subject to considerable uncertainty and competitors or other parties may obtain similar patents of uncertain scope.

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.

We currently are dependent on licenses from third parties for our key technologies relating to fundamental RNAi technologies. Our current licenses impose, and any future licenses we enter are likely to impose, various development, funding, royalty, diligence, sublicensing, insurance and other obligations on us. If our license with respect to any of these technologies is terminated for any reason, the development of the products contemplated by the licenses would be delayed, or suspended altogether, while we seek to license similar technology or develop new non-infringing technology. The costs of obtaining new licenses are high, and many patents in the RNAi field have already been exclusively licensed to third parties, including our competitors. If any of our existing licenses is 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 required to defend lawsuits or pay damages for product liability claims.

Our business inherently exposes us to potential product liability claims. We face substantial product liability exposure in human clinical trials that we may initiate and for products that we sell, or manufacture for others to sell, after regulatory approval. The risk exists even with respect to those drugs that are approved by regulatory agencies for commercial distribution and sale and are manufactured in facilities licensed and regulated by regulatory agencies. Any product liability claims, regardless of their merits, could be costly, divert management's attention, delay or prevent completion of our clinical development programs, and adversely affect our reputation and the demand for our products. We currently have product liability insurance that we believe is appropriate for our stage of development and may need to obtain higher levels prior to marketing any of our product candidates. Any insurance we have or may obtain may not provide sufficient coverage against potential liabilities. Furthermore, clinical trial and product liability insurance is becoming increasingly expensive. As a result, we may be unable to obtain sufficient insurance at a reasonable cost to protect us against losses caused by product liability claims that could have a material adverse effect on our business.

Risks Related to the Commercialization of our Product Candidates

Our product development efforts may not result in commercial products.

Our future results of operations depend, to a significant degree, upon our and any collaboration partners' ability to successfully develop and commercialize pharmaceutical products. The development and commercialization process, particularly with respect to innovative products, is both time consuming and costly and involves a high degree of business risk. Successful product development in the pharmaceutical industry is highly uncertain, and very few research and development projects result in a commercial product. Product candidates that appear promising in the early phases of development, such as in preclinical testing or in early human clinical trials, may fail to reach the market for a number of reasons, such as:

- a product candidate may not perform as expected in later or broader trials in humans and limit marketability of such product candidate;
- necessary regulatory approvals may not be obtained in a timely manner, if at all;
- a product candidate may not be able to be successfully and profitably produced and marketed;
- third parties may have proprietary rights to a product candidate, and do not allow sale on reasonable terms; or
- a product candidate may not be financially successful because of existing therapeutics that offer equivalent or better treatments.

Only one of our product candidates utilizing our technologies has commenced human clinical studies, and none of such product candidates has been approved by the FDA or any foreign regulatory authority. There can be no assurance that any of our product candidates currently in research or development, or that may enter research or development, will ever be successfully commercialized, and delays in any part of the process or our inability to obtain regulatory approval could adversely affect our operating results by restricting introduction of new products by us or any future collaboration partners.

Even if we are successful in developing and commercializing a product candidate, it is possible that the commercial opportunity for RNA-based therapeutics will be limited.

The product candidates that we are developing are based on new technologies and therapeutic approaches, none of which have yet been brought to market. Key participants in pharmaceutical marketplaces, such as physicians, third-party payors and consumers, may not accept a product intended to improve therapeutic results based on RNAi technology. Accordingly, while we believe there will be a commercial market for RNA-based therapeutics utilizing our technologies, there can be no assurance that this will be the case, in particular given the novelty of the field. Many factors may affect the market acceptance and commercial success of any potential products, including:

- establishment and demonstration of the effectiveness and safety of the drugs;
- timing of market entry as compared to competitive products and alternative treatments;
- the benefits of our drugs relative to their prices, and the comparative price of competing products and treatments;
- the availability of adequate government and third-party payor reimbursement;
- marketing and distribution support of our products;
- the safety, efficacy and ease of administration of our product candidates;
- the willingness of patients to accept, and the willingness of medical professionals to prescribe, relatively new therapies; and
- any restrictions on labeled indications.

Risks Related to our Industry

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.

The success of our products will depend upon the extent to which third-party payors, such as Medicare, Medicaid and other domestic and international government programs, private insurance plans and managed care programs, provide reimbursement for the use of such products. 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, or was used for an unapproved indication.

Third-party payors also may refuse to reimburse for experimental procedures and devices. Furthermore, because our programs are in the early stages of development, we are unable at this time to determine their cost-effectiveness and the level or method of reimbursement. Increasingly, the third-party payors, who reimburse patients, such as government and private insurance plans, 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 effected.

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 standards of medical practice;
- they are not excluded as immunizations; and
- they have been approved by the FDA.

There may be significant delays in obtaining insurance coverage for newly-approved drugs, and insurance coverage may be more limited than the purpose for which the drug is 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 health care 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.

We believe that the efforts of governments and third-party payors to contain or reduce the cost of healthcare and legislative and regulatory proposals to broaden the availability of healthcare will continue to affect the business and financial condition of pharmaceutical and biopharmaceutical companies. A number of legislative and regulatory changes in the healthcare system in the United States and other major healthcare markets have been proposed in recent years, and such efforts have expanded substantially in recent years. These developments have included prescription drug benefit legislation that was enacted and took effect in January 2006, healthcare reform legislation recently enacted by certain states, and major healthcare reform legislation that was passed by Congress and enacted into law in the United States in 2010. These developments could, directly or indirectly, affect our ability to sell our products, if approved, at a favorable price.

In particular, in March 2010, the Patient Protection and Affordable Care Act, or PPACA, and a related reconciliation bill were signed into law. This new legislation changes the current system of healthcare insurance and benefits intended to broaden coverage and control costs. The new law also contains provisions that will affect companies in the pharmaceutical industry and other healthcare related industries by imposing additional costs and changes to business practices.

The full effects of the U.S. healthcare reform legislation cannot be known until the new law is implemented through regulations or guidance issued by the Centers for Medicare & Medicaid Services and other federal and state healthcare agencies. The financial impact of the U.S. healthcare reform legislation over the next few years will depend on a number of factors, including but not limited, to the policies reflected in implementing regulations and guidance, and changes in sales volumes for products affected by the new system of rebates, discounts and fees. The new legislation may also have a positive impact on our future net sales, if any, by increasing the aggregate number of persons with healthcare coverage in the United States, but such increases are unlikely to be realized until approximately 2014 at the earliest.

Moreover, we cannot predict what healthcare reform initiatives may be adopted in the future. Further federal and state legislative and regulatory developments are likely, and we expect ongoing initiatives in the United States to increase pressure on drug pricing. Such reforms could have an adverse effect on anticipated revenues from product candidates that we may successfully develop and for which we may obtain regulatory approval and may affect our overall financial condition and ability to develop drug candidates.

The pharmaceutical market is intensely competitive. If we are unable to compete effectively with existing drugs, new treatment methods and new technologies, we may be unable to commercialize successfully any drugs that we develop.

The pharmaceutical market is intensely competitive and rapidly changing. Many large pharmaceutical and biotechnology companies, academic institutions, governmental agencies and other public and private research organizations are pursuing the development of novel drugs for the same diseases that we are targeting or expect to target. Many of our competitors have:

- much greater financial, technical and human resources than we have at every stage of the discovery, development, manufacture and commercialization of products;
- more extensive experience in pre-clinical testing, conducting clinical trials, obtaining regulatory approvals, and in manufacturing, marketing and selling pharmaceutical products;
- product candidates that are based on previously tested or accepted technologies;
- products that have been approved or are in late stages of development; and
- collaborative arrangements in our target markets with leading companies and research institutions.

We will face intense competition from drugs that have already been approved and accepted by the medical community for the treatment of the conditions for which we may develop drugs. We also expect to face competition from new drugs that enter the market. We believe a significant number of drugs are currently under development, and may become commercially available in the future, for the treatment of conditions for which we may try to develop drugs. These drugs may be more effective, safer, less expensive, or marketed and sold more effectively, than any products we develop.

If we successfully develop product candidates, and obtain approval for them, we will face competition based on many different factors, including:

- the safety and effectiveness of our products;
- the ease with which our products can be administered and the extent to which patients accept relatively new routes of administration;

- the timing and scope of regulatory approvals for these products;
- the availability and cost of manufacturing, marketing and sales capabilities;
- price;
- reimbursement coverage; and
- patent position.

Our competitors may develop or commercialize products with significant advantages over any products we develop based on any of the factors listed above or on other factors. Our competitors may therefore be more successful in commercializing their products than we are, which could adversely affect our competitive position and business. Competitive products may make any products we develop obsolete or noncompetitive before we can recover the expenses of developing and commercializing our product candidates. Such competitors could also recruit our employees, which could negatively impact our level of expertise and the ability to execute on our business plan. Furthermore, we also face competition from existing and new treatment methods that reduce or eliminate the need for drugs, such as the use of advanced medical devices. The development of new medical devices or other treatment methods for the diseases we are targeting could make our product candidates noncompetitive, obsolete or uneconomical.

We may be unable to compete successfully against other companies that are working to develop novel drugs and technology platforms using technology similar to ours.

In addition to the competition we face from competing drugs in general, we also face competition from other pharmaceutical companies and medical institutions that are working to develop novel drugs using technology that competes more directly with our own. Among those companies that are working in this field are: Alnylam Pharmaceuticals, Benitec, Dicerna Pharmaceuticals, Inc., Quark Pharmaceuticals, Inc., Regulus, RXi Pharmaceuticals, Silence Therapeutics plc, and Tekmira Pharmaceutical Corp., as well as a number of the multinational pharmaceutical companies. Any of these companies may develop its technology more rapidly and more effectively than us.

In addition to competition with respect to our technology and with respect to specific products, we face substantial competition to discover and develop safe and effective means to deliver the drugs that we develop to the relevant cell and tissue types. Substantial resources are being expended by third parties, both in academic laboratories and in the corporate sector, in the effort to discover and develop a safe and effective means of delivery into the relevant cell and tissue types. If safe and effective means to the relevant cell and tissue types were developed by our competitors, our ability to successfully commercialize a competitive product would be adversely affected.

Many of our competitors have substantially greater research and development capabilities and financial, scientific, technical, manufacturing, marketing, distribution, and other resources than us. 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 products are superior to therapies based on different technologies. If we are not first to market or are unable to demonstrate such superiority, any products for which we are able to obtain approval may not be successful.

Risks Related to our Common Stock

The trading price of our common stock has been volatile, and investors in our common stock may experience substantial losses.

The trading price of our common stock has been volatile and may become volatile again in the future. The trading price of our common stock could decline or fluctuate in response to a variety of factors, including:

- our ability to enter into collaborative arrangements with third parties;

- our failure to meet the performance estimates of securities analysts;
- changes in buy/sell recommendations by securities analysts;
- negative results from our clinical and pre-clinical trials;
- fluctuation in our quarterly operating results;
- substantial sales of our common stock;
- general stock market conditions;
- our general financial condition; or
- other economic or external factors.

The stock markets in general, and the markets for biotechnology stocks in particular, have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. These broad market fluctuations may adversely affect the trading price of our common stock.

The Nasdaq Global Market imposes listing standards on our common stock that we may not be able to fulfill, thereby leading to a possible delisting of our common stock.

As a listed Nasdaq Global Market company, we are subject to rules covering, among other things, certain major corporate transactions, the composition of our Board of Directors and committees thereof, minimum bid price of our common stock and minimum stockholders equity. The failure to meet these or other Nasdaq Global Market requirements may result in the de-listing of our common stock from the Nasdaq Global Market, which could adversely affect the liquidity and market price thereof.

Various restrictions in our charter documents and Delaware law could prevent or delay a change in control of us that is not supported by our board of directors.

We are subject to a number of provisions in our charter documents and Delaware law that may discourage, delay or prevent a merger, acquisition or change of control that a stockholder may consider favorable. These anti-takeover provisions include:

- advance notice procedures for nominations of candidates for election as directors and for stockholder proposals to be considered at stockholders' meetings; and
- the Delaware anti-takeover statute contained in Section 203 of the Delaware General Corporation Law.

Section 203 of the Delaware General Corporation Law prohibits a merger, consolidation, asset sale or other similar business combination between us and any stockholder of 15% or more of our voting stock for a period of three years after the stockholder acquires 15% or more of our voting stock, unless (1) the transaction is approved by our board of directors before the stockholder acquires 15% or more of our voting stock, (2) upon completing the transaction the stockholder owns at least 85% of our voting stock outstanding at the commencement of the transaction, or (3) the transaction is approved by our board of directors and the holders of 66 2/3% of our voting stock, excluding shares of our voting stock owned by the stockholder.

We have never paid dividends on our common stock and we do not anticipate paying cash dividends in the foreseeable future.

We have not paid any dividends on our common stock to date, and we currently intend to retain our future earnings, if any, to fund the development and growth of our business. In addition, the terms of any future debt or credit facility may preclude us from paying any dividends.

The anti-takeover provisions of our stockholder rights plan may entrench management, may delay or prevent beneficial takeover bids by third parties and may prevent or frustrate any stockholder attempt to replace or remove the current management even if the stockholders consider it beneficial to do so.

We have a stockholder rights plan designed to protect our stockholders from coercive or unfair takeover tactics. Under the plan, we declared a dividend of one preferred stock purchase right for each share of common stock outstanding on March 17, 2000. Each preferred stock purchase right entitles the holder to purchase from us 1/1000th of a share of Series A Junior Participating Preferred Stock for $50.00. In the event any acquiring entity or group accumulates or initiates a tender offer to purchase 15% or more of our common stock, then each holder of a preferred stock purchase right, other than the acquiring entity and its affiliates, will have the right to receive, upon exercise of the preferred stock purchase right, shares of our common stock or shares in the acquiring entity having a value equal to two times the exercise price of the preferred stock purchase right. The preferred stock purchase rights will expire on March 17, 2013, unless we extend the expiration date or in certain limited circumstances, we redeem or exchange such rights prior to such date.

The intent of the stockholder rights plan is to protect our stockholders' interests by encouraging anyone seeking control of our company to negotiate with our board of directors. However, our stockholder rights plan could make it more difficult for a third party to acquire us without the consent of our board of directors, even if doing so may be beneficial to our stockholders. This plan may discourage, delay or prevent a tender offer or takeover attempt, including offers or attempts that could result in a premium over the market price of our common stock. This plan could reduce the price that investors might be willing to pay for shares of our common stock in the future. Furthermore, the anti-takeover provisions of our stockholder rights plan may entrench management and make it more difficult for stockholders to replace management even if the stockholders consider it beneficial to do so.

A significant number of shares of our common stock are subject to options, warrants and subscription investment units, and we expect to sell additional shares of our common stock in the future. Sales of these shares will dilute the interests of other security holders and may depress the price of our common stock.

As of March 15, 2011, there were 34,364,514 shares of common stock outstanding. As of March 15, 2011, there were vested outstanding options to purchase 2,033,428 shares of common stock, unvested outstanding options to purchase 543,633 shares of common stock, outstanding warrants to purchase 4,943,276 shares of common stock, and outstanding subscription investment units to purchase 2,348,550 shares of common stock. At March 15, 2011, there were 1,077,895 shares of common stock available for future issuance under our stock compensation plans. In addition, we may issue additional common stock and warrants from time to time to finance our operations. We may also issue additional shares to fund potential acquisitions or in connection with additional stock options or restricted stock granted to our employees, officers, directors and consultants under our equity compensation plans. The issuance, perception that issuance may occur, or exercise of warrants or options will have a dilutive impact on other stockholders and could have a material negative effect on the market price of our common stock.

ITEM 1B. ***Unresolved Staff Comments.***

None.

ITEM 2. ***Properties.***

The following is a summary of our properties and related lease obligations. We do not own any real property. We believe that these facilities are sufficient to support our research and development, operational, manufacturing and administrative needs under our current operating plan.

3830 Monte Villa Parkway, Bothell, Washington. We lease approximately 63,200 square feet of research and development and office space in Bothell, Washington. This lease is scheduled to expire in February 2016 and has a five-year renewal option.

One Kendall Square, Cambridge, Massachusetts. We lease approximately 5,000 square feet of research and development and office space in Cambridge, Massachusetts. This lease is scheduled to expire in July 2012 and has a three-year renewal option.

3450 Monte Villa Parkway, Bothell, Washington. We lease approximately 32,000 square feet of research and development, and office space in Bothell, Washington. Since we exited this facility in September 2008, we have taken steps to reduce our future rent obligations due under the lease, which is scheduled to expire in January 2016. In December 2010, we entered into an amendment of the lease which reduced our future lease obligations by approximately $4.1 million and we issued 2,115,727 shares of our common stock to the landlord. We have no cash rent obligations under the 3450 Monte Villa lease until July 2011.

ITEM 3. ***Legal Proceedings.***

We are subject to various legal proceedings and claims that arise in the ordinary course of business. Our management currently believes that resolution of such legal matters will not have a material adverse impact on our financial position, results of operations or cash flows.

ITEM 4. ***(Removed and Reserved).***

PART II

ITEM 5. ***Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.***

Market Information

Our common stock is listed on the Nasdaq Global Market under the symbol "MRNA." The following table sets forth, for each of the quarterly periods indicated, the range of high and low sales prices of our common stock, as reported on the Nasdaq Global Market. The prices set forth in the table below reflect the 1-for-4 reverse split of our common stock that became effective on the Nasdaq Global Market beginning on July 22, 2010.

Quarter	High	Low
2009:		
First Quarter	$ 2.56	$0.84
Second Quarter	14.20	2.56
Third Quarter	7.72	4.84
Fourth Quarter	7.32	3.08
2010:		
First Quarter	$ 7.48	$3.28
Second Quarter	5.68	3.56
Third Quarter	4.00	2.18
Fourth Quarter	2.59	1.31

On March 21, 2011 the closing price of our common stock reported on the Nasdaq Global Market was $0.63 per share.

Holders

As of March 16, 2011, there were approximately 15,000 beneficial holders of record of our common stock.

Dividends

Payment of dividends and the amount of dividends depend on matters deemed relevant by our Board, such as our results of operations, financial condition, cash requirements, future prospects and any limitations imposed by law, credit agreements and debt securities. To date, we have not paid any cash dividends or stock dividends on our common stock. In addition, we currently anticipate that we will not pay any cash dividends in the foreseeable future and intend to use retained earnings, if any, for working capital purposes.

Unregistered Sales of Equity Securities

Pursuant to that certain Payment Acknowledgement between our company and Canaccord Genuity Inc. dated December 31, 2010, we issued to Canaccord Genuity an aggregate of 289,436 shares of our common stock in full and complete satisfaction of any and all remaining liabilities owed to Canaccord Genuity by us arising out of that certain letter agreement dated February 4, 2010 between our company and Canaccord. The services that Canaccord Genuity provided to us pursuant to the letter agreement related to the merger between our company and Cequent Pharmaceuticals, Inc., which merger became effective on July 21, 2010. The shares were offered and sold in reliance on the exemption from registration afforded by Section 4(2) of the Securities Act. On March 14, 2011, we filed a registration statement on Form S-3 (No. 333-172819) with the SEC to register for resale the shares of common stock issued to Canaccord.

ITEM 6. Selected Financial Data.

Not applicable.

ITEM 7. ***Management's Discussion and Analysis of Financial Condition and Results of Operations.***

Overview

The following Management's Discussion and Analysis of Financial Condition and Results of Operations is intended to provide information necessary to understand our audited consolidated financial statements for the two-year period ended December 31, 2010, and highlight certain other information which, in the opinion of management, will enhance a reader's understanding of our financial condition, changes in financial condition and results of operations. In particular, the discussion is intended to provide an analysis of significant trends and material changes in our financial position and the operating results of our business during the year ended December 31, 2010 as compared to the year ended December 31, 2009. This discussion should be read in conjunction with our consolidated financial statements for the two-year period ended December 31, 2010 and related notes included elsewhere in this annual report on Form 10-K. These historical financial statements may not be indicative of our future performance. This Management's Discussion and Analysis of Financial Condition and Results of Operations contains a number of forward-looking statements, all of which are based on our current expectations and could be affected by the uncertainties and risks described throughout this filing, particularly in "Item 1A. Risk Factors."

This Item is organized as follows:

- "Background" describes our principal operational activities and summarizes significant trends and developments in our business and in our industry.
- "Going Concern" discusses going concern considerations.
- "Critical Accounting Policies and Estimates" discusses our most critical accounting policies and estimates.
- "Recently Issued Accounting Standards" discusses new accounting standards.
- "Consolidated Results of Operations" discusses the primary factors that contributed to significant variability of our results of operations for 2010 as compared to 2009.
- "Liquidity and Capital Resources" discusses our cash requirements, sources and uses of cash and liquidity, including going concern qualifications.
- "Off-Balance Sheet Arrangements" indicates that we did not have any off-balance sheet arrangements as of December 31, 2010.

Background

We are a biotechnology company focused on the discovery, development and commercialization of oligonucleotide therapies based on gene silencing approaches such as RNA interference (RNAi) and blocking messenger RNA (mRNA) transcription. Our goal is to improve human health through the development of these nucleic acid-based therapeutics as well as the drug delivery technologies that together provide superior treatment options for patients. We have multiple proprietary technologies integrated into a broad oligonucleotide-based drug discovery platform, with the capability to deliver these novel therapeutics via systemic, local and oral administration to target a wide range of human diseases based on the unique characteristics of the cells and organs involved in each disease.

Our pipeline includes a clinical program in Familial Adenomatous Polyposis (FAP) and two preclinical programs in malignant ascites and bladder cancer, respectively. In February 2011, we entered an exclusive agreement with Debiopharm Group for the development and commercialization of the bladder cancer program.

Our team of approximately 30 scientists brings expertise in molecular and cellular biology, microbiology, oligonucleotide, nucleoside, lipid, peptide and alkylated amino acid chemistry, pharmacology, bioinformatics, pre-clinical and clinical development, regulatory affairs and quality control, in addition to an experienced pharmaceutical management team.

In addition to our own, internally developed technologies, we strategically in-license and further develop nucleic acid- and delivery-related technologies, forming an integrated drug discovery platform. We are currently employing our platform for the discovery of multiple nucleic-based therapeutics including RNAi-, microRNA- and single stranded oligonucleotide-based drugs.

Our business strategy is two-fold. First, we strive to establish collaborations and strategic partnerships with pharmaceutical and biotechnology companies in the area of nucleic acid-based therapeutics to: (1) generate revenue and non-dilutive financing; (2) gain access to technical resources; and (3) further validate our drug discovery platforms. Secondly, we expect to advance our own pipeline of nucleic acid-based therapeutics as a foundation upon which to improve all aspects of our drug discovery platform and to have the opportunity to commercialize drug therapies. In terms of collaborations and strategic partnerships, the Debiopharm Group is fully funding the development of the bladder cancer program using our proprietary DiLA^2 delivery technology for local administration which includes the potential for significant milestones, and ProNAi Therapeutics, a licensee of certain of our technology, is funding their Phase 1 clinical trial using our proprietary SMARTICLES® delivery technology for systemic administration, which does not provide any financial benefit to us but continues to validate and advance our SMARTICLES® delivery technology. With these relationships financing the advancement of several of our small interfering RNA (siRNA) proprietary delivery technologies, we are focusing resources on the Phase 1b/2a clinical trial of CEQ508 in Familial Adenomatous Polyposis (FAP) as well as the development of our Conformationally Restricted Nucleotide technology (CRN) for the development of single-stranded oligonucleotide therapies.

In 2010 we entered into five early collaborative efforts (a sixth had been initiated in 2009) with major pharmaceutical companies and a biotechnology company to evaluate our DiLA^2 and SMARTICLES delivery technologies for local and systemic delivery of siRNA. Four of the six efforts continued into 2011, and our goal continues to be the establishment of a strategic partnership with at least one of these companies in 2011. We expect to structure certain of our collaborative agreements to receive upfront non-refundable payments, research and development funding, milestone payments and royalties on commercial sales of products.

With respect to collaborations and strategic partnerships our concept is to provide multiple therapeutic options based on a partner's target and indication. We can apply our broad capabilities to pursue the most appropriate nucleic acid therapeutic approach to a specific, often undruggable, target for a specific indication. Each approach, i.e. RNAi, microRNA or single-strand oligonucleotide, has its advantages and disadvantages and we can utilize our broad capabilities to screen across multiple modalities to identify the most effective therapeutic. We believe this capability makes us extremely unique in the sector.

In 2010, we acquired Cequent Pharmaceuticals, Inc. and its *TransKingdom* RNA™ interference (*tk*RNAi) platform and FAP clinical program, the intellectual property related to CRN technology from Valeant Pharmaceuticals and the intellectual property related to SMARTICLES from Novosom. Additionally, we licensed one of our nasal legacy assets, carbetocin, to Cypress Biosciences.

In order to protect our innovations, which encompass a broad platform of both nucleic acid constructs and delivery technologies, as well as the drug products that may emerge from that platform; we aggressively continue to build upon our extensive and enabling intellectual property ("IP") estate.

We believe we have established ourselves as a leading nucleic acid-based therapeutics company by leveraging our broad and proven expertise to create an industry-leading integrated nucleic acid-based drug discovery platform, which is protected by a strong IP position and validated through licensing agreements with two large international pharmaceutical companies, our FAP phase 1b/2a clinical trial, the bladder cancer research and license agreement with Debiopharm Group and the phase 1 ProNAi trial using our SMARTICLES delivery technology.

Going Concern

The accompanying consolidated financial statements have been prepared on the basis that we will continue as a going concern, which contemplates realization of assets and the satisfaction of liabilities in the normal course of business. As of December 31, 2010, we had an accumulated deficit of approximately $290.8 million and expect to incur losses in the future as we continue our research and development ("R&D") activities. In 2008, we suspended all research and clinical development of our intranasal programs and, as of September 30, 2008, incurred a restructuring charge to exit a facility which was used primarily for our intranasal activities. As of September 30, 2008, our accumulated deficit, which was primarily related to clinical development of our intranasal programs, was approximately $241.8 million. Our operating expenses, primarily R&D in connection with the further development of our RNAi programs, will consume the majority of our cash resources and will require additional funding. We have funded our losses primarily through the sale of common stock and warrants in the public markets and private placements, revenue provided by our collaboration partners, and, to a lesser extent, equipment financing facilities and loans.

At December 31, 2010, we had a working capital deficit (current assets less current liabilities) of approximately $3.3 million and approximately $2.1 million in cash, including approximately $1.0 million in restricted cash. In February 2011, we raised net proceeds of approximately $4.7 million in an underwritten public offering of 6,375,000 shares of common stock and warrants to purchase up to 1,113,075 shares of common stock using a universal shelf registration statement that was declared effective by the SEC in September 2010. The universal shelf registration statement registered the issuance of up to $50 million of our securities. We believe that our current resources will be sufficient to fund our planned operations into the second quarter of 2011.

We plan to continue to work with large pharmaceutical companies regarding research and development collaboration agreements or investments, and to pursue public and private sources of financing to raise cash. However, there can be no assurance that we will be successful in such endeavors. The market value and the volatility of our stock price, as well as general market conditions, could make it difficult for us to complete a financing transaction on favorable terms, or at all. Any financing we obtain may further dilute the ownership interest of our current stockholders, or provide new stockholders with superior rights than those possessed by our current stockholders. If we are unable to obtain additional capital when required, and in the amounts required, we may be forced to modify, delay or abandon some or all of our programs. These factors, among others, raise substantial doubt about our ability to continue as a going concern. The accompanying consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty. The Report of Independent Registered Public Accounting Firm included in this Annual Report states that these conditions, among others, raise substantial doubt about our ability to continue as a going concern.

Critical Accounting Policies and Estimates

We prepare our consolidated financial statements in conformity with accounting principles generally accepted in the United States of America. As such, we are required to make certain estimates, judgments and assumptions that we believe are reasonable based upon the information available. These estimates and assumptions affect the reported amounts of assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenue and expenses during the periods presented. Actual results could differ significantly from those estimates under different assumptions and conditions. We believe that the following discussion addresses our most critical accounting estimates, which are those that we believe are most important to the portrayal of our financial condition and results of operations and which require our most difficult and subjective judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain. Other key estimates and assumptions that affect reported amounts and disclosures include depreciation and amortization. We also have key accounting policies; however, these policies do not meet the definition of critical accounting estimates because they do not generally require us to make estimates or judgments that are difficult or subjective.

Revenue Recognition

Revenue is recognized when there is persuasive evidence that an arrangement exists, delivery has occurred, collectability is reasonably assured, and fees are fixed or determinable. Deferred revenue expected to be recognized within the next 12 months is classified as current. Substantially all of our revenues are generated from research and development collaborations and licensing arrangements with partners that may involve multiple deliverables. For multiple-deliverable arrangements, judgment is required to evaluate whether (a) an arrangement involving multiple deliverables contains more than one unit of accounting, and (b) how the arrangement consideration should be measured and allocated to the separate units of accounting in the arrangement. Our research and development collaborations may include upfront non-refundable payments, development milestone payments, R&D funding, patent-based or product sale royalties, and product sales. In addition, we may receive revenues from licensing arrangements. For each separate unit of accounting, we have determined that the delivered item has value to the customer on a stand-alone basis, we have objective and reliable evidence of fair value using available internal evidence for the undelivered item(s) and our arrangements generally do not contain a general right of return relative to the delivered item. We have not had multiple-deliverable arrangements of significance during 2010, and all such prior arrangements were complete or terminated in 2009.

Revenue from research and development collaborations is recorded when earned based on the specific terms of the contracts. Upfront non-refundable payments, where we are not providing any continuing services as in the case of a license to our IP, are recognized when delivery of the license has occurred. Upfront nonrefundable payments, where we are providing continuing services related to a research and development effort, are deferred and recognized as revenue over the collaboration period. The ability to estimate the total research and development effort and costs can vary significantly for each contract due to the inherent complexities and uncertainties of drug research and development. The estimated period of time over which we recognize certain revenues is based upon structured detailed project plans completed by our project managers, who meet with scientists and collaborative counterparts on a regular basis and schedule the key project activities and resources including headcount, facilities and equipment and budgets. These periods generally end on projected milestone dates typically associated with the stages of drug development, i.e. filing of an IND, initiation of a Phase 1 human clinical trial or filing of an NDA. We typically do not disclose the specific project planning details of a research and development collaboration for competitive reasons and due to confidentiality clauses in our contracts. As drug candidates and drug compounds move through the research and development process, it is necessary to revise these estimates to consider changes to the project plan, portions of which may be outside of our control. The impact on revenue of changes in our estimates and the timing thereof is recognized prospectively over the remaining estimated development period.

Milestone payments typically represent nonrefundable payments to be received in conjunction with the achievement of a specific event identified in the contract, such as initiation or completion of specified development activities or specific regulatory actions such as the filing of an IND. We believe a milestone payment represents the culmination of a distinct earnings process when it is not associated with ongoing research, development or other performance on our part and it is substantive in nature. We recognize such milestone payments as revenue when they become due and collection is reasonably assured.

Revenue from R&D funding is generally received for services performed under research and development collaboration agreements and is recognized as services are performed. Payments received in excess of amounts earned are recorded as deferred revenue. Reimbursements received for direct out-of-pocket expenses related to contract R&D costs are recorded as revenue in the consolidated statements of operations rather than as a reduction in expenses.

Royalty and earn-out payment revenue is generally recognized upon product sale by the licensee as reported by the licensee.

Research and Development Costs

All research and development ("R&D") costs are charged to operations as incurred. Our R&D expenses consist of costs incurred for internal and external R&D. These costs include direct and research-related overhead expenses. We recognize clinical trial expenses, which are included in research and development expenses, based on a variety of factors, including actual and estimated labor hours, clinical site initiation activities, patient enrollment rates, estimates of external costs and other activity-based factors. We believe that this method best approximates the efforts expended on a clinical trial with the expenses recorded. We adjust our rate of clinical expense recognition if actual results differ from our estimates. As clinical trial activities continue, it is necessary to revise these estimates to consider changes such as changes in the clinical development plan, regulatory requirements, or various other factors, many of which may be outside of our control. The impact of changes in our estimates of clinical trial expenses and the timing thereof, is recognized prospectively over the remaining estimated clinical trial period. The ability to estimate total clinical trial costs can vary significantly due to the inherent complexities and uncertainties of drug development.

Stock-Based Compensation

We use the Black-Scholes-Merton option pricing model as our method of valuation for stock-based awards. Stock-based compensation expense is based on the value of the portion of the stock-based award that will vest during the period, adjusted for expected forfeitures. Our determination of the fair value of stock-based awards on the date of grant using an option pricing model is affected by our stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, the expected life of the award, expected stock price volatility over the term of the award and historical and projected exercise behaviors. The estimation of stock-based awards that will ultimately vest requires judgment, and to the extent actual or updated results differ from our current estimates, such amounts will be recorded in the period estimates are revised. The Black-Scholes-Merton option pricing model requires the input of highly subjective assumptions, and other reasonable assumptions could provide differing results.

For example, during 2010, approximately 0.2 million options were granted, which have a weighted average exercise price of $2.63 and weighted average fair value of $2.19 as determined by the Black-Scholes-Merton option pricing model. The following illustrates the effect of changing expected life and volatility assumptions on the estimated fair value using the Black-Scholes-Merton option pricing model of our options granted during 2010.

	- One Year	Current Estimate of Expected Life	+ One Year
Effect of a one year change in estimated expected term:			
Assumption changed			
Estimated option life	4.9 years	5.9 years	6.9 years
Assumptions held constant			
Exercise price	$ 2.63	$ 2.63	$ 2.63
Expected dividend yield	0%	0%	0%
Risk free rate	1.6%	1.6%	1.6%
Expected stock volatility	113%	113%	113%
Estimated fair value	$ 2.10	$ 2.19	$ 2.29

	- 10%	Current Estimate of Volatility	+ 10%
Effect of a 10% change in estimated volatility:			
Assumption changed			
Expected stock volatility	103%	113%	123%
Assumption held constant			
Exercise price	$ 2.63	$ 2.63	$ 2.63
Expected dividend yield	0%	0%	0%
Risk free rate	1.6%	1.6%	1.6%
Estimated option life	5.9 years	5.9 years	5.9 years
Estimated fair value	$ 2.10	$ 2.19	$ 2.29

Our reported net loss was $27.8 million for 2010. If the expected term for options granted during 2010 increased or decreased by one year (all other variables held constant), the impact on our reported net loss would not be material. If the estimated volatility for the options granted during 2010 decreased or increased by 10% (all other variables held constant), the impact on our reported net loss would not be material.

Stock-based compensation expense is recognized on a straight-line basis over the applicable vesting periods, based on the fair value of such stock-based awards on the grant date. We anticipate the expected term and estimated volatility will remain within the ranges listed above in the near term, however, unanticipated business or other conditions may change, which could result in differing future results.

Valuation of Intangible Assets

A substantial portion of assets acquired in the Cequent merger have been allocated to identifiable intangible assets related to in-process research and development ("IPR&D") projects identified by management. Our management has estimated acquisition-date fair values of these intangible assets. These identified intangible assets have been valued based on a number of factors. Utilizing the income approach, a discounted cash flow model using forecasted operating results related to the identified intangible assets, fair value was $19.3 million for Familial Adenomatous Polyposis and $3.4 million for Transkingdom RNAI, a total of $22.7 million.

We estimated the fair value of these intangible assets using a present value discount rate of 23%, which was based on the estimated weighted-average cost of capital for companies with profiles substantially similar to ours. We then determined the present value of the expected future cash flows using the discount rate. The projected cash flows from the projects were based on key assumptions such as estimates of revenues and operating profits related to the projects considering their stages of development; the time and resources needed to complete development and receive approval; the life of the potential commercialized products and associated risks, including the inherent difficulties and uncertainties in development such as obtaining marketing approval from the U.S. Food and Drug Administration and other regulatory agencies; and risks related to the viability of and potential alternative treatments in any future target markets.

Accounting guidance requires that the fair value of IPR&D acquired in a business combination be recorded on the balance sheet regardless of the likelihood of success as of the acquisition date. Intangible assets related to IPR&D projects are considered to be indefinite-lived until completion or abandonment of the related project. During the period the assets are considered indefinite-lived, they will not be amortized but will be tested for impairment on an annual basis and between annual tests if we become aware of any events occurring or changes in circumstances that would indicate a reduction in the fair value of the projects below their respective carrying amounts. If and when it were determined that identified intangible assets were impaired, an impairment charge would be recorded then. If and when development is complete, which generally occurs if and when regulatory approval to market a product is obtained, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that date.

Impairment of Long-Lived Assets

Long-lived assets, such as property and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Conditions that would necessitate an impairment include a significant decline in the observable market value of an asset, a significant change in the extent or manner in which an asset is used, or any other significant adverse change that would indicate that the carrying amount of an asset or group of assets is not recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset.

Fair Value Liability for Price Adjustable Warrants and Subscription Investment Units

We use the Black-Scholes-Merton option pricing model as our method of valuation for price adjustable warrants and subscription investment units. Our determination of the fair value of price adjustable securities as of the reporting date is affected by our stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, expected stock price volatility over the term of the security and risk-free interest rate. In addition, the Black-Scholes-Merton option pricing model requires the input of an expected life for the securities for which we have used the remaining contractual life. The fair value liability is revalued each balance sheet date utilizing Black-Scholes-Merton valuation model computations with the decrease or increase in fair value being reported in the statement of operations as other income or expense, respectively. The primary factor affecting the fair value liability is our stock price. In addition, the Black-Scholes-Merton option pricing model requires the input of highly subjective assumptions, and other reasonable assumptions could provide differing results.

The following illustrates the effect that reasonably likely changes in our stock price would have on the estimated fair value liability for price adjustable securities that were outstanding as of December 31, 2010.

	- 10% change in stock price	Weighted average variables used in valuation as of December 31, 2010	+ 10% change in stock price
Effect of a 10% change in stock price			
Condition changed			
Stock price	$ 1.40	$ 1.55	$ 1.71
Assumptions and conditions held constant			
Exercise price	$ 1.36	$ 1.36	$ 1.36
Exercise life in years	2.4	2.4	2.4
Expected dividend yield	0%	0%	0%
Risk free rate	0.8%	0.8%	0.8%
Expected stock volatility	97%	97%	97%
Estimated fair value liability for price adjustable securities	$2,791,000	$3,266,000	$3,734,000

Our reported net loss was approximately $27.8 million for 2010. If our December 31, 2010 closing stock price had been 10% lower, our net loss would have been approximately $0.5 million lower. If our December 31, 2010 closing stock price had been 10% higher, our net loss would have been approximately $0.5 million higher.

The following illustrates the effect of changing the volatility assumptions on the estimated fair value liability for price adjustable securities that were outstanding as of December 31, 2010:

	- 10% change in volatility	Weighted average variables used in valuation as of December 31, 2010	+ 10% change in volatility
Effect of a 10% change in volatility			
Condition changed			
Expected stock volatility	87%	97%	107%
Assumptions and conditions held constant			
Stock price	$ 1.55	$ 1.55	$ 1.55
Exercise price	$ 1.36	$ 1.36	$ 1.36
Exercise life in years	2.4	2.4	2.4
Expected dividend yield	0%	0%	0%
Risk free rate	0.8%	0.8%	0.8%
Estimated fair value liability for price adjustable securities	$3,031,000	$3,266,000	$3,436,000

Our reported net loss was approximately $27.8 million for 2010. If our December 31, 2010 volatility assumption had been 10% lower, our net loss would have been approximately $0.2 million lower. If our December 31, 2010 volatility assumption had been 10% higher, our net loss would have been approximately $0.2 million higher.

Accrued Restructuring Charges

We ceased using our facility at 3450 Monte Villa Parkway, Bothell, Washington ("3450 Monte Villa"), in 2008. We recorded an accrued liability for remaining lease termination costs at fair value, based on the remaining payments due under the lease and other costs, reduced by sublease rental income that could be reasonably obtained from the property, and discounted using a credit-adjusted risk-free interest rate. We use a credit-adjusted risk-free interest rate of 23%, and we based our estimated future payments, net of estimated future sublease payments, on current rental rates available in the local real estate market, and our evaluation of the ability to sublease the facility. Accrued restructuring, and in particular those charges associated with exiting a facility, are based upon management's assumptions and estimates which are subject to changes in facts and circumstances. These estimates significantly impact the accrual and actual results may differ from our estimates. We review these estimates at least quarterly and when there are changes in facts or circumstances, and adjust our accrual if necessary.

Income Taxes

We account for income taxes under the asset and liability method under which deferred income taxes are provided for the temporary differences between the financial reporting basis and the tax basis of our assets and liabilities and operating losses and tax credit carryforwards. This process involves assessing the nature and measurements of temporary differences resulting from differing treatment of items for tax and accounting purposes. These differences result in deferred tax assets and liabilities. In each period, we assess the likelihood that our deferred tax assets will be recovered from existing deferred tax liabilities or future taxable income. Factors we considered in making such an assessment include, but are not limited to, estimated utilization limitations of operating loss on tax credit carryforwards, expected reversals of deferred tax liabilities, past performance, including our history of operating results, our recent history of generating taxable income, our history of recovering net operating loss carryforwards for tax purposes and our expectation of future taxable income. If required, we will recognize a valuation allowance to reduce such deferred tax assets to amounts that are more likely than not to be ultimately realized. To the extent that we establish a valuation allowance or change this allowance, we would recognize a tax provision or benefit in the consolidated statements of operations. We use our judgment to determine estimates associated with the calculation of our provision or benefit for income taxes, and in our evaluation of the need for a valuation allowance recorded against our net deferred tax assets.

Recently Issued Accounting Standards

In March 2010, the FASB ratified the final consensus that offers an alternative method of revenue recognition for milestone payments. The guidance states that an entity can make an accounting policy election to recognize a payment that is contingent upon the achievement of a substantive milestone in its entirety in the period in which the milestone is achieved. The guidance is effective for fiscal years, and interim periods within those years, beginning on or after June 15, 2010 with early adoption permitted, provided that the revised guidance is applied retrospectively to the beginning of the year of adoption. We have determined that the adoption of this guidance will not have a material effect on our consolidated financial statements.

In September 2009, the FASB revised the authoritative guidance for revenue arrangements with multiple deliverables. The guidance addresses how to determine whether an arrangement involving multiple deliverables contains more than one unit of accounting and how the arrangement consideration should be allocated among the separate units of accounting. The guidance is effective beginning January 1, 2011 with early adoption permitted. We have determined that the adoption of this guidance will not have a material effect on our consolidated financial statements.

Consolidated Results of Operations

Comparison of Annual Results of Operations

All amounts, except amounts expressed as a percentage, are presented in thousands in the following table.

	Years Ended December 31,		Change	
	2009	2010	$	%
Revenue				
License and other revenue	$14,732	$ 2,460	$(12,272)	(83)%
Operating expenses				
Research and development	14,882	18,105	3,223	22%
Selling, general and administrative	10,088	10,359	271	3%
Restructuring	455	3,526	3,071	675%
Total operating expenses	25,425	31,990	6,565	26%
Interest and other income	5	244	239	4,780%
Interest and other expense	(538)	(2,807)	(2,269)	422%
Change in fair value liability for price adjustable warrants and subscription investment units	2,526	4,360	1,834	73%
Gain (loss) on settlement of liabilities, net	654	(20)	674	(103)%
Net loss	$ (8,046)	$(27,753)	$(19,707)	245%

Comparison of Year Ended December 31, 2010 to the Year Ended December 31, 2009

Revenue. We had revenue from certain customers, as a percentage of total revenue, as follows:

	Years Ended December 31,	
	2009	2010
Par Pharmaceuticals	2%	47%
Cypress Bioscience	—	31%
Astra Zeneca	—	3%
Pfizer	—	2%
Undisclosed partner #1	—	4%
Undisclosed partner #2	—	1%
Novartis	51%	—
Roche	34%	—
Amylin	7%	—
Other	6%	12%
Total	100%	100%

License and other revenue. License and other revenue decreased by approximately $12.3 million in 2010 compared to $14.7 million in 2009. In 2009, license and other revenue was primarily from licensing our RNAi platforms including revenue of $7.5 million from Novartis and $5.0 million from Roche as well as a $1.0 million milestone payment received from Amylin, recognition of approximately $0.7 million in deferred revenue under the QOL agreement and revenue recognized under the asset purchase agreement with Par. In 2010 we recognized approximately $0.5 million in earn-out payments related to commercial sales of calcitonin-salmon nasal spray under our agreement with Par Pharmaceuticals. We entered into an amendment to our agreement with Par Pharmaceuticals under which Par also paid us a lump sum of $0.7 million in lieu of profit-sharing for the remainder of the earn out period, which we recognized as revenue in 2010. In 2010, we also recognized revenue of approximately $0.8 million related to the sale of our patent rights and technology related to carbetocin, a long-acting analog of oxytocin, a naturally produced hormone that may benefit individuals with autism, to Cypress Bioscience, Inc.

Research and Development. R&D expense consists primarily of salaries and other personnel-related expenses, costs of pre-clinical studies and clinical trials, consulting and other outside services, laboratory supplies, facilities costs and other costs. We expense all R&D costs as incurred. R&D expense increased approximately $3.2 million to $18.1 million in 2010 compared to $14.9 million in 2009, due primarily to the following:

- Personnel-related expenses increased by 10% to approximately $5.6 million in 2010 compared to $5.1 million in 2009, due primarily to additional research and development headcount added as a result of the Cequent acquisition.
- Costs of pre-clinical and clinical trials, lab supplies, consulting, and outside testing and services increased by 68% to approximately $3.2 million in 2010 compared to $1.9 million in 2009 as we expanded our pipeline to include the Cequent projects including preparing for the FAP clinical trial under which we expect to dose patients in early 2011. Patent license fees increased by approximately $1.5 million in 2010 to $5.1 million.
- In 2010, we issued shares of our common stock valued at approximately $3.8 million to acquire Novosom's SMARTICLES® liposomal-based delivery system, which significantly broadens the number of approaches we may take for systemic and local delivery of our proprietary UsiRNA therapeutics.

- Facilities and equipment costs decreased by 14% to approximately $3.5 million in 2010 compared to $4.1 million in 2009 due to a decrease in rent and related expenses as a result of a decrease in depreciation of equipment. Depreciation expense included as facilities and equipment costs for R&D was approximately $1.1 million and $1.7 million in 2010 and 2009, respectively.
- Stock-based compensation included in R&D expense increased by approximately $0.5 million to $0.7 million in 2010 compared to $0.2 million in 2009. The 2009 period included the accounting impact of forfeitures of stock options and restricted stock awards in the prior year.

R&D expense by project, as a percentage of total R&D project expense, was as follows:

	Years Ended December 31,	
	2009	2010
RNAi projects	97%	100%
Legacy intranasal projects	3%	— %
Total	100%	100%

We expect our R&D expenses to increase in 2011 as we advance our RNAi-related projects, including our clinical trial for our product candidate for FAP.

Selling, general and administrative. Selling, general and administrative expense consists primarily of salaries and other personnel-related expenses to support our R&D activities, stock-based compensation for selling, general and administrative personnel and non-employee members of our Board, professional fees, such as accounting and legal, corporate insurance and facilities costs. The 3% increase in selling, general and administrative expenses in 2010 compared to 2009 resulted primarily from the following:

- Costs of legal and accounting fees, corporate insurance and other administrative costs decreased by 2% to approximately $4.2 million in 2010 compared to $4.4 million in 2009.
- We incurred approximately $1.4 million in transaction costs in connection with our acquisition of Cequent. Transaction costs are expensed as incurred and no merger-related transaction costs were incurred in 2009.
- Personnel-related expenses decreased by 9% to $2.9 million in 2010 compared to $3.1 million in 2009 due primarily to decreased headcount related to administrative activities.
- Stock-based compensation expense included in general and administrative expense decreased by 19% to approximately $1.3 million in 2010 from approximately $1.6 million in 2009 primarily due to decreased headcount.
- Facilities and equipment costs decreased by 39% to approximately $0.6 million in 2010 compared to $1.0 million in 2009 due primarily to a decrease in depreciation expense.

We expect selling, general and administrative expenses to decrease in 2011 compared to 2010 which included approximately $1.4 million in transaction costs related to the Cequent acquisition.

Restructuring. We have recorded restructuring charges related to our facilities consolidation and impairment of assets. Restructuring expense increased to approximately $3.5 million in 2010 compared to $0.5 million in 2009, due to the following.

- Facility related charges increased by $3.2 million to $3.5 million in 2010 compared to $0.3 million in 2009. In 2010, we entered into an amendment of our lease for our exited facility, which reduced our future lease obligations by approximately $4.1 million, and we issued 2,115,727 shares of our common stock to the landlord which was valued at approximately $3.3 million. We have recorded a

restructuring liability, representing estimated future payments due under the lease, net of estimated future sublease payments, and discounted using a credit-adjusted risk-free interest rate. We evaluate the assumptions used in our estimate on a quarterly basis and record additional restructuring and accretion charges with respect to our estimate of this liability.

- In 2009 we recorded an impairment charge of approximately $0.2 million relating to property and equipment which we ceased to use.

Interest and Other Income. In 2010 we recorded other income of approximately $0.2 million which consisted primarily of a grant under the Qualified Therapeutic Discovery Grant funds under section 48D of the Internal Revenue Code. In 2010, we also received payments for two Qualified Therapeutic Discovery Grants totaling approximately $0.5 million for Cequent Pharmaceuticals. Amounts to be received under these Cequent grants were included in prepaid and other assets on the schedule of acquired assets as of the date we acquired Cequent, July 21, 2010. Interest income in 2009 was approximately $5,000.

Interest and Other Expense. In November 2010, we issued warrants to purchase up to 686,260 shares of our common stock in consideration for amendments to certain of our Securities Purchase Agreements. The estimated fair value of the warrants of approximately $1.2 million was recorded as other expense and an increase in fair value liability of price adjustable warrants. In addition, in 2010 and 2009 we incurred interest expense on our notes payable and in 2009 on our capital leases. Although the average borrowings were lower in 2010, the 2010 interest expense amount increased over the prior year period due to amortization of debt issuance costs and non-cash amortization of the fair value of the warrants issued in connection with the notes payable, which were recorded as debt discount. We expect interest and other expense to decrease in 2011 as we have no borrowings outstanding.

Change in fair value liability for price adjustable warrants. We use the Black-Scholes-Merton option pricing model as our method of valuation for price adjustable warrants. The fair value liability is revalued each balance sheet date utilizing Black-Scholes-Merton valuation model computations with the decrease or increase in fair value being reported in the statement of operations as other income or expense, respectively. The net change in fair value liability for price adjustable warrants was income of approximately $4.4 million in 2010, compared to income of approximately $2.5 million in 2009. The income for 2010 is primarily due to a decrease in our stock price from $3.24 per share as of the beginning of the year compared to $1.55 per share as of December 31, 2010. The income for 2009 is due primarily to a decrease in the fair value of our warrants issued in June 2009, due to a decrease in our stock price from $7.64 as of the date of the issuance of the June 2009 warrants to $3.24 per share as of December 31, 2009. This income in 2009 was offset in part due to expense associated with an increase in the fair value of our warrants which were outstanding as of January 1, 2009. Our stock price increased from $1.32 per share as of the beginning of 2009 to $3.24 per share as of December 31, 2009, which increased the fair value liability for those particular warrants, which represented an expense for us.

Gain on settlement of liabilities, net. We recorded a net loss on settlement of liabilities of approximately $20,000 in 2010 and a net gain on settlement of liabilities of approximately $0.7 million in 2009. In 2010 we issued shares of our common stock to several of our vendors to settle amounts due of approximately $0.5 million in total, and as a result we recorded a net loss on settlement of liabilities. The 2009 net gain included a gain of approximately $0.7 million relating to the amendment of our agreement regarding severance obligations with our former Chief Scientific Officer, and a gain of approximately $0.2 million related to the issuance of shares of stock to certain of our vendors to settle amounts due. These 2009 gain amounts were partially offset by a lease termination fee of approximately $0.2 million incurred pursuant to the termination of our capital lease agreement.

Liquidity and Capital Resources

Cash flows

Our operating activities used cash of approximately $16.8 million in 2010, compared to $7.5 million in 2009. Cash used in operating activities relates primarily to funding net losses and changes in accounts payable and other accrued liabilities, deferred revenue, accrued restructuring and asset accounts, partially offset by

non-cash changes in the fair value liability for price adjustable warrants and subscription investment units, non-cash restructuring charges, depreciation and amortization and stock-based compensation. We expect to use cash for operating activities in the foreseeable future as we continue our R&D activities.

Our investing activities provided cash of approximately $4.6 million in 2010, compared to $2.3 million in 2009. Changes in cash from investing activities result from changes in restricted cash, and purchases of property and equipment. In 2010, cash provided by investing activities was primarily the result of $5.1 million of cash acquired upon the acquisition of Cequent Pharmaceuticals. In 2009, cash provided by investing activities was primarily the result of the decrease in restricted cash of $1.3 million, which was used to pay down accrued restructuring lease liabilities, and approximately $1.2 million of proceeds from sales of equipment and other assets.

Our financing activities provided cash of approximately $12.5 million in 2010 compared to approximately $4.9 million in 2009. Changes in cash from financing activities are primarily due to issuance of common stock, warrants, and subscription investment units, proceeds and repayment of equipment financing facilities and notes payable and proceeds from exercises of stock options and warrants. We raised net proceeds of approximately $7.8 million in 2010 and $9.3 million in 2009 through offerings of shares of common stock and warrants and subscription investment units to purchase shares of common stock. We received proceeds of approximately $2.7 million from the exercise of warrants and options during 2010. We borrowed $3.0 million from Cequent to fund our operations prior to the merger. On July 21, 2010, we consummated the merger with Cequent, and as a result the loans of $3.0 million plus accrued interest were settled and the warrants to purchase our common stock which were issued to Cequent in connection with the Loan Agreement terminated. In 2010 we made payments on notes payable of approximately $1.0 million and in 2009, we made payments on notes payable, which were previously capital lease obligations, of approximately $5.5 million,

Recent Financing Activities

In February 2011, we received net proceeds of approximately $4.7 million in an underwritten public offering of 6,375,000 shares of common stock together with warrants to purchase up to 1,113,075 shares of common stock at a purchase price of approximately $0.80 per unit. The warrants are exercisable for seven years and have an exercise price of $0.80 per share. As a result of the issuance of common stock and warrants at a price of $0.80 per share, 687,500 outstanding warrants that were issued in June 2009 were repriced to $0.80 per share.

Summary

We believe that our current resources are sufficient to fund our planned operations into the second quarter of 2011. We based our estimate on our ability to perform planned R&D activities, and the receipt of planned funding. The market value and the volatility of our stock price, as well as general market conditions, could make it difficult for us to complete a financing transaction on favorable terms, or at all. Any financing we obtain may further dilute or otherwise impair the ownership interests of our current stockholders. If we fail to generate positive cash flows or fail to obtain additional capital when required, we could modify, delay or abandon some or all of our programs.

Off-Balance Sheet Arrangements

As of December 31, 2010, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

Not applicable.

ITEM 8. ***Financial Statements and Supplementary Data.***

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Marina Biotech, Inc.

We have audited the accompanying consolidated balance sheets of Marina Biotech, Inc. and subsidiaries (the "Company") as of December 31, 2009 and 2010, and the related consolidated statements of operations, stockholders' equity (deficit), and cash flows for each of the years in the two-year period ended December 31, 2010. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated 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. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Marina Biotech, Inc. and subsidiaries as of December 31, 2009 and 2010, and the results of their operations and their cash flows for each of the years in the two-year period ended December 31, 2010, in conformity with U.S. generally accepted accounting principles.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has incurred recurring losses and has an accumulated deficit, and has had recurring negative cash flows from operations, that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from this uncertainty.

/s/ KPMG LLP

Seattle, WA
March 23, 2011

MARINA BIOTECH, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

	December 31, 2009	December 31, 2010
	(In thousands, except share and per share data)	
ASSETS		
Current assets:		
Cash	$ 748	$ 1,066
Restricted cash	998	1,017
Accounts receivable	211	59
Prepaid expenses and other current assets	700	818
Total current assets	2,657	2,960
Property and equipment, net	4,569	3,695
Intangible assets	—	22,734
Other assets	3	54
Total assets	$ 7,229	$ 29,443
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
Current liabilities:		
Accounts payable	$ 2,114	$ 3,922
Accrued payroll and employee benefits	913	781
Other accrued liabilities	1,361	1,225
Notes payable, net of discount	317	—
Accrued restructuring — current portion	425	312
Deferred revenue	—	34
Total current liabilities	5,130	6,274
Accrued restructuring, net of current portion	281	148
Deferred rent and other liabilities	1,461	1,384
Fair value liability for price adjustable subscription investment units	—	1,483
Fair value liability for price adjustable warrants	7,243	1,783
Deferred tax liabilities	—	1,202
Total liabilities	14,115	12,274
Commitments and contingencies		
Stockholders' equity (deficit):		
Preferred stock, $.01 par value; 100,000 shares authorized: no shares issued and outstanding	—	—
Common stock and additional paid-in capital, $0.006 par value; 90,000,000 shares authorized, 10,201,735 shares issued and outstanding as of December 31, 2009 and 27,800,748 shares issued and outstanding as of December 31, 2010	256,131	307,939
Accumulated deficit	(263,017)	(290,770)
Total stockholders' equity (deficit)	(6,886)	17,169
Total liabilities and stockholders' equity (deficit)	$ 7,229	$ 29,443

See notes to consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,	
	2009	2010
	(In thousands, except per share data)	
License and other revenue	$ 14,732	$ 2,460
Operating expenses:		
Research and development	14,882	18,105
Selling, general and administrative	10,088	10,359
Restructuring	455	3,526
Total operating expenses	25,425	31,990
Loss from operations	(10,693)	(29,530)
Other income (expense):		
Interest and other income	5	244
Interest and other expense	(538)	(2,807)
Change in fair value liability for price adjustable warrants and subscription investment units	2,526	4,360
Gain (loss) on settlement of liabilities, net	654	(20)
Total other income (expense), net	2,647	1,777
Net loss	$ (8,046)	$(27,753)
Net loss per common share — basic and diluted	$ (0.86)	$ (1.58)
Shares used in computing net loss per share — basic and diluted	9,364	17,574

See notes to consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY (DEFICIT)

	Common Stock and Additional Paid-In Capital		Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount		
	(In thousands, except share data)			
Balance January 1, 2009	7,811,004	$250,826	$(254,971)	$ (4,145)
Proceeds from the issuance of common shares, net	1,312,500	1,221	—	1,221
Shares issued in connection with settlement of liabilities	899,003	982	—	982
Shares issued in connection with amendment of license agreement	151,515	1,000	—	1,000
Proceeds from the exercise of options, warrants and employee stock purchase plan purchases	31,214	181	—	181
Reclassification of fair value of warrants exercised	—	109	—	109
Compensation related to restricted stock, net of forfeitures	(3,501)	(340)	—	(340)
Compensation related to stock options and employee stock purchase plan, net of forfeitures	—	2,152	—	2,152
Net loss	—	—	(8,046)	(8,046)
Balance December 31, 2009	10,201,735	256,131	(263,017)	(6,886)
Proceeds from the issuance of common shares, net	3,141,389	1,693	—	1,693
Shares issued in connection with acquisition of Cequent Pharmaceuticals and termination of notes payable and warrants issued to Cequent	9,882,853	30,337	—	30,337
Shares issued in connection with settlement of liabilities	2,442,663	3,916	—	3,916
Shares issued in connection with license agreement	1,419,487	3,790	—	3,790
Proceeds from the exercise of options, warrants and employee stock purchase plan purchases	712,837	2,719	—	2,719
Reclassification of fair value of warrants exercised	—	2,878	—	2,878
Reclassification of fair value for price adjustable warrants from liability to equity upon elimination of price adjustment feature	—	4,459	—	4,459
Compensation related to stock options, restricted stock and employee stock purchase plan, net of forfeitures	—	2,016	—	2,016
Fractional shares redeemed in reverse stock split	(216)	—	—	—
Net loss	—	—	(27,753)	(27,753)
Balance December 31, 2010	27,800,748	$307,939	$(290,770)	$ 17,169

See notes to consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,	
	2009	2010
	(In thousands)	
Operating activities:		
Net loss	$ (8,046)	$ (27,753)
Adjustments to reconcile net loss to net cash used in operating activities:		
Non-cash compensation related to stock options, restricted stock and employee stock purchase plan	1,812	2,016
Depreciation and amortization	2,369	1,580
Non-cash in-process research and development expense	—	3,790
Non-cash amortization of discount on notes payable and debt issuance costs	223	1,578
Non-cash expense for fair value of warrants issued in connection with amendments to securities purchase agreements	—	1,161
Accretion of restructuring liability	174	135
Loss on disposition of property and equipment	387	—
Non-cash restructuring charges	93	3,407
Net gain (loss) on settlement of liabilities	(654)	18
Change in fair value of price adjustable warrants and subscription investment units	(2,526)	(4,360)
Changes in assets and liabilities, net of amounts relating to acquisition of Cequent:		
Accounts receivable	(179)	152
Prepaid expenses and other assets	427	234
Accounts payable	641	1,638
Deferred revenue	(718)	34
Accrued and other liabilities	15	14
Accrued restructuring	(1,543)	(445)
Net cash used in operating activities	(7,525)	(16,801)
Investing activities:		
Change in restricted cash	1,270	(19)
Cash acquired upon acquisition of Cequent Pharmaceuticals	—	5,063
Proceeds from sales of equipment and other assets	1,159	—
Purchases of property and equipment	(94)	(404)
Net cash provided by investing activities	2,335	4,640
Financing activities:		
Proceeds from sales of common shares, warrants and subscription investment units, net	9,332	7,760
Proceeds from issuance of notes payable and warrants, net	888	3,000
Payments on notes payable	(5,547)	(1,000)
Proceeds from exercise of stock options, warrants and employee stock purchase plan purchases	181	2,719
Net cash provided by financing activities	4,854	12,479
Net increase (decrease) in cash	(336)	318
Cash and cash equivalents — beginning of year	1,084	748
Cash and cash equivalents — end of year	$ 748	$ 1,066
Non-cash financing activities:		
Note payable issued upon cancellation of capital lease obligations	$ 5,128	$ —
Issuance of stock to acquire Cequent Pharmaceuticals and termination of notes payable, accrued interest and warrants issued to Cequent	$ —	$ 30,337
Issuance of common stock to settle liabilities	$ 1,982	$ 3,916
Supplemental disclosure:		
Cash paid for interest	$ 311	$ 10

See notes to consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
For the Years Ended December 31, 2009 and 2010

Note 1 — Business, Going Concern and Summary of Significant Accounting Policies

Business

We are a biotechnology company focused on the discovery, development and commercialization of oligonucleotide therapies based on gene silencing approaches such as RNA interference (RNAi) and blocking messenger RNA (mRNA) transcription. Our goal is to improve human health through the development of these nucleic acid-based therapeutics as well as the drug delivery technologies that together provide superior treatment options for patients. We have multiple proprietary technologies integrated into a broad oligonucleotide-based drug discovery platform, with the capability to deliver these novel therapeutics via systemic, local and oral administration to target a wide range of human diseases based on the unique characteristics of the cells and organs involved in each disease.

Our pipeline includes a clinical program in Familial Adenomatous Polyposis (FAP) and two preclinical programs in malignant ascites and bladder cancer, respectively. In February 2011, we entered an exclusive agreement with Debiopharm Group for the development and commercialization of the bladder cancer program.

Our team of approximately 30 scientists brings expertise in molecular and cellular biology, microbiology, oligonucleotide, nucleoside, lipid, peptide and alkylated amino acid chemistry, pharmacology, bioinformatics, pre-clinical and clinical development, regulatory affairs and quality control, in addition to an experienced pharmaceutical management team.

In addition to our own, internally developed technologies, we strategically in-license and further develop nucleic acid- and delivery-related technologies, forming an integrated drug discovery platform. We are currently employing our platform for the discovery of multiple nucleic-based therapeutics including RNAi-, microRNA- and single stranded oligonucleotide-based drugs.

Our business strategy is two-fold. First, we strive to establish collaborations and strategic partnerships with pharmaceutical and biotechnology companies in the area of nucleic acid-based therapeutics to: (1) generate revenue and non-dilutive financing; (2) gain access to technical resources; and (3) further validate our drug discovery platforms. Secondly, we expect to advance our own pipeline of nucleic acid-based therapeutics as a foundation upon which to improve all aspects of our drug discovery platform and to have the opportunity to commercialize drug therapies. In terms of collaborations and strategic partnerships, the Debiopharm Group is fully funding the development of the bladder cancer program using our proprietary DiLA^2 delivery technology for local administration which includes the potential for significant milestones, and ProNAi Therapeutics, a licensee of certain of our technology, is funding their Phase 1 clinical trial using our proprietary SMARTICLES® delivery technology for systemic administration, which does not provide any financial benefit to us but continues to validate and advance our SMARTICLES® delivery technology. With these relationships financing the advancement of several of our small interfering RNA (siRNA) proprietary delivery technologies, we are focusing resources on the Phase 1b/2a clinical trial of CEQ508 in Familial Adenomatous Polyposis (FAP) as well as the development of our Conformationally Restricted Nucleotide technology (CRN) for the development of single-stranded oligonucleotide therapies.

In 2010 we entered into five early collaborative efforts (a sixth had been initiated in 2009) with major pharmaceutical companies and a biotechnology company to evaluate our DiLA^2 and SMARTICLES delivery technologies for local and systemic delivery of siRNA. Four of the six efforts continued into 2011, and our goal continues to be the establishment of a strategic partnership with at least one of these companies in 2011. We expect to structure certain of our collaborative agreements to receive upfront non-refundable payments, research and development funding, milestone payments and royalties on commercial sales of products.

With respect to collaborations and strategic partnerships our concept is to provide multiple therapeutic options based on a partner's target and indication. We can apply our broad capabilities to pursue the most appropriate nucleic acid therapeutic approach to a specific, often undruggable, target for a specific indication. Each approach, i.e. RNAi, microRNA or single-strand oligonucleotide, has its advantages and disadvantages and we can utilize our broad capabilities to screen across multiple modalities to identify the most effective therapeutic. We believe this capability makes us extremely unique in the sector.

In 2010, we acquired Cequent Pharmaceuticals, Inc. and its *TransKingdom* RNA™ interference (*tk*RNAi) platform and FAP clinical program, the intellectual property related to CRN technology from Valeant Pharmaceuticals and the intellectual property related to SMARTICLES from Novosom. Additionally, we licensed one of our nasal legacy assets, carbetocin, to Cypress Biosciences.

In order to protect our innovations, which encompass a broad platform of both nucleic acid constructs and delivery technologies, as well as the drug products that may emerge from that platform; we aggressively continue to build upon our extensive and enabling intellectual property ("IP") estate.

We believe we have established ourselves as a leading nucleic acid-based therapeutics company by leveraging our broad and proven expertise to create an industry-leading integrated nucleic acid-based drug discovery platform, which is protected by a strong IP position and validated through licensing agreements with two large international pharmaceutical companies, our FAP phase 1b/2a clinical trial, the bladder cancer research and license agreement with Debiopharm Group and the phase 1 ProNAi trial using our SMARTICLES delivery technology.

Change of Corporate Name

On July 21, 2010, in connection with the closing of the merger with Cequent, we filed a Certificate of Amendment to our Restated Certificate of Incorporation with the Secretary of State of the State of Delaware to change the name of our company from "MDRNA, Inc." to "Marina Biotech, Inc."

Reverse Split of Common Stock

On July 21, 2010, we filed a Certificate of Amendment of our Restated Certificate of Incorporation to effect a one-for-four reverse split of our issued and outstanding shares of common stock effective as of 4:30 p.m. Eastern Time on Wednesday, July 21, 2010. The common stock commenced trading on the NASDAQ Global Market on a split-adjusted basis as of the opening of trading on Thursday, July 22, 2010. Following the reverse split, the total number of shares outstanding was proportionately reduced in accordance with the reverse split. Further, any outstanding options, warrants and rights as of the effective date that are subject to adjustment were adjusted accordingly.

There was no change to the number of authorized shares of our common stock as a result of the reverse stock split. Any fraction of a share of common stock that would otherwise have resulted from the reverse split was converted into the right to receive cash payment from us for such fractional shares, in an amount to be determined by multiplying (x) the fractional amount of the share of common stock by (y) $2.9824 (i.e., an amount equal to four times the per share closing price of the common stock (on a post-split basis) on the NASDAQ Global Market on July 21, 2010).

Liquidity and Going Concern

The accompanying consolidated financial statements have been prepared on the basis that we will continue as a going concern, which contemplates realization of assets and the satisfaction of liabilities in the normal course of business. As of December 31, 2010, we had an accumulated deficit of approximately $290.8 million and expect to incur losses in the future as we continue our research and development ("R&D") activities. In

2008, we suspended all research and clinical development of our intranasal programs and, as of September 30, 2008, incurred a restructuring charge to exit a facility which was used primarily for our intranasal activities. As of September 30, 2008, our accumulated deficit, which was primarily related to clinical development of our intranasal programs, was approximately $241.8 million. Our operating expenses, primarily R&D in connection with the further development of our RNAi programs, will consume the majority of our cash resources and will require additional funding. We have funded our losses primarily through the sale of common stock and warrants in the public markets and private placements, revenue provided by our collaboration partners, and, to a lesser extent, equipment financing facilities and loans.

At December 31, 2010, we had a working capital deficit (current assets less current liabilities) of approximately $3.3 million and approximately $2.1 million in cash, including approximately $1.0 million in restricted cash. In February 2011 we raised net proceeds of approximately $4.7 million in an underwritten public offering of 6,375,000 shares of common stock and warrants to purchase up to 1,113,075 shares of common stock using a universal shelf registration statement that was declared effective by the SEC in September 2010. The universal shelf registration statement registered the issuance of up to $50 million of our securities. We believe that our current resources will be sufficient to fund our planned operations into the second quarter of 2011.

We plan to continue to work with large pharmaceutical companies regarding research and development collaboration agreements or investments, and to pursue public and private sources of financing to raise cash. However, there can be no assurance that we will be successful in such endeavors. The market value and the volatility of our stock price, as well as general market conditions, could make it difficult for us to complete a financing transaction on favorable terms, or at all. Any financing we obtain may further dilute the ownership interest of our current stockholders, or provide new stockholders with superior rights than those possessed by our current stockholders. If we are unable to obtain additional capital when required, and in the amounts required, we may be forced to modify, delay or abandon some or all of our programs. These factors, among others, raise substantial doubt about our ability to continue as a going concern. The accompanying consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty.

Summary of Significant Accounting Policies

Principles of Consolidation — The financial statements include the accounts of Marina Biotech, Inc. and our wholly-owned subsidiaries, Cequent Pharmaceuticals, Inc., Atossa HealthCare, Inc. (“Atossa”) and MDRNA Research, Inc. All inter-company balances and transactions have been eliminated in consolidation.

Use of Estimates — The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires our management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, and reported amounts of revenues and expenses during the reporting periods. Estimates having relatively higher significance include revenue recognition, research and development costs, stock-based compensation, valuation of warrants and subscription investment units, valuation and estimated lives of identifiable intangible assets, impairment of long-lived assets, estimated accrued restructuring charges and income taxes. Actual results could differ from those estimates.

Restricted Cash — Amounts pledged as collateral underlying letters of credit for facility lease deposits are classified as restricted cash. Changes in restricted cash have been presented as investing activities in the consolidated statements of cash flows.

Fair Value of Financial Instruments — We consider the fair value of cash, restricted cash, accounts receivable, accounts payable and accrued liabilities to not be materially different from their carrying value. These financial instruments have short-term maturities. The carrying value of notes payable approximated fair value as interest rates represented current market rates.

We follow authoritative guidance with respect to fair value reporting issued by the Financial Accounting Standards Board ("FASB"), for financial assets and liabilities, which defines fair value, provides guidance for measuring fair value and requires certain disclosures. The guidance does not apply to measurements related to share-based payments. The guidance discusses valuation techniques, such as the market approach (comparable market prices), the income approach (present value of future income or cash flow), and the cost approach (cost to replace the service capacity of an asset or replacement cost). The guidance establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The following is a brief description of those three levels:

Level 1: Observable inputs such as quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2: Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3: Unobservable inputs in which little or no market data exists, therefore developed using estimates and assumptions developed by us, which reflect those that a market participant would use.

All of our financial assets, which consist of cash and restricted cash, are subject to fair value measurement are valued determined by Level 1 inputs. We currently measure and report at fair value our accrued restructuring liability using discounted estimated cash flows, and the liability for price adjustable warrants and subscription investment units using the Black-Scholes-Merton valuation model, using Level 3 inputs. The following tables summarize our liabilities measured at fair value on a recurring basis as of December 31, 2009 and 2010 (in thousands):

	Balance at December 31, 2009	Level 1 Quoted prices in active markets for identical assets	Level 2 Significant other observable inputs	Level 3 Significant unobservable inputs
Liabilities:				
Accrued restructuring	$ 706	—	—	$ 706
Fair value liability for price adjustable warrants	7,243	—	—	7,243
Total liabilities at fair value	$7,949	—	—	$7,949

	Balance at December 31, 2010	Level 1 Quoted prices in active markets for identical assets	Level 2 Significant other observable inputs	Level 3 Significant unobservable inputs
Liabilities:				
Accrued restructuring	$ 460	—	—	$ 460
Fair value liability for price adjustable warrants	1,783	—	—	1,783
Fair value liability for price adjustable subscription investment units	1,483	—	—	1,483
Total liabilities at fair value	$3,726	—	—	$3,726

The following presents activity in our accrued restructuring liability determined by Level 3 inputs for each of the years ended December 31, 2009 and 2010 (in thousands):

	Employee Severance and Termination Benefits	Facility Related Charges	Total
Balance, January 1, 2009	$ 349	$ 2,351	$ 2,700
Accruals	—	144	144
Payments in cash and other decreases	(349)	(1,543)	(1,892)
Payments in common stock	—	(420)	(420)
Accretion	—	174	174
Balance, December 31, 2009	—	706	706
Accruals	—	3,407	3,407
Payments in cash and other decreases	—	(445)	(445)
Payments in common stock	—	(3,343)	(3,343)
Accretion	—	135	135
Balance, December 31, 2010	$ —	$ 460	$ 460

The following presents activity of the fair value liability of price adjustable warrants determined by Level 3 inputs for each of the years ended December 31, 2009 and 2010 (in thousands, except share data):

	Fair value liability for price adjustable warrants (in thousands)	Weighted average as of each measurement date				
		Exercise Price	Stock Price	Volatility	Contractual life in years	Risk free rate
Balance at January 1, 2009	$ 886	$9.32	$ 1.36	172%	5.2	1.6%
Reclassification upon exercise of warrants	(109)	9.52	10.80	117%	4.4	2.7%
Fair value of warrants issued	8,992	8.60	7.04	114%	5.4	2.8%
Change in fair value included in statement of operations	(2,526)	—	—	—	—	—
Balance at December 31, 2009	7,243	6.16	3.24	116%	5.3	2.8%
Reclassification upon exercise of warrants	(2,878)	4.08	5.55	111%	4.9	2.6%
Fair value of warrants issued	6,759	3.40	4.05	119%	5.0	1.9%
Reclassification to equity upon elimination of price adjustment feature	(4,459)	6.18	2.49	123%	4.6	1.3%
Fair value of warrants terminated upon Cequent acquisition	(995)	4.60	2.98	122%	4.9	1.7%
Fair value of warrants assumed in Cequent acquisition	28	1.75	2.98	102%	8.2	2.6%
Change in fair value included in statement of operations	(3,915)	—	—	—	—	—
Balance at December 31, 2010	$ 1,783	$1.43	$ 1.55	127%	4.4	1.8%

The following presents activity of the fair value liability of price adjustable subscription investment units determined by Level 3 inputs (in thousands):

	Fair value liability for price adjustable subscription investment units (in thousands)	Weighted average as of each measurement date				
		Exercise Price	Stock Price	Volatility	Contractual life in years	Risk free rate
Balance at December 31, 2009	$ —	$ —	$ —	—	—	—
Fair value of subscription investment units issued	1,928	$1.86	$2.03	81%	1.3	0.2%
Change in fair value included in statement of operations	(445)	—	—	—	—	—
Balance at December 31, 2010	$1,483	$1.33	$1.55	79%	1.2	0.3%

Property and Equipment — Long-lived assets include property and equipment. These assets are recorded at our original cost and are increased by the cost of any significant improvements after purchase. Property and equipment assets are depreciated evenly over the estimated useful life of the individual assets. Depreciation begins when the asset is ready for its intended use. For tax purposes, accelerated depreciation methods are used as allowed by tax laws.

Identifiable intangible assets — Intangible assets associated with in-process research and development ("IPR&D") projects acquired in business combinations are not amortized until approval is obtained in a major market, typically either the U.S. or the European Union (EU), or in a series of other countries, subject to certain specified conditions and management judgment. The useful life of an amortizing asset generally is determined by identifying the period in which substantially all of the cash flows are expected to be generated.

Impairment of long-lived assets — We review all of our long-lived assets for impairment indicators throughout the year and we perform detailed testing whenever impairment indicators are present. In addition, we perform detailed impairment testing for indefinite-lived intangible assets at least annually. When necessary, we record charges for impairments. Specifically:

- For finite-lived intangible assets, such as developed technology rights, and for other long-lived assets, such as property and equipment, we calculate the undiscounted amount of the projected cash flows associated with the asset, or asset group, and compare this estimated amount to the carrying amount. If the carrying amount is found to be greater, we record an impairment loss for the excess of book value over fair value. In addition, in all cases of an impairment review, we re-evaluate the remaining useful lives of the assets and modify them, as appropriate.
- For indefinite-lived intangible assets, such as IPR&D assets, each year and whenever impairment indicators are present, we determine the fair value of the asset and record an impairment loss for the excess of book value over fair value, if any.

Accrued Restructuring — We ceased using one of our two leased facilities in Bothell, Washington ("the exited facility") in 2008. We recorded an accrued liability for remaining lease termination costs at fair value, based on the remaining payments due under the lease and other costs, reduced by estimated sublease rental income that could be reasonably obtained from the property, and discounted using a credit-adjusted risk-free interest rate. We based our estimated future payments, net of estimated future sublease payments, on current rental rates available in the local real estate market, and our evaluation of the ability to sublease the facility. Accrued restructuring, and in particular those charges associated with exiting a facility, are based upon management's assumptions and estimates which are subject to changes in facts and circumstances. These

estimates significantly impact the accrual and actual results may differ from our estimates. We review these estimates at least quarterly and when there are changes in facts or circumstances, and adjust our accrual if necessary. For a further discussion of our restructuring charges, see Note 4 — Accrued Restructuring.

Concentration of Credit Risk and Significant Customers — We operate in an industry that is highly regulated, competitive and rapidly changing and involves numerous risks and uncertainties. Significant technological and/or regulatory changes, the emergence of competitive products and other factors could negatively impact our consolidated financial position or results of operations.

We have been dependent on our collaborative and license agreements with a limited number of third parties for a substantial portion of our revenue, and our discovery and development activities may be delayed or reduced if we do not maintain successful collaborative arrangements. We had revenue from customers, as a percentage of total revenue, as follows:

	Years Ended December 31,	
	2009	2010
Par Pharmaceuticals	2%	47%
Cypress Bioscience	—	31%
Astra Zeneca	—	3%
Pfizer	—	2%
Undisclosed partner #1	—	4%
Undisclosed partner #2	—	1%
Novartis	51%	—
Roche	34%	—
Amylin	7%	—
Other	6%	12%
Total	100%	100%

Revenue Recognition — Revenue is recognized when there is persuasive evidence that an arrangement exists, delivery has occurred, collectability is reasonably assured, and fees are fixed or determinable. Deferred revenue expected to be recognized within the next 12 months is classified as current. Substantially all of our revenues are generated from research and development collaborations and licensing arrangements with partners that may involve multiple deliverables. For multiple-deliverable arrangements, judgment is required to evaluate, whether (a) an arrangement involving multiple deliverables contains more than one unit of accounting, and (b) how the arrangement consideration should be measured and allocated to the separate units of accounting in the arrangement. Our research and development collaborations may include upfront non-refundable payments, development milestone payments, R&D funding, patent-based or product sale royalties, and product sales. In addition, we may receive revenues from licensing arrangements. For each separate unit of accounting, we have determined that the delivered item has value to the customer on a stand-alone basis, we have objective and reliable evidence of fair value using available internal evidence for the undelivered item(s) and our arrangements generally do not contain a general right of return relative to the delivered item. We have not had multiple-deliverable arrangements of significance during 2010, and all such prior arrangements were complete or terminated in 2009.

Revenue from research and development collaborations is recorded when earned based on the specific terms of the contracts. Upfront non-refundable payments, where we are not providing any continuing services as in the case of a license to our IP, are recognized when delivery of the license has occurred. Upfront nonrefundable payments, where we are providing continuing services related to a research and development effort, are deferred and recognized as revenue over the collaboration period. The ability to estimate the total research and development effort and costs can vary significantly for each contract due to the inherent complexities and uncertainties of drug research and development. The estimated period of time over which we recognize certain

revenues is based upon structured detailed project plans completed by our project managers, who meet with scientists and collaborative counterparts on a regular basis and schedule the key project activities and resources including headcount, facilities and equipment and budgets. These periods generally end on projected milestone dates typically associated with the stages of drug development, i.e. filing of an IND, initiation of a Phase 1 human clinical trial or filing of an NDA. We typically do not disclose the specific project planning details of a research and development collaboration for competitive reasons and due to confidentiality clauses in our contracts. As drug candidates and drug compounds move through the research and development process, it is necessary to revise these estimates to consider changes to the project plan, portions of which may be outside of our control. The impact on revenue of changes in our estimates and the timing thereof is recognized prospectively over the remaining estimated development period.

Milestone payments typically represent nonrefundable payments to be received in conjunction with the achievement of a specific event identified in the contract, such as initiation or completion of specified development activities or specific regulatory actions such as the filing of an IND. We believe a milestone payment represents the culmination of a distinct earnings process when it is not associated with ongoing research, development or other performance on our part and it is substantive in nature. We recognize such milestone payments as revenue when they become due and collection is reasonably assured.

Revenue from R&D funding is generally received for services performed under research and development collaboration agreements and is recognized as services are performed. Payments received in excess of amounts earned are recorded as deferred revenue. Reimbursements received for direct out-of-pocket expenses related to contract R&D costs are recorded as revenue in the consolidated statements of operations rather than as a reduction in expenses.

Royalty and earn-out payment revenue is generally recognized upon product sale by the licensee as reported by the licensee.

Research and Development Costs — All research and development ("R&D") costs are charged to operations as incurred. Our R&D expenses consist of costs incurred for internal and external R&D. These costs include direct and research-related overhead expenses. We recognize clinical trial expenses, which are included in research and development expenses, based on a variety of factors, including actual and estimated labor hours, clinical site initiation activities, patient enrollment rates, estimates of external costs and other activity-based factors. We believe that this method best approximates the efforts expended on a clinical trial with the expenses recorded. We adjust our rate of clinical expense recognition if actual results differ from our estimates. As clinical trial activities continue, it is necessary to revise these estimates to consider changes such as changes in the clinical development plan, regulatory requirements, or various other factors, many of which may be outside of our control. The impact of changes in our estimates of clinical trial expenses and the timing thereof, is recognized prospectively over the remaining estimated clinical trial period. The ability to estimate total clinical trial costs can vary significantly due to the inherent complexities and uncertainties of drug development.

Stock-Based Compensation — We use the Black-Scholes-Merton option pricing model as our method of valuation for stock-based awards. Stock-based compensation expense is based on the value of the portion of the stock-based award that will vest during the period, adjusted for expected forfeitures. The estimation of stock-based awards that will ultimately vest requires judgment, and to the extent actual or updated results differ from our current estimates, such amounts will be recorded in the period the estimates are revised. The Black-Scholes-Merton option pricing model requires the input of highly subjective assumptions, and other reasonable assumptions could provide differing results. Our determination of the fair value of stock-based awards on the date of grant using an option pricing model is affected by our stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, the expected life of the award and expected stock price volatility over the term of the award. Stock-based compensation expense is recognized on a straight-line basis over the applicable vesting periods of one to five years based on the fair value of such stock-based awards on the grant date.

Net Loss per Common Share — Basic and diluted net loss per common share is computed by dividing the net loss by the weighted average number of common shares outstanding during the period. Diluted loss per share excludes the effect of common stock equivalents (stock options, unvested restricted stock, warrants and subscription investment units) since such inclusion in the computation would be anti-dilutive. The following numbers of shares have been excluded:

	Years Ended December 31,	
	2009	2010
Stock options outstanding	2,107,502	2,641,059
Unvested restricted stock	5,504	935
Warrants	2,886,980	3,830,201
Subscription investment units	—	2,423,550
Total	4,999,986	8,895,745

Operating leases — We lease our facilities under operating leases. Our lease agreements may contain tenant improvement allowances, rent holidays, lease premiums, and lease escalation clauses. For purposes of recognizing incentives, premiums and minimum rental expenses on a straight-line basis over the terms of the leases, we use the date of initial possession to begin amortization, which is generally when we enter the space and begin to make improvements in preparation of intended use. For tenant improvement allowances and rent holidays, we record a deferred rent liability on the consolidated balance sheets and amortize the deferred rent over the terms of the leases as reductions to rent expense on the consolidated statements of operations. For scheduled rent escalation clauses over the course of the lease term or for rental payments commencing at a date other than the date of initial occupancy, we record rental expense on a straight-line basis over the terms of the leases in the consolidated statements of operations.

Income Taxes — Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of assets and liabilities and their respective tax bases and operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Tax benefits in excess of stock-based compensation expense recorded for financial reporting purposes relating to stock-based awards will be credited to additional paid-in capital in the period the related tax deductions are realized. Our policy for recording interest and penalties associated with audits is to record such items as a component of income (loss) before taxes.

We assess the likelihood that our deferred tax assets will be recovered from existing deferred tax liabilities or future taxable income. Factors we considered in making such an assessment include, but are not limited to, estimated utilization limitations of operating loss and tax credit carryforwards, expected reversals of deferred tax liabilities, past performance, including our history of operating results, our recent history of generating taxable income, our history of recovering net operating loss carryforwards for tax purposes and our expectation of future taxable income. We recognize a valuation allowance to reduce such deferred tax assets to amounts that are more likely than not to be ultimately realized. To the extent that we establish a valuation allowance or change this allowance, we would recognize a tax provision or benefit in the consolidated statements of operations. We use our judgment to determine estimates associated with the calculation of our provision or benefit for income taxes, and in our evaluation of the need for a valuation allowance recorded against our net deferred tax assets.

Recent Accounting Pronouncements — In March 2010, the FASB ratified the final consensus that offers an alternative method of revenue recognition for milestone payments. The guidance states that an entity can make an accounting policy election to recognize a payment that is contingent upon the achievement of a substantive milestone in its entirety in the period in which the milestone is achieved. The guidance will be effective for fiscal

years, and interim periods within those years, beginning on or after June 15, 2010 with early adoption permitted, provided that the revised guidance is applied retrospectively to the beginning of the year of adoption. We have determined that the adoption of this guidance will not have a material effect on our consolidated financial statements.

In September 2009, the FASB revised the authoritative guidance for revenue arrangements with multiple deliverables. The guidance addresses how to determine whether an arrangement involving multiple deliverables contains more than one unit of accounting and how the arrangement consideration should be allocated among the separate units of accounting. The guidance will be effective beginning January 1, 2011 with early adoption permitted. We have determined that the adoption of this guidance will not have a material effect on our consolidated financial statements.

Note 2 — Acquisition of Cequent Pharmaceuticals, Inc.

On July 21, 2010, the acquisition date, we acquired Cequent Pharmaceuticals, Inc. ("Cequent"), a privately-held company engaged in development of novel products to deliver RNAi-based therapeutics. We completed the transaction pursuant to terms and conditions of an Agreement and Plan of Merger, dated as of March 31, 2010, by and among our company, Calais Acquisition Corp., our wholly-owned subsidiary ("Merger-sub"), Cequent and a representative of the stockholders of Cequent (the "Merger Agreement") by issuance of 9,882,853 shares of our common stock in exchange for all outstanding equity securities of Cequent. Of the total shares issued, 1,110,440 of these shares were considered issued in exchange for the termination of the amounts loaned, including accrued interest, to us by Cequent and the warrants issued by us to Cequent under the Loan Agreement and Warrant Agreement. We also assumed all of the stock options of Cequent outstanding as of the acquisition date.

On the acquisition date, Merger-sub merged with and into Cequent, and Cequent is now our wholly-owned subsidiary. The merger was accounted for as a business combination utilizing the acquisition method of accounting. Under the acquisition method, the assets acquired and liabilities assumed were added to ours and recorded as of the acquisition date, at their respective fair values. Our financial statements and reported results of operations issued after the merger reflect these values, but have not been retroactively restated to reflect the historical financial position or results of operations of Cequent. The results of operations of Cequent since July 21, 2010 have been included in our Consolidated Statements of Operations for the year ended December 31, 2010.

As of December 31, 2010, acquisition accounting is preliminary as our management has not yet obtained all of the information that it has arranged to obtain and that is known to be available. We are still in process of obtaining additional information needed to finalize matters pertaining to income taxes. The income tax matters include obtaining the Cequent pre-acquisition 2010 tax return. As of December 31, 2010 a valuation allowance has been recorded in purchase accounting against all acquired deferred tax assets not otherwise offset by deferred tax liabilities.

Based upon the outstanding shares of our common stock and assuming exercise of all of our outstanding exercisable and non-exercisable warrants and stock options, and assuming the exercise or conversion of all of Cequent's exercisable and non-exercisable warrants, stock options and preferred stock, immediately following the completion of the merger, our security holders owned approximately 62% of the combined company's common stock and Cequent security holders owned approximately 38%. In addition to considering these relative security holdings, management also considered the composition of the Board of Directors, the structure and members of the executive management team, the size of the combining entities and the terms of the exchange of equity interests in determining the accounting acquirer. Based on the weight of these factors, it was concluded that Marina Biotech was the accounting acquirer.

Consideration transferred — Consideration transferred attributable to the acquisition of Cequent was approximately $27.0 million. Consideration transferred is comprised of approximately $26.1 million relating to shares we issued, which were valued at the acquisition date closing market price of $2.98 per share, and approximately $0.9 million relating to Cequent stock options we assumed. The fair value of stock options assumed was calculated using a Black-Scholes-Merton valuation model with the following assumptions: market price of $2.98 per share, volatility of 120%, expected term of 5 years; risk-free interest rate of 1.7% and no dividend yield. We included the fair value of vested stock options assumed of approximately $0.9 million in the consideration transferred. The estimated fair value of unvested stock options we assumed of approximately $0.3 million was not included in the consideration transferred and will be recognized as stock-based compensation expense over the remaining future vesting period of the stock options.

As further described in Note 5 — Notes Payable, in connection with the merger and pursuant to the terms of a separate Loan Agreement, our notes payable to Cequent in the aggregate principal amount of $3.0 million and accrued interest of approximately $45,000 were settled and warrants to purchase our common stock held by Cequent terminated. A portion of consideration transferred totaling approximately $3.3 million is deemed attributable to repayment of these notes payable and termination of warrants.

Allocation of purchase consideration — Accounting guidance requires that most assets acquired and liabilities assumed be recognized at their fair values, as determined in accordance with ASC 820, Fair Value Measurements, as of the acquisition date. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. This is an exit price concept for the valuation of the asset or liability. Market participants are assumed to be buyers and sellers in the principal (or the most advantageous) market for the asset or liability. Fair value measurements for an asset assume the highest and best use by these market participants. As a result of these standards, we may be required to value assets at fair value measures that do not reflect our intended use of those assets. Many of these fair value measurements can be highly subjective and it is also possible that other professionals, applying reasonable judgment to the same facts and circumstances, could develop and support a range of alternative estimated amounts.

The following summarizes the allocation of assets acquired and liabilities assumed at July 21, 2010 (in thousands):

Cash and cash equivalents	$ 5,063
Prepaid and other assets	566
Property and equipment	302
Intangible assets—IPR&D	22,734
Accounts payable and accrued liabilities	(437)
Deferred tax liabilities, net	(1,202)
Total consideration transferred	$27,026

Tangible assets — Tangible assets acquired include cash, property and equipment, and prepaid expenses and other assets. Cequent property and equipment is comprised primarily of lab and office equipment. Our management has determined that the fair value reasonably approximates the Cequent net book value.

Identifiable intangible assets — A substantial portion of the assets acquired have been allocated to identifiable intangible assets related to in-process research and development ("IPR&D") projects identified by management. Our management has estimated acquisition-date fair values of these intangible assets. These identified intangible assets have been valued based on a number of factors. Utilizing the income approach, a discounted cash flow model using forecasted operating results related to the identified intangible assets, fair value was $19.3 million for Familial Adenomatous Polyposis and $3.4 million for Transkingdom RNAI, a total of $22.7 million.

We estimated the fair value of these intangible assets using a present value discount rate of 23%, which was based on the estimated weighted-average cost of capital for companies with profiles substantially similar to ours. We compensated for the differing phases of development of each project by probability-adjusting our estimation of the expected future cash flows associated with each project. We then determined the present value of the expected future cash flows using the discount rate. The projected cash flows from the projects were based on key assumptions such as estimates of revenues and operating profits related to the projects considering their stages of development; the time and resources needed to complete development and receive approval; the life of the potential commercialized products and associated risks, including the inherent difficulties and uncertainties in development such as obtaining marketing approval from the U.S. Food and Drug Administration and other regulatory agencies; and risks related to the viability of and potential alternative treatments in any future target markets.

Accounting guidance requires that the fair value of IPR&D acquired in a business combination be recorded on the balance sheet regardless of the likelihood of success as of the acquisition date. Intangible assets related to IPR&D projects are considered to be indefinite-lived until completion or abandonment of the related project. During the period the assets are considered indefinite-lived, they will not be amortized but will be tested for impairment on an annual basis and between annual tests if we become aware of any events occurring or changes in circumstances that would indicate a reduction in the fair value of the projects below their respective carrying amounts. If and when it were determined that identified intangible assets were impaired, an impairment charge would be recorded then. If and when development is complete, which generally occurs if and when regulatory approval to market a product is obtained, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that date.

Liabilities assumed — Cequent liabilities at the acquisition date consist of accounts payable, accrued liabilities and fair value of price adjustable warrants. Accounts payable and accrued liabilities are expected to be paid in normal course and considered to represent fair value.

Deferred Taxes — The merger was structured as non-taxable. Acquired deferred tax assets were comprised of approximately $7.0 million for federal and state net operating loss carryforwards and $1.1 million for tax credit carryforwards. The tax basis for acquired intangible assets of $22.7 million is nil, which results in recording a deferred tax liability of approximately $8.0 million as there will be no tax deduction when the book basis is expensed and the deferred tax liability is reduced. Our management has determined that it is more likely than not that a substantial portion of acquired net operating loss and tax credit carryforwards will be realized prior to expiration through reversal of deferred tax liabilities during years of expected financial reporting expense for the acquired intangible assets, and accordingly approximately $6.8 million of deferred tax liabilities support the realization of acquired deferred tax assets. A valuation allowance of approximately $1.2 million was recorded related to the remainder of the acquired deferred tax assets.

Acquisition-Related Transaction Costs —We recognized approximately $1.4 million of acquisition-related transaction costs in selling, general and administrative expenses in 2010, which consisted primarily of investment banker fees, and legal and accounting costs, related to the acquisition.

Pro Forma Information (unaudited) — The following unaudited pro forma information presents the combined revenues and net loss of Marina Biotech and Cequent for the years ended December 31, 2009 and 2010 as if the acquisition of Cequent had occurred as of the beginning of the respective years. This pro forma information does not include any adjustments related to restructuring or one-time charges, potential profit improvements, potential cost savings or other costs which may result from combining the operations. Accordingly, these unaudited pro forma revenues and net loss are presented for illustrative purposes and are not intended to represent or be indicative of the actual results of operations of the combined company that would have been achieved had the acquisition occurred as of the beginning of the periods presented nor are they intended to represent or be indicative of future results of operations. The unaudited pro forma results of operations information is as follows (in thousands):

	2009	2010
Revenue	$ 15,313	$ 2,788
Net loss	$(13,302)	$(30,243)

Note 3 — Property and Equipment

Property and equipment at December 31, 2009 and 2010 are comprised of the following (in thousands):

	2009	2010
Furniture and fixtures	$ 836	$ 873
Machinery and equipment	5,097	5,402
Computer equipment and software	2,176	1,216
Leasehold improvements	4,233	4,285
	12,342	11,776
Less accumulated depreciation and amortization	7,773	8,081
Net property and equipment	$ 4,569	$ 3,695

Note 4 — Accrued Restructuring

Prior to 2009 we restructured our operations to focus on our RNAi programs by reducing our workforce related to our former intranasal delivery business and by exiting one of our facilities. We recorded a restructuring liability, representing estimated future payments due under the lease, net of anticipated future sublease payments, which was discounted using a credit-adjusted risk-free interest rate. In 2009, we amended our lease to reduce our lease obligations by approximately $1.9 million, and we issued 375,000 shares of our common stock to the landlord. In addition, in 2009, the landlord leased approximately 37% of the exited facility, and we terminated the lease with respect to this portion of the premises. In 2010, we reduced our rent obligations further by amending our lease, which reduced our future lease obligations by approximately $4.1 million, and we issued 2,115,727 shares of our common stock to the landlord.

We recorded restructuring charges including accretion of the accrued restructuring liability and other facility-related costs in the amounts of $0.3 million and $3.5 million in 2009 and 2010, respectively. Accrued restructuring, and in particular those charges associated with exiting a facility, are subject to management's assumptions and estimates, as well as changes in facts and circumstances. We currently measure and report at fair value the accrued restructuring liability using Level 3 inputs, which are estimates and assumptions developed by us, and reflect those that a market participant would use. In addition to the interest rate used, which is currently 23%, the assumptions as to estimated future payments and estimated future sublease payments significantly impact the accrual and actual results may differ from our estimates. As of December 31, 2010, the balance of our accrued restructuring liability is approximately $0.5 million. We expect to incur approximately $0.1 million in additional accretion expense through the expiration of this lease in 2016.

The components of restructuring expense are summarized as follows (in thousands):

	Year ended December 31,		Cumulative to December 31,
	2009	2010	2010
Employee severance and termination benefits (including stock-based compensation charges)	$—	$ —	$ 3,986
Property and equipment impairment	137	—	2,099
Facility related charges	318	3,526	5,859
Other restructuring charges	—	—	294
Total restructuring	$455	$3,526	$12,238

Note 5 — Notes Payable

In January 2009, we entered into a Loan and Security Agreement (the "Loan Agreement") with General Electric Capital Corporation ("GECC") pursuant to which GECC converted the balance due under capital lease obligations, along with a lease termination fee and amounts payable for property taxes, to a promissory note in the amount of approximately $5.5 million at an interest rate of 12.3% per year. As a result of the capital lease termination and issuance of the note payable, we recorded a lease termination fee of approximately $0.2 million during the first quarter of 2009, which was presented as a component of gain on settlement of liabilities, net. The loan was paid in full in June 2009 and the Loan Agreement terminated.

In December 2009, we entered into a Note and Warrant Purchase Agreement (the "Note Agreement"), pursuant to which we received $1 million cash and issued 12% secured promissory notes due February 1, 2010 in the aggregate principal amount of $1.0 million (the "Notes") and warrants to purchase up to 268,819 shares of our common stock. The warrants had an initial exercise price of $4.08 per share, which was subject to downward price adjustment until December 31, 2010, and are exercisable for five years. In November 2010 the warrant exercise price was adjusted to $1.84 per share and as of December 31, 2010 there will be no further price adjustments to these warrants. The Note Agreement contained certain customary representations, warranties and covenants, including that we would not declare or pay dividends. The Notes were collateralized by substantially all of our assets. In January 2010, we received net proceeds of approximately $4.9 million in a registered direct offering of 1,346,389 shares of common stock and 875,155 warrants. In January 2010, we paid the principal amount of the Notes and accrued interest in full, the Note Agreement terminated, and the collateral was released.

In connection with the Note Agreement, we recorded debt issuance costs of approximately $0.1 million which were amortized as interest and other expense over the term of the notes. In addition, we recorded a discount on notes payable of approximately $0.9 million which represents the fair value of the warrants issued in connection with the notes payable, as determined utilizing the Black-Scholes-Merton valuation model with assumptions of expected life of five years, volatility rate of 117%, risk-free interest rate of 2.5% and dividend rate of nil. The discount on notes payable was reported net of related notes payable and amortized as interest expense over the term of the notes. The estimated fair value of the warrants was recorded as an increase in fair value liability for price adjustable warrants.

Concurrent with the execution of the Merger Agreement, we entered into a Loan Agreement with Cequent pursuant to which, among other things, Cequent extended to us loans in the aggregate principal amount of $3.0 million to fund our operations prior to the merger. In each of April, May and June 2010, Cequent loaned us $1.0 million under the Loan Agreement. The loans were evidenced by a secured promissory note, issued by us to Cequent, which bears interest, at a rate of ten percent per annum. On July 21, 2010 the merger was consummated and, in accordance with the Loan Agreement, the then outstanding principal balance of the loans and all interest then accrued but unpaid thereon was settled in full.

Pursuant to the Loan Agreement we issued to Cequent a warrant to purchase shares of common stock, with each such warrant to be exercisable for a number of shares of common stock equal to sixty-five percent (65%) of the principal amount of the loan being made on such date divided by $4.598. In each of April, May and June 2010, in connection with the issuance of notes payable to Cequent, we issued a warrant to purchase 141,354 shares of common stock at $4.598 per share, for a total of 424,062 shares, which were exercisable, for a five year term, only if the merger is not consummated. The warrant provided that the exercise price of the warrant will be reduced in the event of subsequent financings at an effective price per share less than the exercise price of the warrants. The issuance of these warrants was not a dilutive issuance. On July 21, 2010 the merger was consummated and, in accordance with the Loan Agreement, the warrants terminated. A portion of consideration transferred to Cequent security holders in connection with the acquisition has been determined to be attributable to termination of notes payable and warrants, such amount being the net book value of notes payable and accrued interest, net of unamortized discount, which approximated $3.3 million. As a result, there was no gain or loss recognized upon termination.

The following table presents the activity in Notes payable and related discount for the years ended December 31, 2009 and 2010 (in thousands):

	Notes Payable	Discount	Notes Payable, net
Balance at January 1, 2009	$ —	$ —	$ —
Issuances of notes payable and warrants	6,547	(881)	5,666
Payments	(5,547)	—	(5,547)
Amortization of discount to interest expense	—	198	198
Balance at December 31, 2009	1,000	(683)	317
Payments	(1,000)	—	(1,000)
Issuance of notes payable and warrants	3,000	(1,459)	1,541
Amortization of discount to interest expense	—	1,433	1,433
Termination of notes payable and warrants	(3,000)	709	(2,291)
Balance at December 31, 2010	$ —	$ —	$ —

Note 6 — Stockholders' Equity

Preferred Stock — Our board of directors has the authority, without action by the stockholders, to designate and issue up to 100,000 shares of preferred stock in one or more series and to designate the rights, preferences and privileges of each series, any or all of which may be greater than the rights of our common stock. We have designated 90,000 shares as Series A Junior Participating Preferred, of which no shares are outstanding.

Stockholder Rights Plan — In 2000, our board of directors adopted a stockholder rights plan and declared a dividend of one preferred stock purchase right for each outstanding share of common stock. Each right entitles the holder, once the right becomes exercisable, to purchase from us one one-thousandth of a share of our Series A Junior Participating Preferred Stock, par value $.01 per share. We issued these rights in March 2000 to each stockholder of record on such date, and these rights attach to shares of common stock subsequently issued. The rights will cause substantial dilution to a person or group that attempts to acquire us on terms not approved by our board of directors and could, therefore, have the effect of delaying or preventing someone from taking control of us, even if a change of control were in the best interest of our stockholders.

Holders of our preferred share purchase rights are generally entitled to purchase from us one one-thousandth of a share of Series A preferred stock at a price of $50.00, subject to adjustment as provided in the Stockholder Rights Agreement. These preferred share purchase rights will generally be exercisable only if a person or group becomes the beneficial owner of 15 percent or more of our outstanding common stock or announces a tender offer for 15 percent or more of our outstanding common stock. Each holder of a preferred share purchase right,

excluding an acquiring entity or any of its affiliates, will have the right to receive, upon exercise, shares of our common stock, or shares of stock of the acquiring entity, having a market value equal to two times the purchase price paid for one one-thousandth of a share of Series A preferred stock. In March 2010 we amended the Stockholder Rights Agreement to extend the expiration date of the preferred share purchase rights from March 17, 2010 to March 17, 2013, and this amendment was approved by our shareholders on July 21, 2010. Initially, 10,000 Series A Junior Participating Preferred shares were designated, which has been increased to 90,000 shares.

Common Stock — Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the holders of our common stock. Subject to the rights of the holders of any class of our capital stock having any preference or priority over our common stock, the holders of shares of our common stock are entitled to receive dividends that are declared by our board of directors out of legally available funds. In the event of our liquidation, dissolution or winding-up, the holders of common stock are entitled to share ratably in our net assets remaining after payment of liabilities, subject to prior rights of preferred stock, if any, then outstanding. Our common stock has no preemptive rights, conversion rights, redemption rights or sinking fund provisions, and there are no dividends in arrears or default. All shares of our common stock have equal distribution, liquidation and voting rights, and have no preferences or exchange rights.

Pursuant to a universal shelf registration statement filed with and declared effective by the SEC in 2008, we could issue up to $50.0 million of our common stock, preferred stock, debt securities, warrants to purchase any of the foregoing securities and units comprised of any of the foregoing securities. We accessed this universal shelf registration statement in connection with our April 2008, June 2009 and January 2010 offerings of common stock and warrants and our December 2009 issuance of warrants.

In 2009, we issued to several of our vendors an aggregate of 341,071 shares of our common stock having an estimated fair value of approximately $0.4 million based on the closing market prices on the issue dates to settle amounts due to these vendors of approximately $0.6 million in total and, as a result we recorded a gain on settlement of liabilities of approximately $0.2 million.

In 2009, we entered into an amendment of our lease for 3450 Monte Villa which reduced our future lease obligation payments, and pursuant to which, among other things, we issued 375,000 shares of our common stock to the landlord. The estimated fair value of the shares issued was approximately $0.4 million on the date of issuance and was recorded as an increase in common stock and additional paid-in capital and as a decrease to the previously recorded restructuring liability.

In 2009, we entered into an amendment of our agreement regarding severance obligations with our former Chief Scientific Officer, pursuant to which we paid a reduced sum of approximately $0.9 million on June 30, 2009, and issued 182,819 unregistered shares of our common stock having an estimated market value of approximately $0.2 million as of the agreement date, in full satisfaction of approximately $1.7 million in accrued severance. As a result, we recorded a gain on settlement of liabilities of approximately $0.7 million during 2009.

In 2009, we received net proceeds of approximately $9.3 million from a private placement of 1,312,500 units at a price of $8.00 per unit, each unit comprised of one share of common stock and a warrant to purchase one share of common stock. The estimated fair value of the warrants of approximately $8.1 million was recorded as an increase in fair value liability of price adjustable warrants with the offset reducing common stock and additional paid-in capital.

In 2009, we issued 151,515 shares of our common stock to Ribotask ApS as consideration for an amendment of our Patent Assignment and License Agreement and recorded research and development expense of approximately $1 million, the estimated fair value upon issuance based on the closing market price.

In January 2010, we received net proceeds of approximately $4.9 million from an offering of units at a purchase price of $4.085 per unit comprised of 1,346,389 shares of common stock together with warrants to

purchase up to 875,155 shares of our common stock. The estimated fair value of the warrants of approximately $4.1 million was recorded as an increase in fair value liability of price adjustable warrants with the offset reducing common stock and additional paid-in capital.

In July 2010, in connection with our acquisition of Cequent Pharmaceuticals, we issued an aggregate of 9,882,853 shares of common stock to the stockholders of Cequent in exchange for all of the shares of Cequent common and preferred stock that were issued and outstanding immediately prior to the Merger. Of the total shares issued, 1,110,440 of these shares were considered issued in exchange for the termination of the amounts loaned, including accrued interest, to us by Cequent and the warrants issued by us to Cequent under the Loan Agreement and Warrant Agreement. We also assumed all of the stock options and warrants of Cequent outstanding as of July 21, 2010.

In July 2010, we entered into an agreement pursuant to which we acquired the intellectual property of Novosom AG ("Novosom") of Halle, Germany for Novosom's SMARTICLES® liposomal-based delivery system, which significantly broadens the number of approaches we may take for systemic and local delivery of our proprietary UsiRNA therapeutics. We issued 1,419,487 shares of our common stock to Novosom as consideration for the acquired assets and recorded research and development expense of approximately $3.8 million, the estimated fair value upon issuance based on the closing market price.

Under a universal shelf registration statement filed with the SEC, which was declared effective by the SEC in September 2010, we can issue up to $50.0 million of our common stock, preferred stock, debt securities, warrants to purchase any of the foregoing securities, and/or rights to purchase shares of our common or preferred stock, either individually or in units comprised of any of such securities. We accessed our universal shelf registration statement in connection with our November 2010 issuance of warrants, our November 2010 offerings of common stock and subscription investment units and our February 2011 issuance of common stock and warrants.

In November 2010, we received net proceeds of approximately $3.0 million from an offering of units comprised of 1,795,000 shares of common stock together with subscription investment units to purchase up to 2,423,550 shares of common stock at a purchase price of $1.84 per unit. The estimated fair value of the subscription investment units of approximately $1.9 million was recorded as an increase in fair value liability of price adjustable subscription investment units with the offset reducing common stock and additional paid-in capital.

In December 2010, we entered into an amendment of our lease for 3450 Monte Villa which reduced our future lease obligation payments, and pursuant to which, among other things, we issued 2,115,727 shares of our common stock to the landlord. The estimated fair value of the shares issued was approximately $3.3 million on the date of issuance and was recorded as an increase in common stock and additional paid-in capital and as restructuring expense.

In 2010, we issued to several of our vendors an aggregate of 326,936 shares of our common stock having an estimated fair value of approximately $0.5 million based on the closing market prices on the issue dates to settle amounts due to these vendors of approximately $0.5 million in total and, as a result we recorded a net loss on settlement of liabilities of approximately $20,000.

In February 2011, we received net proceeds of approximately $4.7 million from an offering of units comprised of 6,375,000 shares of common stock together with warrants to purchase up to 1,113,075 shares of our common stock at a purchase price of $0.80 per unit.

Warrants — In connection with offerings of our common stock and notes payable, we have issued warrants to purchase shares of our common stock, some of which provide that the exercise price of the warrant will be reduced in the event of subsequent financings at an effective price per share less than the exercise price of the

warrants, subject to certain exceptions and limitations. The warrants outstanding as of January 1, 2009, all of which were issued in April 2008, also required a corresponding adjustment of the number of shares of common stock that may be acquired such that the total consideration payable remains unchanged upon full exercise regardless of a downward adjustment in the exercise price. In January 2009, warrants to purchase 344,271 shares of common stock expired.

In June 2009, in connection with the issuance of common stock, we issued warrants to purchase 1,312,500 shares of common stock. The warrants are exercisable until December 12, 2014 and the warrants provide that the exercise price of the warrant will be reduced in the event of subsequent financings at an effective price per share less than the exercise price of the warrants. The June 2009 offering was specifically excluded by the April 2008 warrant holders from triggering any potential anti-dilution provisions of the April 2008 warrants. In addition, in connection with our June 2009 offering, we agreed to seek shareholder approval, to amend the April 2008 warrant agreements to allow the warrants to be repriced below the $8.68 price floor upon dilutive issuances subsequent to such shareholder approval. At the July 21, 2010 annual shareholders' meeting, a proposal to amend the April 2008 warrants to remove the $8.68 floor was not approved by shareholders and therefore effective that date the April 2008 warrants are no longer subject to further price adjustments and there can be no further adjustment to the number of warrant shares.

In December 2009, in connection with the issuance of notes payable, we issued warrants to purchase 268,819 shares of common stock. The issuance of these warrants was a dilutive issuance and in accordance with the terms of the warrant agreements, the April 2008 warrants were repriced to $8.68 per share and warrants to purchase an additional 113,211 shares at $8.68 per share were issued, and the June 2009 warrants were repriced to $4.08 per share. The June 2009 warrants are subject to additional repricings upon future dilutive issuances. The December 2009 warrants were subject to additional repricings upon future dilutive issuances until December 31, 2010. As of December 31, 2010, the exercise price of the December 2009 warrants is $1.84 per share and they are no longer subject to further price adjustments.

In January 2010, we issued warrants to purchase 875,155 shares of common stock at $4.00 per share. The warrants are exercisable until January 19, 2015 and the warrants provide that the exercise price of the warrant will be reduced in the event of subsequent financings at an effective price per share less than the exercise price of the warrants, limited to a price floor of $3.76 per share. We agreed to seek shareholder approval to remove the price floor of $3.76 per share. At the July 21, 2010 annual shareholders' meeting, a proposal to amend the January 2010 warrants to remove the $3.76 floor was not approved by shareholders.

In each of April, May and June 2010, in connection with the issuance of notes payable to Cequent, we issued a warrant to purchase 141,354 shares of common stock at $4.5984 per share, for a total of 424,062 shares. On July 21, 2010 the merger was consummated and the warrants issued to Cequent terminated.

In November 2010, we amended the Securities Purchase Agreements dated as of April 25, 2008, June 9, 2009 and January 13, 2010. In consideration for the amendments we issued warrants to purchase up to 686,260 shares of common stock, which have a five year term, are exercisable immediately, and have an initial exercise price of $2.03 per whole share of common stock, which was subject to adjustment. The estimated fair value of the warrants of approximately $1.2 million was recorded as other expense and an increase in fair value liability of price adjustable warrants. On February 7, 2011, the exercise price of the warrants adjusted to $1.06 per share and the warrants are no longer subject to further adjustment.

As a result of the issuance of common stock at a price of $1.84 per share on November 4, 2010, 956,319 warrants previously outstanding that were issued in June 2009 and December 2009 were repriced to $1.84 per share and 871,405 warrants previously outstanding that were issued in January 2010 were repriced to the floor of $3.76 per share.

In February 2011, we issued warrants to purchase 1,113,075 shares of common stock at $0.80 per share. The warrants are exercisable until February 15, 2018 and are not subject to repricings. As a result of the issuance of common stock and warrants at a price of $0.80 per share, 687,500 warrants previously outstanding that were issued in June 2009 were repriced to $0.80 per share.

In the years ended December 31, 2009 and 2010, warrants to purchase 12,500 and 628,750 shares were exercised, pursuant to which we received cash proceeds of approximately $0.1 million and $2.6 million and issued 12,500 and 628,750 shares of our common stock.

The following summarizes warrant activity during the years ended December 31, 2009 and 2010:

	Warrant Shares	Weighted Average Exercise Price
Warrants outstanding, January 1, 2009	1,549,221	$9.32
Warrants issued	1,694,530	8.60
Warrants exercised	(12,500)	9.52
Warrants expired	(344,271)	8.68
Warrants outstanding, December 31, 2009	2,886,980	6.16
Warrants issued	1,985,477	3.45
Warrants assumed in Cequent acquisition	10,556	1.75
Warrants exercised	(628,750)	4.08
Warrants terminated upon Cequent acquisition	(424,062)	4.60
Warrants outstanding, December 31, 2010	3,830,201	$4.64
Warrants expiring in 2013	49,140	
Warrants expiring in 2014	956,319	
Warrants expiring in 2015	2,814,186	
Warrants expiring thereafter	10,556	

Subscription investment units — In November 2010, we issued subscription investment units to purchase during the 16-month period following the date of issuance, an aggregate of 2,423,550 shares of common stock at a per share exercise price equal to the lesser of (i) $2.21, and (ii) 90% of the quotient of (x) the sum of the three lowest VWAP of the common stock for any three trading days during the ten (10) consecutive trading day period ending and including the trading day immediately prior to the applicable exercise date, divided by (y) three (3). If after 120 calendar days from the closing date certain conditions are satisfied, including that the closing price of our common stock exceeds $4.78 for 10 consecutive trading days, and the daily volume of our common stock on each of such 10 consecutive trading days is greater than 400,000 shares per day, we shall have the right to require the buyers to exercise their Subscription Units upon five days' written notice. None of the subscription investment units were exercised in 2010.

Stock Incentive Plans — At December 31, 2010, options to purchase up to 2,641,059 shares of our common stock were outstanding, unvested restricted stock awards for an aggregate of 935 shares of our common stock were outstanding and 1,006,004 shares were reserved for future grants or awards under our various stock incentive plans.

Our stock incentive plans include the 2008 Stock Incentive Plan, 2004 Stock Incentive Plan and 2002 Stock Option Plan. At our July 21, 2010 annual shareholders' meeting, our shareholders approved the addition of one million shares to our 2008 Stock Incentive Plan. We also maintain outstanding grants under our 2000 Nonqualified Stock Option Plan, which expired in 2010, and the 2006 Cequent Stock Incentive Plan under which stock options outstanding at the time of the Cequent acquisition were converted to options to purchase shares of

our common stock. Under our stock compensation plans, we are authorized to grant options to purchase shares of common stock to our employees, officers and directors and other persons who provide services to us. The options to be granted are designated as either incentive stock options or non-qualified stock options by our board of directors, which also has discretion as to the person to be granted options, the number of shares subject to the options and the terms of the option agreements. Only employees, including officers and part-time employees, may be granted incentive stock options. Under our 2004 and 2008 plans, we are authorized to grant awards of restricted stock, stock appreciation rights and performance shares, in addition to stock options. As of December 31, 2010, no stock appreciation rights or performance shares have been granted. Options granted under the plans generally have terms of ten years from the date of grant, and generally vest over three or four years. We generally issue new shares for option exercises unless treasury shares are available for issuance. We had no treasury shares as of December 31, 2010 and have no plans to purchase any in the next year, however, we may accept the surrender of vested restricted shares from employees to cover tax requirements at our discretion.

Stock-based Compensation — Compensation expense is recognized on a straight-line basis over the applicable vesting periods based on the fair value on the grant date and is recorded net of forfeitures based on historical experience. Certain option and share awards provide for accelerated vesting if there is a change in control (as defined in the applicable plan and certain employment agreements we have with key employees). The following table summarizes stock-based compensation expense (in thousands):

	Years Ended December 31,	
	2009	2010
Research and development	$ 163	$ 679
Selling, general and administrative	1,649	1,337
Total	$1,812	$2,016

Stock Options — Option activity was as follows:

	Years Ended December 31,			
	2009		2010	
	Shares	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
Outstanding at beginning of year	1,547,303	$17.39	2,107,502	$ 9.25
Granted	853,970	5.48	218,613	2.63
Assumed in Cequent acquisition	—	—	580,828	2.32
Exercised	(3,750)	8.56	(40,575)	1.09
Expired	(230,024)	50.89	(190,590)	15.76
Forfeited	(59,997)	5.94	(34,719)	2.12
Outstanding at end of year	2,107,502	$ 9.25	2,641,059	$ 6.93
Exercisable at end of year	1,106,173	$11.51	1,923,936	$ 7.45

The following table summarizes additional information on our stock options outstanding at December 31, 2010:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Number Exercisable	Weighted-Average Exercise Price
$1.16 – $ 1.92	329,295	6.8	$ 1.25	308,806	$ 1.25
$2.14 – $ 3.80	551,033	8.1	2.98	205,991	3.21
$4.12 – $ 5.84	747,065	7.1	5.26	590,849	5.12
$6.08 – $ 9.56	569,740	6.6	8.01	471,224	8.04
$12.76 – $61.72	443,926	6.6	17.44	347,066	18.63
Totals	2,641,059	7.1	$ 6.93	1,923,936	$ 7.45
Exercisable	1,923,936	6.5			

We use the Black-Scholes-Merton option pricing model to determine the fair value of our stock-based awards. The determination of the fair value of stock-based awards on the date of grant using an option-pricing model is affected by our stock price as well as by assumptions regarding a number of complex and subjective variables. These variables include the expected life of the award, expected stock price volatility over the term of the award, historical and projected exercise behaviors, risk-free interest rate and expected dividends. Staff Accounting Bulletins issued by the Securities and Exchange Commission provide for a simplified method for estimating expected term for "plain-vanilla" options, if a company met certain criteria. The mid-point between the vesting date and the expiration date is used as the expected term under this method. We have concluded that we meet the criteria to use the simplified method as we have had significant structural changes in our business such that our historical exercise data may no longer provide a reasonable basis upon which to estimate expected term. We estimate volatility of our common stock by using our stock price history to forecast stock price volatility. The risk-free interest rates used in the valuation model were based on U.S. Treasury issues with remaining terms similar to the expected term on the options. We do not anticipate paying any dividends in the foreseeable future and, therefore, use an expected dividend yield of nil. The per-share fair value of stock options granted was approximately $3.76 and $2.19 in 2009 and 2010, respectively, which were estimated at the date of grant using the Black-Scholes-Merton option valuation model with the following weighted average assumptions for the periods presented as follows:

	2009	2010
Risk free interest rate	2.3%	1.6%
Expected stock volatility	105%	113%
Expected option life	5.8 years	5.9 years

As of December 31, 2010, we had approximately $1.6 million of total unrecognized compensation cost related to unvested stock options. Total unrecognized compensation cost will be adjusted for future changes in estimated forfeitures. We expect to recognize this cost over a weighted average period of approximately 1.6 years.

At December 31, 2010, the aggregate intrinsic value of options outstanding was approximately $0.1 million and the aggregate intrinsic value of options exercisable was $0.1 million. The intrinsic value of stock options is based on the December 31, 2010 $1.55 closing market price of our common stock and is calculated by aggregating the difference between the closing market price and the exercise price of the options. The total intrinsic value of options exercised in 2009 was not material and the total intrinsic value of options exercised in 2010 was approximately $0.1 million. The total grant date fair value of options that vested during 2009 and 2010 was approximately $1.9 million and $2.1 million, respectively.

In 2009, in connection with our annual shareholders meeting, three members of our board of directors retired. Our board of directors approved a resolution to extend the amount of time two of the retiring directors have to exercise their vested options from 90 days to two years. Additional compensation expense recognized as a result of the modification was approximately $0.1 million. The third retiring director's options were governed by his employment contract at his employment termination date. In 2009, six employees were terminated and received accelerated vesting of their stock options and additional time to exercise their options, which resulted in recognition of additional compensation expense of approximately $0.8 million.

In 2010, in connection with our annual shareholders meeting, three members of our board of directors retired. Our board of directors approved a resolution to extend the amount of time two of the retiring directors have to exercise their vested options from 90 days to four years. Additional compensation expense recognized as a result of the modification was approximately $0.2 million.

Non-Employee Option Grants — In 2009 we granted stock options to non-employee members of our Scientific Advisory Board. In addition, as part of the Cequent acquisition, we assumed stock options granted to non-employees which were converted to stock options for 79,642 shares of our common stock. Non-employee option grants are recorded as 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-Merton option pricing model, is re-measured using the fair value of our common stock and the stock-based compensation recognized during the period is adjusted accordingly. Since the fair value of options granted to non-employees is subject to change in the future, the amount of future compensation expense will include fair value re-measurements until the stock options are fully vested. We recognized expense of approximately $47,000 and $45,000 in 2009 and 2010, respectively, relating to options granted to non-employees.

Restricted Stock Awards — Pursuant to restricted stock awards granted under our 2004 Plan, we have issued shares of restricted stock to certain employees and members of our board of directors. No restricted stock awards have been granted under our 2008 Plan. Stock-based compensation expense is being recognized on a straight-line basis over the applicable vesting periods of one to three years of the restricted shares based on the fair value of such restricted stock on the grant date. Additional information on restricted shares is as follows:

	Years Ended December 31,	
	2009	2010
Unvested restricted shares outstanding, beginning of year	26,691	5,504
Restricted shares forfeited	(3,393)	—
Restricted shares vested	(17,794)	(4,569)
Unvested restricted shares outstanding, end of year	5,504	935
Weighted average grant date fair value per share	$ 35.00	$ 15.24

Stock-based compensation related to restricted stock was a benefit of $0.3 million in 2009 due to forfeitures and in 2010 we recorded an expense of approximately $0.1 million. The grant date fair value of restricted stock vested in 2009 and 2010 was approximately $0.6 million and $0.2 million, respectively. Unrecognized compensation cost related to unvested restricted stock awards granted was not material at December 31, 2010.

Employee Stock Purchase Plan — As of December 31, 2010, a total of 150,000 shares of common stock have been reserved for issuance under our 2007 Employee Stock Purchase Plan ("ESPP"), of which 77,109 have been issued to date. Under the terms of our ESPP, a participant may purchase shares of our common stock at a price equal to the lesser of 85% of the fair market value on the date of offering or on the date of purchase. An aggregate of 18,647 and 43,512 shares were issued under the ESPP during 2009 and 2010, respectively. We recorded stock-based compensation expense related to our ESPP of approximately $54,000 and $77,000 in the years ended December 31, 2009 and 2010, respectively, based on employee contributions and a per share fair value of $2.08 and $1.73, for 2009 and 2010, which were estimated using the following weighted average variables:

	Years Ended December 31,	
	2009	2010
Expected dividend yield	0%	0%
Risk free interest rate	0.5%	0.2%
Expected volatility	185%	95%
Expected term	0.5 years	0.5 years

Note 7 — Employee Benefit Plan

We have a 401(k) plan for employees meeting eligibility requirements. Eligible employees may contribute up to 100% of their eligible compensation, subject to IRS limitations. Our employer matching contributions to the plan are discretionary as determined by our board of directors. Employer contributions were approximately $3,000 in 2009 and there were no employer contributions in 2010.

Note 8 — Income Taxes

We have identified our federal tax return and our state tax returns in New York and Massachusetts as "major" tax jurisdictions. The periods subject to examination for our federal and New York state income tax returns are the tax years ended in 1995 and thereafter, and for Massachusetts state income tax returns are the years ended in 2005 and thereafter, since we have net operating loss carryforwards for tax years from those years. We believe our income tax filing positions and deductions will be sustained on audit and we do not anticipate any adjustments that would result in a material change to our financial position. Therefore, no liabilities for uncertain income tax positions have been recorded.

At December 31, 2010, we had available net operating loss carryforwards for federal and state income tax reporting purposes of approximately $288.2 million and $68.9 million, respectively, and had available tax credit carryforwards of approximately $10.8 million, which are available to offset future taxable income. A portion of these carryforwards will expire in 2011 and will continue to expire through 2030 if not otherwise utilized. Our ability to use such net operating losses and tax credit carryforwards is subject to annual limitations due to change of control provisions under Sections 382 and 383 of the Internal Revenue Code, and such limitation would be significant.

Our net deferred tax assets, liabilities and valuation allowance as of December 31, 2009 and 2010 are as follows (in thousands):

	Years Ended December 31,	
	2009	2010
Deferred tax assets:		
Net operating loss carryforwards	$ 86,346	$ 104,173
Tax credit carryforwards	9,363	10,758
Depreciation & amortization	2,625	3,655
Other	2,920	2,890
Total deferred tax assets	101,254	121,477
Valuation allowance	(101,254)	(114,722)
Net deferred tax assets	—	6,755
Deferred tax liabilities:		
Intangible assets	—	(7,957)
Net deferred tax liabilities	$ —	$ (1,202)

We continue to record a valuation allowance in the full amount of deferred tax assets not otherwise offset by deferred tax liabilities we expect to reverse since realization of such tax benefits has not been determined by our management to be more likely than not. The valuation allowance increased approximately $2.0 million and $13.5 million during 2009 and 2010, respectively. In 2010, approximately $1.2 million of the valuation allowance increase was a result of deferred taxes recorded in connection with the Cequent merger. The difference between the expected benefit computed using the statutory tax rate and the recorded benefit of nil in 2009 and 2010 is primarily due to the change in the valuation allowance.

Note 9 — Intellectual Property and Contractual Agreements

RNAi-related

Valeant Pharmaceuticals — In March 2010, we acquired intellectual property related to Conformationally Restricted Nucleotides ("CRN") from Valeant Pharmaceuticals North America in consideration of payment of a non-refundable licensing fee of $0.5 million due in equal portions in April and July 2010, which were included in research and development expense in 2010 and have been paid in full. Subject to meeting of certain milestones triggering the obligation to make any such payments, we may be obligated to make a product development milestone payment of $5.0 million within 180 days of FDA approval of a New Drug Application for our first CRN related product and another product development milestone payment of $2.0 million within 180 days of FDA approval of a New Drug Application covering our second CRN related product. As of December 31, 2010, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions triggering any such milestone payment obligations have not been satisfied. Valeant is entitled to receive earn-outs in the low single digits based upon future commercial sales and earn-outs in the low double digits based upon future revenue from sublicensing. Under the agreement we are required to use commercially reasonable efforts to develop and commercialize at least one covered product. If we have not made earn-out payments of at least $5.0 million prior to the sixth anniversary of the date of the agreement, we are required to pay Valeant an annual amount equal to $50,000 per assigned patent which shall be creditable against other payment obligations. The term of our financial obligations under the agreement shall end, on a country-by-country basis, when there no longer exists any Valid Claim in such country. We may terminate the agreement upon 30 days' notice, or upon 10 days' notice in the event of adverse results from clinical studies. Upon termination, we are obligated to make all payments accrued as of the effective date of such termination but shall have no future payment obligations.

Novosom — In July 2010, we entered into an agreement pursuant to which we acquired the intellectual property of Novosom AG ("Novosom") of Halle, Germany for Novosom's SMARTICLES® liposomal-based delivery system, which significantly broadens the number of approaches we may take for systemic and local delivery of our proprietary UsiRNA therapeutics. We issued an aggregate of 1,419,487 shares of our common stock to Novosom as consideration for the acquired assets. The shares had an aggregate value equal to approximately $3.8 million, which was recorded as research and development expense. As additional consideration for the acquired assets, we will pay to Novosom an amount equal to 30% of the value of each upfront (or combined) payment actually received by us in respect of the license of liposomal-based delivery technology or related product or disposition of the liposomal-based delivery technology by us, up to a maximum of $3.3 million, which amount will be paid in shares of our common stock, or a combination of cash and shares of our common stock, in our discretion.

Roche — In February 2009, we entered into an agreement with F. Hoffmann-La Roche Inc., a New Jersey corporation, and F. Hoffmann-La Roche Ltd., a Swiss corporation (collectively, "Roche"), pursuant to which we granted to Roche a worldwide, irrevocable, non-exclusive license to a portion of our technology platform, for the development of RNAi-based therapeutics, in consideration of the payment of a one-time, non-refundable licensing fee of $5.0 million. No additional royalties are payable to us under the agreement. The agreement will expire on a country-by-country basis upon the expiration date of the last to expire of the licensed patents in such country. Either party may terminate the agreement for material breach by the other party (subject to a 30-day cure period), or upon certain events involving the bankruptcy or insolvency of the other party.

Novartis — In March 2009, we entered into an agreement with Novartis Institutes for BioMedical Research, Inc. ("Novartis"), pursuant to which we granted to Novartis a worldwide, non-exclusive, irrevocable, perpetual, royalty-free, fully paid-up license, with the right to grant sublicenses, to our DiLA^2 -based siRNA delivery platform in consideration of a one-time, non-refundable fee of $7.25 million, which was recognized as license fee revenue in 2009. Novartis may terminate this agreement immediately upon written notice to us. We believe this agreement represents strong third-party validation of the siRNA delivery aspect of our RNAi drug discovery platform. Additionally, we entered into a separate agreement with Novartis to provide them with an exclusive period in which to negotiate a potential research and development collaboration as well as possible broader licensing rights related to our RNAi drug delivery platform. This exclusive period expired in 2009. Approximately $0.3 million was recognized as license fee revenue in 2009 under this separate agreement.

University of Michigan — In May 2008, we entered into an exclusive license agreement to Intellectual Property ("IP") from the University of Michigan covering cationic peptides for enhanced delivery of nucleic acids. These peptides have unique characteristics that we believe play an important role in improving the efficacy of delivery of RNAi-based therapeutics. We are currently using these peptides to create siRNA nanoparticles to enhance mRNA knockdown. Together with the DiLA^2 technology, these delivery peptides may improve the therapeutic potential of our drug candidates. In connection with the agreement, we paid a license issue fee of $120,000. An additional fee of $25,000 is payable annually and creditable against royalty payments.

Subject to the meeting of certain milestones triggering the obligation to make any such payments, we may be obligated to make product development milestone payments of up to $425,000 in the aggregate for each product developed under a licensed patent under this agreement. As of December 31, 2010, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions triggering any such milestone payment obligations have not been satisfied. The royalty payment required to be made by us to the University of Michigan under this agreement is a percentage of net sales in the low single digits.

We sublicensed the IP under this agreement to Novartis on a nonexclusive basis in March 2009, at which time we paid an additional one–time fee of $362,500 to the University of Michigan, which eliminated the obligation to pay the University of Michigan any future royalties or milestones with respect to the Novartis sublicense. This fee was included in research and development expense.

This agreement will terminate on the expiration date of the last to expire patent licensed under the agreement, which expiration date is in 2019. Under the agreement, we agreed to use diligent and commercially reasonable efforts to exploit the patent rights and bring licensed products to market. If we fail to meet certain research and development milestones, the University of Michigan may terminate the agreement subject to a thirty day cure period. In addition, the University of Michigan may terminate this license upon written notice if the first commercial sale of a product does not occur on or before May 2017. We may terminate this agreement at any time upon ninety days' written notice.

University of Helsinki — In June 2008, we entered into a collaboration agreement with Dr. Pirjo Laakkonen and the Biomedicum Helsinki. The goal of the work involves our patented phage display library, the Trp Cage library, for the identification of peptides to target particular tissues or organs for a given disease. In December 2009, we received a patent allowance in the US covering a targeting peptide for preferential delivery to lung tissues that was identified by us using the Trp Cage Library. We believe the Trp Cage library will be a source of additional peptides for evaluation in our delivery programs, and we will have a strong IP position for these peptides and their use. In 2010, we extended the term of the agreement and it will now terminate in June 2012. Either party may terminate the agreement for material breach by the other party, subject to a 30-day cure period.

Under this agreement, we may be obligated to make product development milestone payments of up to €275,000 in the aggregate for each product developed under this research agreement if certain milestones are met. As of December 31, 2010, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions that would trigger any such milestone payment obligations have not been satisfied. In addition, upon the first commercial sale of a product, we are required to pay an advance of €250,000 against which future royalties will be credited. The percentage royalty payment required to be made by us to the University of Helsinki under the terms of this agreement is a percentage of gross revenues derived from work performed under the Helsinki Agreement in the low single digits.

Ribotask ApS. In June 2009, we announced the revision of the October 2008 agreement in which we had acquired the intellectual property related to Unlocked Nucleobase Analogs (UNA) from Ribotask ApS, a privately held Danish company. The original agreement provided us with exclusive rights for the development and commercialization of therapeutics incorporating UNAs. The amended agreement eliminated our obligation to pay all milestone and royalty payments and provided full financial and transactional control of our proprietary UNA technology. Our UsiRNA construct has been verified in multiple cell and in vivo models to be highly potent and efficacious for RNAi. Substitution of UNA within siRNA, creating the UsiRNA construct, has been shown to provide greater target specificity.

In June 2010, we expanded our rights under the previous agreement with Ribotask to include exclusive rights to the development and commercialization of UNA-based diagnostics. In connection with this amendment, we agreed to pay Ribotask $750,000 in three equal payments of $250,000 each. In March 2011, the agreement was amended to change the payment terms for the diagnostic rights. The first payment of $250,000 was made in November 2010. The remaining payments will be made as follows: a payment of $50,000 at execution of the amendment with the remaining $400,000 to be paid in eight monthly payments of $50,000 beginning May 1, 2011. In addition we issued 113,766 shares of our common stock valued at approximately $80,000 to Ribotask on March 3, 2011, for which we filed a resale registration statement on Form S-3 on March 14, 2011.

Under the October 2008 agreement we made payments to Ribotask totaling $500,000. We sublicensed the IP under this agreement to Roche on a nonexclusive basis in February 2009, at which time we paid an additional $250,000 to Ribotask, which eliminated the obligation to pay Ribotask any future royalties or milestones with respect to the Roche sublicense. In connection with the June 2009 amendment, we issued 151,515 shares of our common stock valued at approximately $1.0 million to Ribotask ApS and agreed to pay $1.0 million in four installments of $250,000 each due at various intervals through July 2010.

In connection with our agreements, as amended, we granted Ribotask a royalty-bearing, world-wide exclusive license to use the assigned patents to develop and sell products intended solely for use as reagents or for testing. The royalty rates to be paid to us by Ribotask are in the low single digits and to date we have not recognized any revenue under this agreement, as amended.

With the newly acquired exclusive rights to UNA technology combined with the exclusive rights to Conformationally Restricted Nucleotide (CRN) technology for both therapeutics and diagnostics acquired in March 2010 from Valeant Pharmaceuticals, we have established one of the few intellectual property portfolios supporting a nucleic acid-based personalized medicine platform with the ability to pursue proprietary nucleic acid-based therapeutics and diagnostics.

University of British Columbia — In November 2009, we expanded and extended a previous agreement established in 2008 with University of British Columbia/Vancouver Prostate Centre (VPC) in the area of bladder cancer. The VPC is a National Centre for Excellence for translational research and this agreement provides us access to cutting-edge bladder cancer models and evaluation techniques and interactions with world-renowned researchers and clinicians. Data derived from studies conducted under this agreement have already demonstrated the potency of UsiRNAs and DiLA^2 -based delivery for inhibition of target mRNA and reduction in tumor growth. The focus of the expanded agreement will be the evaluation of additional critical targets in bladder cancer and the therapeutic impact on tumor biology and growth. The research agreement requires that we make payments for work completed under an agreed work plan. Through December 31, 2010, we have recognized approximately $0.2 million as research and development expense under this agreement. The agreement may be terminated by either party with ninety days' written notice. The current contract period has been extended and will now terminate November 30, 2011.

Intranasal related

Cypress Bioscience, Inc. — In August 2010 we entered into an Asset Purchase Agreement with Cypress Bioscience, Inc. ("Cypress") under which Cypress acquired our patent rights and technology related to carbetocin, a long-acting analog of oxytocin, a naturally produced hormone that may benefit individuals with autism. Under the agreement, we received an upfront payment of $750,000 and we could receive milestone payments up to $27 million. Cypress will be responsible for all future development and IP related expenses. In addition, Cypress will pay us royalties, in the single digits, on commercial sales.

Par Pharmaceutical — In 2009 we entered into an Asset Purchase Agreement with Par Pharmaceutical ("Par") pursuant to which, among other things, a 2004 License and Supply Agreement with Par, and a 2005 Supply Agreement with QOL Medical LLC, were terminated. Under the Asset Purchase Agreement, Par acquired certain assets pertaining to calcitonin, including our ANDA for generic calcitonin-salmon nasal spray, inventories, tooling and equipment, and the related technology, trade secrets, know-how, proprietary information and other intellectual property rights, and assumed certain contracts, including our manufacturing obligation to QOL Medical as well as our two building leases related to our operations in Hauppauge, New York. We received $0.8 million in cash and were entitled to receive earn-out payments for five years based on commercial sales of calcitonin. Calcitonin received full FDA approval and was launched in June 2009. We recognized a gain of approximately $0.1 million on the asset sale to Par which is included as an offset to research and development expense in 2009. In addition, in 2009 we recognized approximately $0.1 million in revenue for services provided under the Asset Purchase Agreement. We recognized approximately $0.1 million and $0.5 million in revenue relating to earn-out payments based on commercial sales of calcitonin in 2009 and 2010. In December 2010, we entered into an amendment of the Asset Purchase Agreement under which Par agreed to pay us a lump-sum cash payment of $700,000 in lieu of profit sharing for the remainder of the earn-out payment period, which we recognized as revenue in 2010.

Amylin Pharmaceuticals, Inc. — In January 2009 we amended our 2006 License Agreement with Amylin Pharmaceuticals, Inc. for the development of intranasal exenatide. The License Agreement, as amended, provides for an accelerated $1.0 million milestone payment to us in January 2009, a reduction in the aggregate amount of

milestone payments that could be due to us from $89 million to $80 million, and a reduction in the royalty rate payable upon commercial sales of a product to the low single digits. Additionally, as a result of the amendment, we are no longer responsible for any further development of the nasal spray formulation of intranasal exenatide or its manufacture. Either party may terminate the agreement for breach of any material provision of the agreement upon sixty days' notice of the breach and subject to a sixty day cure period. Amylin may also terminate the agreement upon ninety days' written notice.

Thiakis Limited ("Thiakis") — In 2004, we acquired exclusive worldwide rights to the Imperial College Innovations and Oregon Health & Science University PYY patent applications in the field of nasal delivery of PYY and the use of glucagon-like peptide-1 (GLP-1) used in conjunction with PYY for the treatment of obesity, diabetes and other metabolic conditions. We recorded $1.2 million in research and development expense in 2008 related to the estimated obligations under this license agreement at December 31, 2008. In April 2009 we entered into a Deed of Release and termination pursuant to which we agreed to pay $1.1 million, payable in quarterly amounts commencing April 2009 and ending April 2010. The difference between $1.1 million and the amount originally estimated was recorded as reduction of expense in 2009. In February 2010, we amended the payment schedule for the final two payments totaling $450,000 such that $50,000 was paid in February 2010, $200,000 was paid in April 2010 and a final payment in the amount of $210,000 was paid in June 2010. The final payment included $10,000 representing interest.

Other

QOL Medical LLC — In October 2005, we entered into a supply agreement with QOL (the "QOL Agreement") under which, subject to certain limitations, we were obligated to manufacture and supply, and QOL was obligated to purchase from us, all of QOL's requirements for Nascobal® brand products for vitamin B12 (cyanocobalamin) deficiency in patients with pernicious anemia, Crohn's Disease, HIV/ AIDS and multiple sclerosis. Under the terms of the QOL Agreement we received a $2.0 million upfront fee, which was being recognized ratably over the five-year life of the QOL Agreement. In connection with the Asset Purchase Agreement with Par Pharmaceutical which we entered into in March 2009, the QOL Agreement was terminated. We recognized approximately $0.7 million in deferred revenue related to the QOL Agreement in 2009.

Note 10 — Commitments and Contingencies

Standby Letter of Credit — In connection with the terms of our lease of our Bothell, Washington facility at 3830 Monte Villa Parkway, we have provided our landlord with a stand-by letter of credit. During December 2010, the landlord for 3830 Monte Villa Parkway drew $0.1 million on the $1.2 million standby letter of credit for that facility, which also resulted in a draw on our restricted cash, and as of December 31, 2010, approximately $1.0 million was outstanding on the remaining standby letter of credit.

Leases — We lease space for our research and development and corporate offices in Bothell, Washington under operating leases expiring in 2016 and we lease space for research and development in Cambridge, Massachusetts under an operating lease expiring in 2012. In December 2010, we entered into an amendment of our lease for our exited facility at 3450 Monte Villa, pursuant to which we reduced our future lease obligations by approximately $4.1 million. Under terms of the amendment, we issued 2,115,727 shares of our common stock to the landlord.

Rent expense was approximately $1.3 million in 2009 and $1.4 million in 2010. In addition, approximately $0.2 million and $0.3 million in rental payments decreased the restructuring liability during 2009 and 2010, respectively.

The following summarizes future annual minimum lease payments under operating leases as of December 31, 2010 (in thousands):

	Exited Facility 3450 Monte Villa	Occupied Facility 3830 Monte Villa	Occupied Facility Cambridge, MA	Total
2011	$ 327	$1,325	$251	$ 1,903
2012	667	1,384	148	2,199
2013	683	1,442	—	2,125
2014	700	1,501	—	2,201
2015	718	1,586	—	2,304
Thereafter	61	267	—	328
Total	$3,156	$7,505	$399	$11,060

Contingencies — We are subject to various legal proceedings and claims that arise in the ordinary course of business. Our management currently believes that resolution of such legal matters will not have a material adverse impact on our consolidated financial position, results of operations or cash flows.

Note 11 — Subsequent Events

As further described in Note 6, in February 2011, we received net proceeds of approximately $4.7 million in an offering of 6,375,000 shares of common stock together with warrants to purchase up to 1,113,075 shares of common stock at a purchase price of approximately $0.80 per unit. The warrants are exercisable for seven years and have an exercise price of $0.80 per share.

In February 2011, we entered into a Research and License Agreement (the "Agreement") with Debiopharm S.A., a Swiss corporation ("Debiopharm"), pursuant to which we granted to Debiopharm an exclusive license to develop and commercialize our pre-clinical program in bladder cancer, for all uses in humans and animals for the prevention and treatment of superficial (non-muscle invasive) bladder cancer, in consideration of the payment by Debiopharm to us of up to $25 million based on predefined research and development milestones, royalties from the sales of products resulting under the Agreement and sublicensing payments. Among other things, the Agreement provides for certain licenses of our UsiRNA and liposomal technologies. Debiopharm will have full responsibility for the development and commercialization of any products arising from the partnership, and will fund all of our research and development costs for the bladder cancer program beginning in February 2011.

In March 2011, we amended our June 2010 agreement with Ribotask to change the payment terms for the diagnostic rights. The first payment of $250,000 was made in November 2010.The remaining payments will be made as follows: a payment of $50,000 at execution of the amendment with the remaining $400,000 to be paid in eight monthly payments of $50,000 beginning May 1, 2011. In addition we issued 113,766 shares of our common stock valued at approximately $80,000 to Ribotask; for which we filed a resale registration statement on Form S-3 on March 14, 2011.

ITEM 9. ***Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.***

Not applicable.

ITEM 9A. ***Controls and Procedures.***

(a) *Disclosure Controls and Procedures.* As of the end of the period covered by this Annual Report on Form 10-K, we carried out an evaluation, under the supervision and with the participation of senior management, including our Chief Executive Officer ("CEO") and Chief Financial Officer ("CFO"), of the effectiveness of the design and operation of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act. Based upon that evaluation, our CEO and CFO concluded that our disclosure controls and procedures were effective in recording, processing, summarizing and reporting, on a timely basis, information required to be disclosed by us in the reports that we file or submit under the Exchange Act.

(b) *Internal Control over Financial Reporting.* There have been no changes in our internal control over financial reporting or in other factors during the fourth fiscal quarter ended December 31, 2010 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

(c) *Management Report on Internal Control.* Management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, is a process designed by, or under the supervision of, our CEO and CFO, or persons performing similar functions, and effected by our Board, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our management, with the participation of our CEO and CFO, has established and maintained policies and procedures designed to maintain the adequacy of our internal control over financial reporting, and include those policies and procedures that:

1) Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets;

2) Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and

3) Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Management has evaluated the effectiveness of our internal control over financial reporting as of December 31, 2010 based on the control criteria established in a report entitled *Internal Control — Integrated Framework*, issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on our assessment and those criteria, our management has concluded that our internal control over financial reporting is effective as of December 31, 2010.

This annual report does not include an attestation report of our registered public accounting firm regarding internal control over financial reporting. Such a report is not required for smaller reporting companies such as us pursuant to The Dodd-Frank Wall Street Reform and Consumer Protection Act that Congress enacted in July 2010, which permanently exempts companies with less than $75 million in market capitalization from Section 404(b) of the Sarbanes-Oxley Act of 2002 requiring an outside auditor to attest annually to a company's internal-control evaluations.

(d) Because of its inherent limitations, internal control over financial reporting may not prevent or detect all errors or misstatements and all fraud. Therefore, even those systems determined to be effective can provide only reasonable, not absolute, assurance that the objectives of the policies and procedures are met. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

ITEM 9B. ***Other Information.***

None.

PART III

ITEM 10. ***Directors, Executive Officers and Corporate Governance.***

General

Our Amended and Restated Bylaws (the "Bylaws") provide that the Board of Directors shall consist of not less than five (5) members and not more than eleven (11) members, as fixed by the Board of Directors. The number of the Board of Directors is currently fixed at six (6). The members of the Board of Directors are as follows:

Name	Age	Position	Director Since
J. Michael French	51	Chief Executive Officer, President and a Director	September 2008
James M. Karis	62	Director	August 2009
Chiang J. Li, M.D.	46	Director	July 2010
Peter D. Parker	60	Director – Co-Chairman	July 2010
Gregory Sessler	58	Director – Co-Chairman	June 2008
Michael D. Taylor, Ph.D.	56	Director	July 2010

The biographies of each director below contains information regarding the person's service as a director, business experience, director positions held currently or at any time during the last five years, and information regarding involvement in certain legal or administrative proceedings, if applicable.

J. Michael French — Mr. French has served as our Chief Executive Officer ("CEO") since June 23, 2008, as our President since October 1, 2008, and as a member of our Board of Directors since September 11, 2008. Prior to joining us, Mr. French served as President of Rosetta Genomics, Inc. from May 2007 to August 2007. Mr. French also served as Senior Vice President of Corporate Development for Sirna Therapeutics, Inc. ("Sirna") from July 2005 to January 2007, when Sirna was acquired by Merck and Co., Inc., and he served in various executive positions, including Chief Business Officer, Senior Vice President of Business Development and Vice President of Strategic Alliances, of Entelos, Inc., a pre-IPO biotechnology company, from 2000 to 2005. Mr. French, age 51, holds a B.S. in aerospace engineering from the U.S. Military Academy at West Point and a M.S. in physiology and biophysics from Georgetown University.

James M. Karis — Mr. Karis has served on our Board of Directors since August 2009, and he currently serves as Chair of the Compensation Committee and the Nominating and Corporate Governance Committee, and as a member of the Audit Committee of the Board of Directors. Mr. Karis is currently an independent consultant and has spent 30 years in the pharmaceutical, healthcare services and medical device industries and brings extensive corporate strategy, operations, M&A and financing experience to our company. Previously, Mr. Karis served as President, Chief Executive Officer and a Director of Entelos from January 2000 until May 2009. Prior to Entelos, he held senior positions in the contract research industry, serving as Chief Operating Officer and President of PAREXEL International Corporation, and earlier, as Chief Operating Officer of Pharmaco International. He was the Vice President of International Operations for Baxter International and a founder of KMR Group, a leading pharmaceutical R&D benchmarking consulting firm. From 2006 until 2009, Mr. Karis served on the Board of BayBio, an advocacy group for Northern California's life science community. Mr. Karis, age 62, has a B.S. in management and economics from Purdue University and a Masters in applied economics from The American University.

Chiang J. Li, M.D. — Dr. Li has served on our Board of Directors, and as the Scientific Advisor to the Board of Directors, since July 21, 2010. Dr. Li is the founder of our subsidiary Cequent Pharmaceuticals, Inc., which we acquired on July 21, 2010, and has served as a member of the Board of Directors of Cequent Pharmaceuticals since November 2006. Dr. Li is Chairman and Chief Executive Officer, Boston Biomedical, Inc. From September 2003 to January 2007, Dr. Li was Chief Scientific Officer, Executive Vice President and Head

of ArQule Biomedical Institute, ArQule Inc. (Nasdaq:ARQL). Dr. Li joined ArQule in September 2003. He previously served as the scientific founder and Vice President of Research at Cyclis Pharmaceuticals, Inc. His research team at Harvard invented transkingdom RNAi technology, which promises to accelerate biomedical research and medical therapies based on RNA interference. Dr. Li, age 46, graduated from the Harvard-MIT Division of Health Science and Technology, received his M.D. degree Magna Cum Laude from Harvard Medical School, and completed medical residency and fellowship at Harvard's Brigham Women's Hospital/Dana-Farber Cancer Institute and Beth Israel Deaconess Medical center.

Peter D. Parker — Mr. Parker has served on our Board of Directors since July 21, 2010, and he currently serves as Co-Chairman of the Board of Directors. Mr. Parker served as the President and CEO of our subsidiary Cequent Pharmaceuticals, Inc. from September 2006 until July 21, 2010, and he has served as a member of the Board of Directors of Cequent Pharmaceuticals since September 2006. Prior to joining Cequent Pharmaceuticals, Mr. Parker was a General Partner at Ampersand Ventures where he focused on the firm's Life Sciences activities. He has served as a director of numerous companies including ACLARA BioSciences, Tomah Products, VITEX, Magellan Biosciences, Dynex and Pentose Pharmaceuticals and as Chairman of Alexis, NOVEX, CoPharma, Huntington Laboratories, Protein Ingredient Technologies, Cyclis Pharmaceuticals, Nanodyne, Panacos Pharmaceuticals, AC Tech, Boston Heart Lab and TekCel. Prior to Ampersand, Mr. Parker spent fourteen years at AMAX, Inc. where he was President of Climax Performance Materials Corporation and Corporate Director of Research and Development. Mr. Parker, age 60, holds B.S. and M.S. degrees from Columbia University.

Gregory Sessler — Mr. Sessler has served on our Board of Directors since June 2008, and he currently serves as Co-Chairman of the Board of Directors, Chair of the Audit Committee and as a member of the Compensation Committee and of the Nominating and Corporate Governance Committee of the Board of Directors. Mr. Sessler has served as the Chief Operating Officer since December 2008, and as the Executive Vice President and Chief Financial Officer ("CFO") since 2002, of Spiration, Inc., a wholly owned subsidiary of Olympus Corporation of the Americas. He is also currently a director and chairman of the audit committee of VLST, Corp. Prior to joining Spiration, Mr. Sessler served as Senior Vice President and CFO of Rosetta Inpharmatics, a leader in informational genomics, from March 2000 until its acquisition by Merck & Co., Inc. in July 2001 for $540 million. Mr. Sessler is a member of the AICPA and FEI, and he previously served on the board of directors of Corixa Corporation. He also serves on the Executive Committee and is a past chairman of the board of directors of the Washington Biotechnology and Biomedical Association. Mr. Sessler, age 58, holds a bachelors degree, magna cum laude, from Syracuse University and an M.B.A. from the Stanford Graduate School of Business.

Michael D. Taylor, Ph.D. — Dr. Taylor has served on our Board of Directors since July 21, 2010, and he currently serves as a member of the Audit Committee, the Compensation Committee and the Nominating and Corporate Governance Committee of the Board of Directors. Dr. Taylor has served as a member of the Board of Directors of our subsidiary Cequent Pharmaceuticals, Inc. since May 2008. Dr. Taylor has been in the pharmaceutical industry for more than twenty years with extensive experience in drug discovery and development, licensing and business development, and managing R&D alliances with pharmaceutical and biotech partners. Dr. Taylor has served as President and CEO of Ensemble Therapeutics Corp. in Cambridge, MA since 2007. Prior to joining Ensemble Therapeutics, Dr. Taylor served as Senior Vice President for Pfizer's Global R&D division where he was responsible for global project and portfolio management. In other positions with Pfizer (and previously Warner-Lambert/Parke-Davis), where Dr. Taylor worked from 1983 until 2007, Dr. Taylor led discovery, and early- and late-stage development projects across multiple therapeutic areas, including Lipitor® and Neurontin.® He has authored or coauthored 65 articles, reviews, and published abstracts and holds six patents. Dr. Taylor, age 56, earned a Ph.D. in Medicinal Chemistry from the State University of New York at Buffalo and was awarded a National Institute of Health postdoctoral fellowship in natural products synthesis and structure elucidation at the University of Pennsylvania.

Executive Officers of the Company

Biographical information concerning J. Michael French, our President and CEO, is set forth above. Biographical information concerning our remaining executive officers is set forth below.

Peter S. Garcia — Mr. Garcia has served as our Chief Financial Officer since July 2009, and as our Secretary since August 2009. Mr. Garcia served as Chief Financial Officer of both public and private life science and high technology companies for the 13 years prior to joining our company. From 2004 to 2008, Mr. Garcia served as Chief Financial Officer of Nanosys Inc., a privately held nanotechnology company based in Palo Alto, California, where he was responsible for finance, facilities, information technology, and investor and government relations. From 2001 to 2004, Mr. Garcia served as Senior Vice President and Chief Financial Officer of Nuvelo Inc., a publicly held biopharmaceutical company. During his tenure at Nuvelo, Mr. Garcia helped Nuvelo raise over $150 million and acquire development stage products, and led Nuvelo's merger and acquisition strategy. Mr. Garcia has also served as Chief Financial Officer at Novacept, IntraBiotics, and Dendreon; and held senior financial roles at Amgen. He currently serves on the board of Moraga Biotechnology Corp, a privately held stem cell company. Mr. Garcia, age 49, has an M.B.A. from the Anderson School at the University of California Los Angeles and a B.A. in Economics and Sociology from Stanford University.

Barry Polisky, Ph.D. — Dr. Polisky has served as our Chief Scientific Officer since January 2, 2009. Previously, he served as a consultant to Merck from February 2008 to August 2008, and served as Research Vice President of Merck from January 2007 to January 2008. Dr. Polisky also served as Chief Scientific Officer and Senior Vice President of Sirna from March 2005 to January 2007, when Sirna was acquired by Merck, and served Sirna as Senior Vice President of Research from December 2003 to February 2005 and as Vice President of Research from June 2002 to December 2003. Prior to joining Sirna, Dr. Polisky served as Vice-President of Research at ThermoBiostar, Inc. from 1999 to 2002, where he developed a non-instrumented SNP diagnostic platform. Dr. Polisky, age 65, received his Ph.D. in molecular biology from the University of Colorado and conducted post-doctoral work in the Department of Biochemistry and Biophysics, University of California, San Francisco.

Director's Qualifications

In selecting a particular candidate to serve on our Board of Directors, we consider the needs of our company based on particular attributes that we believe would be advantageous for our Board members to have and would qualify such candidate to serve on our Board given our business profile and the environment in which we operate. The table below sets forth such attributes and identifies which attributes each director possesses.

Attributes	Mr. French	Mr. Karis	Dr. Li	Mr. Parker	Mr. Sessler	Dr. Taylor
Financial Experience		X		X	X	X
Public Board Experience		X		X	X	
Industry Experience	X	X	X	X	X	X
Scientific Experience			X	X		X
Commercial Experience	X	X		X	X	
Corporate Governance Experience	X	X	X	X	X	X
Capital Markets Experience	X	X	X	X	X	X
Regulatory Experience			X			
Medical Experience			X			
Management Experience	X	X	X	X	X	X

Certain Relationships and Related Transactions

J. Michael French. Pursuant to the terms and conditions of Mr. French's employment agreement, we agreed, for the term of Mr. French's employment with us, to nominate Mr. French for successive terms as a member of the Board of Directors, and to use all best efforts to cause Mr. French to be elected by our shareholders as a member of the Board of Directors.

Peter D. Parker, Chiang J. Li, M.D., and Michael D. Taylor, Ph.D. On July 21, 2010, in connection with the consummation of our merger with Cequent Pharmaceuticals, Inc., we entered into a Stockholders' Agreement with certain of the principal stockholders of Cequent Pharmaceuticals pursuant to which we granted to Ampersand 2006 Limited Partnership, A.M. Pappas Life Science Ventures III, LP, PVIII CEO Fund, LP and Novartis BioVentures Ltd. the right to designate a total of three (3) members of our Board of Directors during the period beginning at the effective time of the merger with Cequent Pharmaceuticals and ending immediately prior to our 2011 Annual Meeting of Stockholders. The initial director nominees of such stockholders were Peter D. Parker, Chiang J. Li, M.D. and Michael D. Taylor, Ph.D., each of whom was appointed to serve as a member of our Board of Directors beginning on July 21, 2010.

Family Relationships

There are no familial relationships between any of our officers and directors.

Director or Officer Involvement in Certain Legal Proceedings

Our directors and executive officers were not involved in any legal proceedings as described in Item 401(f) of Regulation S-K in the past ten years.

Audit Committee

The Audit Committee of our Board of Directors, which consists of Gregory Sessler, Chairman, James M. Karis and Michael D. Taylor, Ph.D., held nine meetings during 2010. All directors who served as members of the Audit Committee during 2010 attended at least 75% of the meetings that were held during the periods when they served as members of the Audit Committee in 2010. Among other functions, the Audit Committee authorizes and approves the engagement of the independent registered public accounting firm, reviews the results and scope of the audit and other services provided by the independent registered public accounting firm, reviews our financial statements, reviews and evaluates our internal control functions, approves or establishes pre-approval policies and procedures for all professional audit and permissible non-audit services provided by the independent registered public accounting firm and reviews and approves any proposed related party transactions.

The Board of Directors has determined that each of Gregory Sessler, James M. Karis and Michael D. Taylor, Ph.D. is an independent director within the meaning of the NASDAQ independence standards and Rule 10A-3 promulgated by the SEC under the Securities Exchange Act of 1934, as amended. In addition, the Board of Directors has determined that each of Mr. Sessler and Mr. Karis qualify as an Audit Committee Financial Expert under applicable SEC Rules and satisfies the NASDAQ standards of financial literacy and financial or accounting expertise or experience. Our Audit Committee operates pursuant to a charter, which you can access by visiting our website and by first clicking "About Marina Biotech" and then "Corporate Governance."

Board Leadership Structure and Role in Risk Oversight

Although we have not adopted a formal policy on whether the Chairman of the Board ("Chairman") and Chief Executive Officer ("CEO") positions should be separate or combined, we have determined that it is in the best interests of our company and its stockholders to separate those roles. Mr. Parker and Mr. Sessler have served

as co-chairmen of our Board of Directors since July 21, 2010. During the time that Messrs. Parker and Sessler have served as co-Chairmen, Mr. French has served as CEO. We believe that it is the CEO's responsibility to run the day-to-day operations of our company, and that it is the responsibility of the co-Chairmen to manage the Board of Directors. As directors continue to have more oversight responsibilities than ever before, we believe it is beneficial to have one or more experienced, independent Chairmen whose sole job is leading the Board. Also, given the numerous responsibilities of the CEO of a biotechnology company, such as ours, we believe it is beneficial to have a CEO whose sole job is to manage the company. By having Messrs. Parker and Sessler serve as co-Chairmen, and Mr. French serve as CEO, we believe that each of them will be able to focus their entire energy on managing the Board or running our company, as appropriate. Additionally, we believe the separation of offices is beneficial because a non-executive Chairman can provide the CEO with guidance and feedback on his performance, and he provides a more effective channel for the Board to express its views on management. The Board of Directors continually evaluates our leadership structure and could in the future decide to combine the Chairman and CEO positions if it believes that doing so would serve the best interests of our company.

Our Audit Committee is primarily responsible for overseeing our risk management processes on behalf of the full Board. The Audit Committee receives and reviews periodic reports from management, auditors, legal counsel, and others, as considered appropriate regarding our company's assessment of risks. In addition, the Audit Committee reports regularly to the full Board of Directors, which also considers our risk profile. The Audit Committee and the full Board of Directors focus on the most significant risks facing our company and our company's general risk management strategy, and also ensure that risks undertaken by our company are consistent with the Board's appetite for risk. While the Board oversees our company's risk management, management is responsible for day-to-day risk management processes. We believe this division of responsibilities is the most effective approach for addressing the risks facing our company and that our Board leadership structure supports this approach.

Section 16(a) Beneficial Ownership Reporting Compliance

Section 16(a) of the Securities Exchange Act of 1934, as amended, requires our executive officers and directors, and persons who own more than 10% of a registered class of our equity securities ("Reporting Persons"), to file reports of ownership and changes in ownership with the SEC and with NASDAQ. Based solely on our review of the reports filed by Reporting Persons, and written representations from certain Reporting Persons that no other reports were required for those persons, we believe that, during the year ended December 31, 2010, the Reporting Persons met all applicable Section 16(a) filing requirements.

Code of Ethics

We have adopted a Code of Business Conduct and Ethics that applies to all of our employees and officers, and the members of our Board of Directors. The Code of Business Conduct and Ethics is available on our website at www.marinabio.com. You can access the Code of Business Conduct and Ethics on our website by first clicking "About Marina Biotech" and then "Corporate Governance." Printed copies are available upon request without charge. Any amendment to or waiver of the Code of Business Conduct and Ethics will be disclosed on our website promptly following the date of such amendment or waiver.

ITEM 11. ***Executive Compensation.***

Summary of Executive Compensation

SUMMARY COMPENSATION TABLE

The following table sets forth information regarding compensation earned during 2010 and 2009 by our CEO, our CFO and our other most highly compensated executive officers ("Named Executive Officers").

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)	Option Awards ($) (1)	All Other Compensation ($) (2)	Total ($)
J. Michael French,	2010	340,000	—	—	163,082	—	503,082
President, CEO and Director(3)	2009	340,000	—	—	298,848	102,000	740,848
Peter S. Garcia,	2010	310,000	—	—	46,040	45,000	401,040
CFO and Secretary (4)	2009	140,961	—	—	416,280	45,000	602,241
Barry Polisky, Ph.D.,	2010	306,248	—	—	—	—	306,248
Chief Scientific Officer (5)	2009	375,000	—	—	228,024	25,000	628,024

(1) The amounts listed in the "Option Awards" column reflects the dollar amount of the aggregate grant date fair value, in accordance with FASB ASC Topic 718, for all option awards granted in the applicable fiscal year. The assumptions used to calculate the stock option awards value may be found in Note 6 to our audited Consolidated Financial Statements, which is in Part II, Item 8 of this Annual Report on Form 10-K. The dollar amounts do not necessarily reflect the dollar amounts of compensation actually realized or that may be realized by our named executive officers.

(2) The amounts listed in the "All Other Compensation" column are relocation allowances in the amount of $102,000 to Mr. French in 2009 and $45,000 to Mr. Garcia in each of 2009 and 2010, and a $25,000 signing bonus for Dr. Polisky in 2009.

(3) Mr. French joined our company as CEO on June 23, 2008, became a Director on September 11, 2008 and became President on October 1, 2008. The amount listed under "All Other Compensation" for 2009 represents a relocation allowance in the amount of $102,000 approved by the Compensation Committee.

(4) Mr. Garcia joined our company as CFO effective July 13, 2009. Effective August 1, 2010, the annual base salary payable to Mr. Garcia was increased from $300,000 to $324,000. The amounts listed under "All Other Compensation" for 2009 and 2010 represent relocation allowances in the amounts of $45,000 for each of 2009 and 2010 approved by the Compensation Committee.

(5) Dr. Polisky joined our company as Chief Scientific Officer on January 2, 2009. Effective September 1, 2010, Dr. Polisky began working a reduced schedule and, in connection therewith, his compensatory arrangement was adjusted so that he would receive, in lieu of a base annual salary of $375,000, an hourly salary of $180.29 (i.e., the same hourly rate that was effective per Dr. Polisky's employment agreement) covering actual hours worked. The amount listed under "All Other Compensation" for 2009 represents a signing bonus in the amount of $25,000.

Employment Agreements

We have entered into employment agreements with each of our Named Executive Officers. These agreements are summarized below and provide that such executive officers shall receive certain payments from us in the event of certain change of control or termination events. For a description of the potential payments upon termination or change of control to be paid to our Named Executive Officers, please see "Potential payments upon termination or change in control arrangements" and "2010 Potential Payments upon Termination or Change in Control Tables" below.

J. Michael French

On June 10, 2008, we entered into an employment agreement (the "French Agreement") with J. Michael French pursuant to which he will serve as our Chief Executive Officer for a term beginning on June 23, 2008 and ending on June 9, 2011. Mr. French was subsequently elected President effective October 1, 2008, and became a Director after election by the Board on September 11, 2008. A copy of the French Agreement was filed as Exhibit 10.2 to our Current Report on Form 8-K dated June 10, 2008.

Pursuant to the French Agreement, Mr. French is entitled to annual base compensation of $340,000, with any increase in base compensation to be set by the Board from time to time as determined by the Board or the Compensation Committee thereof, with the target for each year being the 50th percentile of the Radford survey. He is also eligible to receive annual performance-based incentive cash compensation, with the targeted amount of such incentive cash compensation being 40% of his annual base compensation for the year, but with the actual amount to be determined by the Board or the Compensation Committee. Mr. French also received a relocation allowance in the amount of $102,000.

Under the French Agreement, we granted options to Mr. French to purchase up to 315,000 shares of common stock. The options have a term of 10 years beginning on June 23, 2008, and vest according to the following schedule:

- 105,000 options became exercisable on June 23, 2009 at an exercise price equal to $5.08 per share, which was the closing price of the common stock on the NASDAQ Global Market on June 23, 2008;
- 26,250 options vested on each of September 10, 2009, December 10, 2009, March 10, 2010 and June 10, 2010 (for an aggregate of 105,000 options during such period) at an exercise price equal to $9.08 per share; and
- 26,250 options vested or will vest, as applicable, on each of September 10, 2010, December 10, 2010, March 10, 2011 and June 9, 2011 (for an aggregate of 105,000 options during such period) at an exercise price equal to $13.08 per share.

If Mr. French's employment is terminated without cause or he chooses to terminate his employment for good reason, all of Mr. French's options that are outstanding on the date of termination shall be fully vested and exercisable upon such termination and shall remain exercisable for the remainder of their terms. In addition, he will receive (i) base salary, (ii) incentive cash compensation determined on a pro-rated basis as to the year in which the termination occurs, (iii) pay for accrued but unused paid time off, and (iv) reimbursement for expenses through the date of termination, plus an amount equal to 12 months of his specified base salary at the rate in effect on the date of termination.

If Mr. French's employment is terminated for cause or he chooses to terminate his employment other than for good reason, vesting of the options shall cease on the date of termination and any then unvested options shall terminate, however the then-vested options shall remain vested and exercisable for the remainder of their respective terms. He will also receive salary, a pro-rated amount of incentive cash compensation for the fiscal year in which the termination occurs, pay for accrued but unused paid time off, and reimbursement of expenses through the date of termination.

If Mr. French's employment is terminated due to death or disability, Mr. French or his estate, as applicable, is entitled to receive (i) salary, reimbursement of expenses, and pay for accrued but unused paid time off; (ii) incentive cash compensation determined on a pro-rated basis as to the year in which the termination occurs; and (iii) a lump sum equal to base salary at the rate in effect on the date of termination for the lesser of (a) twelve (12) months and (b) the remaining term of the French Agreement at the time of such termination. In addition, vesting of all of Mr. French's options that are outstanding on the date of termination shall cease, and any then vested options shall remain exercisable as specified in the applicable grant agreements.

If Mr. French's employment is terminated by us (other than for cause) or by Mr. French (for good reason), and in either case other than because of death or disability, during the one-year period following a change in control of our company, then Mr. French will be entitled to receive as severance: (i) salary, expense reimbursement and pay for unused paid time off through the date of termination; (ii) a lump-sum amount equal to the greater of (x) twelve (12) months of base salary, and (y) the balance of his base salary to the end of the term of the French Agreement, in each case at the rate in effect on the date of termination; (iii) the amount of his incentive cash compensation for the fiscal year in which the date of termination occurs (determined on a pro-rated basis); and (iv) an additional lump-sum payment equal to fifty percent (50%) of his base salary for such year. In addition, all of Mr. French's outstanding stock options shall be fully vested and exercisable upon a change of control and shall remain exercisable as specified in the option grant agreements.

Pursuant to the French Agreement, a change in control generally means (i) the acquisition by any person or group of 40% or more of our voting securities, (ii) our reorganization, merger or consolidation, or sale of all or substantially all of our assets, following which our stockholders prior to the consummation of such transaction hold 60% or less of the voting securities of the surviving or acquiring entity, as applicable, (iii) a turnover of the majority of the Board as currently constituted, provided that under most circumstances any individual approved by a majority of the incumbent Board shall be considered as a member of the incumbent Board of Directors for this purpose, or (iv) a complete liquidation or dissolution of us. As a result of the Waiver Agreement that Mr. French entered into with us on March 31, 2010, Mr. French waived any and all right, title, claim and interest that he may have to receive any payments or accelerated vesting of equity awards under the French Agreement or under any equity compensation plan of our company, in each case as a result of our merger with Cequent Pharmaceuticals being deemed a change of control.

The French Agreement also provides that we will, in connection with each election of our directors during the term of the French Agreement, nominate, recommend and use our best efforts to cause the election to the Board of Directors of Mr. French.

In general, Mr. French has agreed not to compete with us for six months following the end of the employment term or to solicit our partners, clients or employees for one year following the end of the employment term. These non-compete and non-solicitation agreements may not be enforceable in some jurisdictions.

Peter S. Garcia

In connection with his appointment as Chief Financial Officer, we entered into an employment agreement (the "Garcia Agreement") with Mr. Garcia pursuant to which he will serve as our Chief Financial Officer for a three year term beginning on July 13, 2009. Mr. Garcia was subsequently elected Secretary effective August 11, 2009. A copy of the Garcia Agreement was filed as Exhibit 10.1 to our Current Report on Form 8-K dated July 13, 2009.

Pursuant to the Garcia Agreement, Mr. Garcia is entitled to annual base compensation of $300,000, with any increase in base compensation to be set by the Board of Directors and/or the Chief Executive Officer from time to time as determined by the Board of Directors and/or the Chief Executive Officer. On July 28, 2010, the Board of Directors approved an increase to the annual base salary payable to Mr. Garcia from $300,000 to $324,000, effective August 1, 2010. Mr. Garcia is also eligible to receive annual incentive cash compensation, with a target of 30% of his annual base compensation for the year, with the actual amount to be determined by the Board of Directors and/or the Chief Executive Officer.

Moreover, we agreed to pay Mr. Garcia a total of $90,000 in connection with his relocation to the Seattle, Washington metropolitan area, which amount was paid in two payments of $45,000 each through our regular payroll practices on September 15, 2009 and January 29, 2010. We also reimbursed Mr. Garcia for his reasonable travel expenses from his home residence in Palo Alto, California to our headquarters in Bothell, Washington until

September 2, 2009. Under the Garcia Agreement, we granted to Mr. Garcia options to purchase up to 90,000 shares of the common stock. The options have a term of 10 years beginning on July 13, 2009, and vest according to the following schedule:

- 30,000 options vested and became exercisable on July 13, 2010 at an exercise price of $5.56 per share;
- 7,500 options vested and became exercisable, or will vest and become exercisable, as applicable, on each of October 13, 2010, January 13, 2011, April 13, 2011 and July 13, 2011 (for an aggregate 30,000 options during such period) at an exercise price of $9.56 per share; and
- 7,500 options will vest and become exercisable on each of October 13, 2011, January 13, 2012, April 13, 2012 and July 12, 2012 (for an aggregate 30,000 options during such period) at an exercise price of $13.56 per share.

If we terminate Mr. Garcia's employment without cause, or Mr. Garcia terminates his employment for good reason, then (i) Mr. Garcia shall be entitled to receive base salary, incentive cash compensation if performance targets established have been met (determined on a pro-rated basis as to the year in which the termination occurs), pay for accrued but unused paid time off, and reimbursement for expenses through the termination date, (ii) Mr. Garcia shall be entitled to receive a lump sum equal to twelve (12) months of Mr. Garcia's specified base salary at the rate in effect on the termination date, and (iii) all common stock purchase options granted to Mr. Garcia shall be fully vested and exercisable upon such termination and shall remain exercisable in accordance with the grant agreements.

If we terminate Mr. Garcia's employment for cause or Mr. Garcia terminates his employment other than for good reason, then (i) Mr. Garcia shall be entitled to receive salary, pay for accrued but unused paid time off, and reimbursement of expenses through the termination date, (ii) the vesting of any outstanding options shall cease on the termination date and (iii) any then un-vested outstanding options shall terminate (with the then-vested outstanding options vested and exercisable as specified in the option grant agreements).

If Mr. Garcia's employment is terminated due to death or disability, Mr. Garcia (or his estate or legal representative as the case may be) shall be entitled to receive (i) salary, reimbursement of expenses and pay for any unused paid time off accrued through the termination date, (ii) a pro-rated amount of incentive cash compensation for the fiscal year in which the termination date occurs and (iii) a lump sum equal to base salary at the rate in effect on the termination date for the lesser of (x) twelve (12) months and (y) the remaining portion of the initial employment term on the termination date. In addition, vesting of any outstanding options shall cease on the termination date, and any then un-vested outstanding options shall terminate (with the then-vested outstanding options vested and exercisable as specified in the option grant agreements).

In general, Mr. Garcia has agreed: (i) not to compete with our company during the employment term and for twelve (12) months thereafter, (ii) not to solicit any of our partners, consultants, certified research organizations, principal vendors, licensees or employees for twelve (12) months following the end of the employment term, and (iii) not to solicit or accept business from, or perform or supervise the performance of any services related to such business from, certain of our clients, former clients and prospective clients during the employment term and for twelve (12) months thereafter. These non-compete and non-solicitation agreements may not be enforceable in some jurisdictions.

If Mr. Garcia's employment is terminated either by us or by Mr. Garcia (other than because of Mr. Garcia's death or disability) following the occurrence of a change of control of our company (as defined in the Garcia Agreement) and the date of such termination is prior to July 13, 2012 and within one (1) year following the occurrence of such change of control, then Mr. Garcia shall be entitled to receive from our company, in lieu of the severance payment otherwise payable pursuant to the Garcia Agreement, salary, expense reimbursement and pay for unused paid time off through the termination date. In addition, Mr. Garcia shall be entitled to receive a lump sum amount equal to twelve (12) months of his specified base salary under the Garcia Agreement, and the

amount of his incentive cash compensation for the fiscal year in which the termination occurs (determined on a pro-rata basis), plus an additional lump-sum amount equal to 30% of his base salary for such year. Furthermore, notwithstanding the vesting and/or exercisability provisions otherwise applicable to outstanding options, all such stock options shall be fully vested and exercisable upon a change of control and shall remain exercisable as specified in the option grant agreements, and subject to our right to direct the sale of shares in connection with a change of control.

As a result of the Waiver Agreement that Mr. Garcia entered into with us on March 31, 2010, Mr. Garcia waived any and all right, title, claim and interest that he may have to receive any payments or accelerated vesting of equity awards under the Garcia Agreement or under any equity compensation plan of our company, in each case as a result of our merger with Cequent Pharmaceuticals being deemed a change of control.

Barry Polisky, Ph.D.

On October 27, 2008, we entered into an employment agreement (the "Polisky Agreement") with Dr. Polisky, pursuant to which Dr. Polisky serves as our Chief Scientific Officer for a term beginning on January 2, 2009 (the "Effective Date") and ending on January 3, 2012. A copy of the Polisky Agreement was filed as Exhibit 10.1 to our Current Report on Form 8-K dated October 27, 2008.

Pursuant to the Polisky Agreement, Dr. Polisky is entitled to annual base compensation of $375,000, with any increase in base compensation to be set by the Board of Directors from time to time as determined by the Board. Effective September 1, 2010, Dr. Polisky began working a reduced schedule and, in connection therewith, his compensatory arrangement was adjusted so that he would receive, in lieu of a base annual salary of $375,000, an hourly salary of $180.29 (i.e., the same hourly rate that was effective per the Polisky Agreement) covering actual hours worked. All other terms and conditions of the Polisky Agreement remain in effect. Upon entering into the Polisky Agreement, Dr. Polisky became entitled to receive a one-time signing bonus of $25,000 payable within 30 days of the Effective Date. In addition, Dr. Polisky is eligible to receive annual incentive cash compensation of up to 40 percent of his annual base compensation for the year, with the actual amount to be determined by the Board of Directors or the Compensation Committee

Under the Polisky Agreement, Dr. Polisky was granted options to purchase up to 90,000 shares of common stock. Dr. Polisky's options have a term of 10 years beginning on the Effective Date, and vest according to the following schedule:

- 30,000 options vested and became exercisable on January 4, 2010 at an exercise price of $1.40 per share;
- 7,500 options vested and became exercisable on each of April 2, 2010, July 2, 2010, October 2, 2010 and January 3, 2011 (for an aggregate 30,000 options during such period) at an exercise price equal to $5.40 per share; and
- 7,500 options will vest and become exercisable on each of April 2, 2011, July 2, 2011, October 2, 2011 and January 3, 2012 (for an aggregate 30,000 options during such period) at an exercise price equal to $9.40 per share.

If Dr. Polisky's employment is terminated without cause, or upon the expiration of any employment period we fail to offer to renew or extend the employment period (other than if Dr. Polisky shall then have reached our mandatory retirement age), or Dr. Polisky chooses to terminate his employment for good reason, (i) all options granted to Dr. Polisky pursuant to the Polisky Agreement shall be fully vested and exercisable upon such termination and shall remain exercisable in accordance with the grant agreements and (ii) Dr. Polisky will receive an amount equal to 12 months of his specified base salary at the rate in effect on the date of termination.

If Dr. Polisky's employment is terminated for cause or Dr. Polisky chooses to terminate his employment other than for good reason, vesting of the options shall cease on the date of termination and any then unvested options shall terminate, however the then-vested options shall remain vested and exercisable in accordance with the grant agreements. Regardless of the nature of his separation from our company, Dr. Polisky will also receive salary, a pro-rated amount of incentive cash compensation for the fiscal year in which the termination occurs, pay for accrued but unused paid time off, and reimbursement of expenses through the date of termination.

In general, Dr. Polisky has agreed not to compete with our company for six months following the end of the employment term or to solicit our partners, vendors or employees for one year following the end of the employment term, unless such employment is terminated by us without cause or by Dr. Polisky for good reason. These non-compete and non-solicitation agreements may not be enforceable in some jurisdictions.

Outstanding Equity Awards

2010 OUTSTANDING EQUITY AWARDS AT FISCAL YEAR-END TABLE

The following table sets forth information regarding the outstanding equity awards held by our Named Executive Officers as of December 31, 2010:

		Option Awards					Stock Awards			
Name		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)(15)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested ($)
J. Michael French	(1)	105,000	—	—	$ 5.08	6/23/18	—	—	—	—
	(2)	105,000	—	—	$ 9.08	6/23/18	—	—	—	—
	(3)	52,500	52,500	—	$13.08	6/23/18	—	—	—	—
	(4)	20,000	—	—	$ 6.08	5/20/19	—	—	—	—
	(5)	10,000	30,000	—	$ 6.08	5/20/19	—	—	—	—
	(6)	—	79,700	—	$ 2.45	10/14/20	—	—	—	—
Peter S. Garcia	(7)	30,000	—	—	$ 5.56	7/1319	—	—	—	—
	(8)	7,500	22,500	—	$ 9.56	7/13/19	—	—	—	—
	(9)	—	30,000	—	$13.56	7/13/19	—	—	—	—
	(10)	—	22,500	—	$ 2.45	10/14/20	—	—	—	—
Barry Polisky, Ph.D. . .	(11)	30,000	—	—	$ 1.40	1/2/19	—	—	—	—
	(12)	22,500	7,500	—	$ 5.40	1/2/19	—	—	—	—
	(13)	—	30,000	—	$ 9.40	1/2/19	—	—	—	—
	(14)	10,000	—	—	$ 6.08	5/20/19	—	—	—	—
	(15)	5,000	15,000	—	$ 6.08	5/20/19	—	—	—	—

(1) The options became exercisable on June 23, 2009.

(2) The options vested in four equal quarterly increments on September 10, 2009, December 10, 2009, March 10, 2010 and June 10, 2010.

(3) The options vest in four equal quarterly increments on September 10, 2010, December 10, 2010, March 10, 2011 and June 10, 2011.

(4) The options vested on May 20, 2010.
(5) The options vest in eight equal quarterly increments on August 20, 2010, November 20, 2010, February 20, 2011, May 20, 2011, August 20, 2011, November 20, 2011, February 20, 2012 and May 20, 2012.
(6) One-third of the options shall vest on October 14, 2011. The remaining options shall vest quarterly in equal installments during the two-year period commencing after October 14, 2011.
(7) The options vested on July 13, 2010.
(8) The options vest in four equal quarterly increments on October 13, 2010, January 13, 2011, April 13, 2011 and July 13, 2011.
(9) The options vest in four equal quarterly increments on October 13, 2011, January 13, 2012, April 13, 2012 and July 12, 2012.
(10) One-third of the options shall vest on October 14, 2011. The remaining options shall vest quarterly in equal installments during the two-year period commencing after October 14, 2011.
(11) The options vested on January 4, 2010.
(12) The options vest in four equal quarterly increments on April 2, 2010, July 2, 2010, October 2, 2010 and January 3, 2011.
(13) The options vest in four equal quarterly increments on April 2, 2011, July 2, 2011, October 2, 2011 and January 3, 2012.
(14) The options vested on May 20, 2010.
(15) The options vest in eight equal quarterly increments on August 20, 2010, November 20, 2010, February 20, 2011, May 20, 2011, August 20, 2011, November 20, 2011, February 20, 2012 and May 20, 2012.

Option repricings

We have not engaged in any option repricings or other modifications to any of our outstanding equity awards to our Named Executive Officers during fiscal year 2010.

Potential payments upon termination or change in control arrangements

The discussion below sets forth the potential termination or change-in-control payments that would be due to our Named Executive Officers upon the occurrence of certain specified events. All information described below is presented as if a triggering event occurred on December 31, 2010. Please see "Employment Agreements" above for a description of the severance and change in control arrangements for our Named Executive Officers. Each of our Named Executive Officers will be eligible to receive severance payments only if each officer signs a general release of claims. The Compensation Committee, as plan administrator of our Stock Option Plans, has the authority to provide for accelerated vesting of options or restricted stock held by our Named Executive Officers and any other person in connection with certain changes in control of our company.

In those employment agreements with our Named Executive Officers containing a change in control provision, subject to certain exceptions, a change in control is generally defined as (i) the acquisition by any individual, entity or group of 40% or more of our voting securities, (ii) our reorganization, merger or consolidation, or sale of all or substantially all of our assets, following which our stockholders prior to the consummation of such transaction hold 60% or less of the voting securities of the surviving or acquiring entity, as applicable, (iii) a turnover of the majority of the Board as currently constituted, provided that under most circumstances any individual approved by a majority of the incumbent Board shall be considered as a member of the incumbent Board of Directors for this purpose, or (iv) a complete liquidation or dissolution of our company.

As a result of the Waiver Agreements that each of Mr. French, Mr. Garcia and Dr. Polisky entered into with us on March 31, 2010 in connection with the signing of our merger agreement with Cequent Pharmaceuticals, each such executive officer waived any and all right, title, claim and interest that they may have to receive any payments or accelerated vesting of equity awards under their respective employment agreements with our company or under any equity compensation plan of our company, in each case as a result of our merger with Cequent Pharmaceuticals being deemed a change of control.

Estimated payments and benefits upon termination

The amount of compensation and benefits payable to each Named Executive Officer on December 31, 2010 under various termination events and circumstances has been estimated in the table below. The amounts shown assume that such termination was effective as of December 31, 2010, our last business day of 2010, and thus includes amounts earned through such time and are estimates of the amounts that would be paid out to the executive officers upon their termination. Amounts under equity awards are determined based on the closing price of our common stock on December 31, 2010, which was $1.55 per share. The actual amounts to be paid out can only be determined at the time of such executive officer's separation from our company.

Unless otherwise provided by our plan administrator in grant agreements or in employment contracts with our Named Executive Officers, upon termination of a participant's employment or service, participants generally will forfeit any outstanding awards, except that a participant will have (i) 90 days (but in no event after the original expiration date of the award) following termination of employment or service to exercise any then-vested options and (ii) the earlier of one year or the original expiration of the grant if termination of employment or service is as a result of the participant's disability or death. In the event of the death or disability of a Named Executive Officer, the Named Executive Officer will receive benefits under our disability plan or payments under our life insurance plan, as appropriate. The terms "cause", "good reason", "change of control" and "disability" have the meanings given to such terms in the employment agreements with our Named Executive Officers.

2010 POTENTIAL PAYMENTS UPON TERMINATION OR CHANGE IN CONTROL TABLE

	Involuntary Not For Cause Termination or For Good Reason	Voluntary or For Cause	Death or Disability	Termination following Change-in-Control
Mr. French				
Lump-sum payment	$340,000	$ —	$149,041	$510,000
Accrued Vacation	32,692	32,692	32,692	32,692
Bonus	136,000	136,000	136,000	136,000
Stock Options	—	—	—	—
Cobra reimbursement	14,310	—	14,310	—
Total	$523,002	$168,692	$332,043	$678,692
Mr. Garcia				
Lump-sum payment	$324,000	$ —	$324,000	$421,200
Accrued Vacation	16,943	16,943	16,943	16,943
Bonus	97,200	—	97,200	97,200
Stock Options	—	—	—	—
Cobra reimbursement	21,043	—	—	—
Total	$459,186	$ 16,943	$438,143	$535,343
Dr. Polisky				
Lump-sum payment	$173,070	$ —	$173,070	$262,490
Accrued Vacation	11,364	11,364	11,364	11,364
Bonus	122,499	122,499	122,499	122,499
Stock Options	—	—	—	—
Cobra reimbursement	7,368	—	—	—
Total	$314,301	$133,863	$306,933	$396,353

Lump Sum Payment: The lump sum payments represent contractual payments due to the named executives in accordance with their employment contracts based upon their base salaries in effect as of December 31, 2010:

- The amounts of $340,000 and $149,041 for Mr. French represent either: (i) in the case of termination without cause or for good reason, one year's pay at the rate in effect on December 31, 2010; (ii) in the

case of death or disability, the amount due through June 9, 2011, the end of his employment contract; or (iii) in the case of a termination following a change-in-control, an amount equal to 150% of one year's pay at the rate in effect on December 31, 2010.

- The amounts of $324,000 and $421,200 for Mr. Garcia represent either: (i) in the case of termination without cause or for good reason, or in the case of death or disability, one year's pay at the rate in effect on December 31, 2010 or (ii) in the case of a termination following a change-in-control, an amount equal to 130% of one year's pay at the rate in effect on December 31, 2010.
- The amounts of $173,070 and $262,490 for Dr. Polisky represent either: (i) in the case of termination without case or for good reason, or in the case of death or disability, one year's pay at the rate in effect on December 31, 2010 or (ii) in the case of a termination following a change-in-control, the amount due through January 3, 2012, the end of his employment contract, plus an additional amount equal to 50% of one year's pay at the rate in effect on December 31, 2010.
- *Accrued Vacation*: Accrued vacation amounts represent the unpaid days of personal time off accrued for each named executive officer as of December 31, 2010.

Bonus: All bonus amounts are based upon employment contracts, and are calculated using base salaries in effect as of December 31, 2010. Bonus amounts are 40% of base salary for each of Mr. French and Dr. Polisky, and 30% of base salary for Mr. Garcia.

Stock Options: Stock option amounts are valued at $1.55, the closing price on December 31, 2010, less the applicable option exercise price, multiplied by the number of outstanding unvested options assumed to vest on such date. As of December 31, 2010, none of the unvested outstanding options held by the Named Executive Officers were in-the-money and vested outstanding options to purchase up to 30,000 shares of common stock were in-the-money, all of which were held by Dr. Polisky.

Cobra Reimbursement: Cobra reimbursements represent twelve months of continued company contributions for employer-paid medical insurance.

Compensation of Directors

2010 DIRECTOR COMPENSATION TABLE

The following Director Compensation table sets forth information concerning compensation for services rendered by our independent directors for fiscal year 2010:

Name	Fees Earned or Paid in Cash ($)(1)	Stock Awards ($)	Option Awards ($)(2)	All Other Compensation ($)	Total ($)
Current Directors					
James M. Karis	$17,000	—	$ 28,520(4)	—	$ 45,520
Chiang J. Li, M.D.	17,000	—	28,520(5)	—	45,520
Peter D. Parker (12)	17,000(13)	—	28,520(6)	—	45,520
Gregory Sessler	19,125(14)	—	32,085(7)	—	51,210
Michael D. Taylor, Ph.D.	17,000	—	28,520(8)	—	45,520
Subtotal	$87,125	—	$146,165	—	$233,290
Former Directors(3)					
Daniel Peters (9)	$ —	—	—	—	$ —
James E. Rothman (10)	—	—	—	—	—
Bruce R. Thaw (11)	—	—	—	—	—
Subtotal	—	—	—	—	—
Total	$87,125	—	$146,165	—	$233,290

(1) The amounts set forth in this column reflect 50% of the annual cash retainer to be paid to the members of our Board of Directors, which amounts were paid in 2010. The remaining portion of the annual cash retainer will be paid prior to the end of the second quarter of 2011.

(2) Reflects the dollar amount of the aggregate grant date fair value of the option awards granted to the directors in 2010, in accordance with FASB ASC Topic 718. The assumptions used to calculate the stock option awards value may be found in Note 6 to the Consolidated Financial Statements, Part II, Item 8 of this Annual Report on Form 10-K.

(3) Mr. Peters, Dr. Rothman and Mr. Thaw resigned as directors of our company on July 21, 2010, at which time Dr. Li, Mr. Parker and Dr. Taylor were appointed to serve as members of our Board of Directors.

(4) Represents the total grant date fair value of options to purchase 11,500 shares of common stock granted to Mr. Karis on July 21, 2010. As of December 31, 2010, Mr. Karis held options to purchase 20,125 shares of common stock.

(5) Represents the total grant date fair value of options to purchase 11,500 shares of common stock granted to Dr. Li on July 21, 2010. As of December 31, 2010, Dr. Li held options to purchase 69,564 shares of common stock.

(6) Represents the total grant date fair value of options to purchase 11,500 shares of common stock granted to Mr. Parker on July 21, 2010. Mr. Parker will receive an additional grant of options to purchase 3,594 shares of common stock in connection with his service as co-Chairman of the Board prior to the end of the second quarter of 2011. As of December 31, 2010, Mr. Parker held options to purchase 206,323 shares of common stock.

(7) Represents the total grant date fair value of options to purchase 12,938 shares of common stock granted to Mr. Sessler on July 21, 2010. Mr. Sessler will receive an additional grant of options to purchase 3,594 shares of common stock in connection with his service as co-Chairman of the Board prior to the end of the second quarter of 2011. As of December 31, 2010, Mr. Sessler held options to purchase 40,875 shares of common stock.

(8) Represents the total grant date fair value of options to purchase 11,500 shares of common stock granted to Dr. Taylor on July 21, 2010. As of December 31, 2010, Dr. Taylor held options to purchase 21,888 shares of common stock.

(9) As of December 31, 2010, Mr. Peters held options to purchase 22,750 shares of common stock.

(10) As of December 31, 2010, Dr. Rothman held options to purchase 127,121 shares of common stock, including vested options to purchase 104,371 shares of common stock granted to him in connection with his service on our Scientific Advisory Board.
(11) As of December 31, 2010, Mr. Thaw held options to purchase 80,187 shares of common stock.
(12) The amounts set forth in this table for Mr. Parker do not reflect severance amounts that have been, and are continuing to be, paid to him by us pursuant to his employment agreement with Cequent Pharmaceuticals. As a result of our merger with Cequent, we assumed Mr. Parker's employment agreement from Cequent, and he became an employee of our company. When Mr. Parker's employment with our company was terminated on July 31, 2010, Mr. Parker became entitled to receive: (i) $325,000 of base salary, payable over 12 months, of which $189,583 was paid in 2010; (ii) $66,354 of incentive cash compensation, payable over seven months, of which $47,396 was paid in 2010; (iii) accrued vacation in the amount of $6,250, all of which was paid in 2010 ; and (iv) $11,400 of Cobra reimbursements, payable over 12 months, of which $4,750 was paid in 2010. In addition, options to purchase 82,859 shares of our common stock immediately vested and became exercisable upon the termination of Mr. Parker's employment, which options had an aggregate fair value on the date of termination of $211,003, calculated in accordance with FASB ASC Topic 718. The aggregate value of Mr. Parker's severance arrangement, including the fair value of accelerated options, was $620,007.
(13) Mr. Parker will be paid an additional $10,625 in connection with his service as co-Chairman of the Board prior to the end of the second quarter of 2011.
(14) Mr. Sessler will be paid an additional $10,625 in connection with his service as co-Chairman of the Board prior to the end of the second quarter of 2011.

J. Michael French, current director, President and CEO, has not been included in the Director Compensation Table because he is a Named Executive Officer and does not receive any additional compensation for services provided as a director.

For 2010, the annual cash retainer and annual equity grant for non-employee members of the Board of Directors are as follows:

Annual Cash Retainer: The annual cash retainer is: (i) $25,500 for non-employee members of the Board, (ii) $12,750 for the Chairman of the Audit Committee, (iii) $8,500 for the Chairman of the Compensation Committee, the Chairman of the Nominating and Corporate Governance Committee, the Chairman of the Deal Committee and the Scientific Advisor to the Board, and (iv) $21,250 for the Chairman of the Board.

Annual Equity Grant: The annual equity grant is: (i) 8,625 options to non-employee members of the Board, (ii) 4,313 options to the Chairman of the Audit Committee, (iii) 2,875 options to the chairman of the Compensation Committee, the Chairman of the Nominating and Corporate Governance Committee, the Chairman of the Deal Committee and the Scientific Advisor to the Board, and (iv) 7,188 options to the Chairman of the Board.

The Nominating and Corporate Governance Committee recommended, and the Board approved, the above-described director compensation after reviewing the compensation practices of other companies of comparable size in our peer group, and after considering general economic conditions.

Directors' Stock Compensation Plans. We maintain three compensation plans under which equity compensation awards may be made to directors: the Marina Biotech, Inc. 2002 Stock Option Plan (the "2002 Plan"), the Marina Biotech, Inc. 2004 Stock Incentive Plan (the "2004 Plan") and the Marina Biotech, Inc. 2008 Stock Incentive Plan (the "2008 Plan"). References to the "Director Option Plans" herein refer to the 2002 Plan, the 2004 Plan and the 2008 Plan, collectively. It is our current practice that, upon becoming a member of the Board of Directors, each non-employee director may receive a discretionary award of options to purchase common stock as is determined at such time by the Compensation Committee of the Board of Directors. The discretionary stock option grants under the Director Option Plans are made at an exercise price per share of no less than the "fair market value" (as defined under the Director Option Plans) of a share of common stock on the date the option is granted, and are generally subject to a vesting period determined by the Compensation Committee in accordance with the applicable Director Option Plan. The Compensation Committee may make

additional discretionary grants to eligible directors, consistent with the terms of the Director Option Plans. The Board of Directors may amend, suspend or terminate the Director Option Plans at any time, except that prior approval of our stockholders must be obtained pursuant to applicable NASDAQ rules for any amendments that would constitute a material revision to any of the Director Option Plans, and certain changes require the consent of the affected grantees. In 2010, 58,938 options were granted to the non-employee members of the Board of Directors pursuant to the Director Option Plans. The stock options were granted on July 21, 2010 when the fair market value of the common stock was $2.9824 per share.

ITEM 12. ***Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.***

The following table sets forth certain information regarding the ownership of our common stock as of February 28, 2011 by: (i) each director of our company; (ii) each of our Named Executive Officers; (iii) all current executive officers and directors of our company as a group; and (iv) all those known by us to be beneficial owners of more than five percent (5%) of our common stock.

Beneficial ownership and percentage ownership are determined in accordance with the rules of the SEC. Under these rules, beneficial ownership generally includes any shares as to which the individual or entity has sole or shared voting power or investment power and includes any shares that an individual or entity has the right to acquire beneficial ownership of within 60 days of February 28, 2011, through the exercise of any option, warrant, subscription investment unit or similar right. In computing the number of shares beneficially owned by a person and the percentage ownership of that person, shares of our common stock that could be issued upon the exercise of outstanding options, warrants and subscription investment units that are exercisable within 60 days of February 28, 2011 are considered to be outstanding. These shares, however, are not considered outstanding as of February 28, 2011 when computing the percentage ownership of each other person.

To our knowledge, except as indicated in the footnotes to the following table, and subject to state community property laws where applicable, all beneficial owners named in the following table have sole voting and investment power with respect to all shares shown as beneficially owned by them. Percentage of ownership is based on 34,250,748 shares of common stock outstanding as of February 28, 2011. Unless otherwise indicated, the business address of each person in the table below is c/o Marina Biotech, Inc., 3830 Monte Villa Parkway, Bothell, Washington 98021. No shares identified below are subject to a pledge.

Name	Number of Shares	Percent of Shares Outstanding (%)
Officers and Directors:		
J. Michael French, Director, President and CEO	327,125(1)	*
Peter S. Garcia, Secretary and CFO	52,500(2)	*
Barry Polisky, CSO	85,000(3)	*
James M. Karis, Director	8,625(4)	*
Chiang J. Li, M.D., Director	87,798(5)	*
Peter D. Parker, Director	319,033(6)	*
Gregory Sessler, Director	27,937(7)	*
Michael D. Taylor, Ph.D., Director	6,991(8)	*
All directors and executive officers as a group (8 persons)	915,009(9)	2.62%
5% Shareholders:		
BioMed Realty, L.P. 17190 Bernardo Center Drive San Diego, California 92128	2,115,727(10)	6.18%
Empery Asset Management, LP 120 Broadway, Suite 10019 New York, New York 10271	2,100,324(11)	6.04%
A.M. Pappas & Associates, LLC 2520 Meridian Parkway, Suite 400 Durham, North Carolina 27713	2,193,131(12)	6.40%

* Beneficial ownership of less than 1.0% is omitted.

(1) Includes vested options to purchase 323,750 shares of common stock. Pursuant to a settlement agreement, all of the securities beneficially owned by Mr. French are held in constructive trust by Mr. French for the benefit of Mr. French and his former spouse.

(2) Includes vested options to purchase 52,500 shares of common stock.

(3) Includes vested options to purchase 85,000 shares of common stock.

(4) Includes vested options to purchase 8,625 shares of common stock.

(5) Includes vested options to purchase 25,403 shares of common stock.

(6) Includes vested options to purchase 194,823 shares of common stock.

(7) Includes vested options to purchase 27,937 shares of common stock.

(8) Includes vested options to purchase 6,991 shares of common stock.

(9) Includes vested options to purchase 725,029 shares of common stock.

(10) As reported on a Schedule 13G filed on February 28, 2011 by BioMed Realty Trust, Inc. and BioMed Realty, L.P., BioMed Realty Trust, Inc. is the sole general partner of BioMed Realty, L.P., its operating partnership subsidiary, and conducts substantially all of its business in or through BioMed Realty, L.P.

(11) As reported on a Schedule 13G filed on February 11, 2011 on behalf of Empery Asset Management, LP, Ryan M. Lane and Martin D. Hoe, Empery Asset Management serves as investment manager to certain funds and managed accounts (collectively, the "Empery Funds") holding 1,604,896 shares of our common stock and warrants to purchase 495,428 shares of our common stock. Each of Mr. Lane and Mr. Hoe is a managing member of Empery AM GP, LLC, the general partner of Empery Asset Management. Empery Asset Management may be deemed to be the beneficial owner of all shares of our common stock held by the Empery Funds. Each of Mr. Lane and Mr. Hoe, as managing members of the general partner of Empery Asset Management with the power to exercise investment discretion, may be deemed to be the beneficial owner of all shares of our common stock held by the Empery Funds. Each of Mr. Lane and Mr. Hoe disclaims any beneficial ownership of any such shares of common stock.

(12) The information in the table above is based on a Schedule 13D filed on August 2, 2010 on behalf of A.M. Pappas Life Science Ventures III, LP ("Pappas Ventures III"), PV III CEO Fund, LP ("CEO III" and together with Pappas Ventures III, the "Pappas Funds"), AMP&A Management III, LLC ("Management III"), and A.M. Pappas & Associates, LLC ("Pappas"). Management III is the general partner of each of the Pappas Funds, and has a management agreement with Pappas whereby Pappas provides management services for the Pappas Funds. Due to its arrangements with the Pappas Funds, Pappas's investment committee has sole power to vote or to direct the vote of, and sole power to dispose or to direct the disposition of, all shares of common stock owned by the Pappas Funds. By virtue of these relationships, each of Management III and Pappas may be deemed to beneficially own our common stock owned directly by the Pappas Funds. The sole managing member of Pappas is Arthur M. Pappas. The managing members of Management III are Pappas and Mr. Pappas. Pappas Ventures III directly owns, and has shared power to vote or to direct the vote of, and shared power to dispose or to direct the disposition of, 2,064,763 shares of our common stock, and CEO III directly owns, and has shared power to vote or to direct the vote of, and shared power to dispose or to direct the disposition of, 128,368 shares of our common stock. Management III disclaims beneficial ownership of the shares held by the Pappas Funds, except to the extent of its pecuniary interest therein.

EQUITY COMPENSATION PLAN INFORMATION

The following table provides aggregate information as of December 31, 2010 with respect to all of the compensation plans under which our common stock is authorized for issuance, including the Amended and Restated 2000 Nonqualified Stock Option Plan (the "2000 Plan"), the 2002 Plan, the 2004 Plan, the 2008 Plan and the 2007 Employee Stock Purchase Plan (the "ESPP"), along with options granted outside of our equity compensation plans.

	(a)	(b)	(c)
	Number of Securities to be Issued Upon Exercise of Outstanding Options	Weighted-Average Exercise Price of Outstanding Options	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column(a))
Equity compensation plans approved by security holders	1,759,979(1)(4)	$ 7.48	1,078,895(3)
Equity compensation plans not approved by security holders	347,490(2)	$11.15	—
Total	2,107,469	$ 8.08	1,078,895

(1) Consists of: (i) 305,465 shares of common stock underlying awards made pursuant to the 2002 Plan; (ii) 353,557 shares of common stock underlying awards made pursuant to the 2004 Plan and (iii) 1,100,957 shares of common stock underlying awards made pursuant to the 2008 Plan.

(2) Consists of 72,500 shares of common stock underlying awards made pursuant to the 2000 Plan and 274,990 shares of common stock underlying options awarded to J. Michael French, CEO and President, as an inducement to enter into his employment contract with us in June 2008. Under the 2000 Plan, we are authorized to grant non-qualified stock options to purchase a maximum of 250,000 shares of common stock (subject to adjustment in the event of stock splits, stock dividends, recapitalization and other capital adjustments) to our employees, officers, directors and consultants. The Board of Directors has delegated authority to the Compensation Committee to serve as administrator of the 2000 Plan. The Compensation Committee has discretion as to the persons to be granted options, the number of shares subject to the options and the vesting schedules of the options. The 2000 Plan also provides that options shall be exercisable during a period of no more than ten years from the date of grant, and that the option exercise price shall be at least equal to 100% of the fair market value of the common stock on the date of grant.

(3) Includes 72,891 shares of common stock available for future issuance under the ESPP.

(4) This table does not include equity awards that have been assumed by us in connection with our acquisition of Cequent Pharmaceuticals, Inc. As of December 31, 2010, an additional 533,590 shares of our common stock were subject to outstanding stock options assumed in connection with our acquisition of Cequent Pharmaceuticals, Inc., with a weighted average exercise price of $2.36 per share. We will not make any future grants of equity awards under this assumed equity compensation plan.

ITEM 13. *Certain Relationships and Related Transactions, and Director Independence.*

Approval for Related Party Transactions

It is our practice and policy to comply with all applicable laws, rules and regulations regarding related-person transactions, including the Sarbanes-Oxley Act of 2002 and NASDAQ rules. Our Code of Business Conduct and Ethics requires that all employees, including officers and directors, disclose to the CFO the nature of any company business that is conducted with any related party of such employee, officer or director (including any immediate family member of such employee, officer or director, and any entity owned or controlled by such persons). If the transaction involves an officer or director of our company, the CFO must bring the transaction to the attention of the Audit Committee, which must review and approve the transaction in writing in advance. In considering such transactions, the Audit Committee takes into account the relevant available facts and circumstances.

Independence of the Board of Directors

The Board of Directors has adopted NASDAQ's standards for determining the independence of its members and believes that it interprets these requirements conservatively. In applying these standards, the Board of Directors considers commercial, industrial, banking, consulting, legal, accounting, charitable and familial relationships, among others, in assessing the independence of directors, and must disclose any basis for determining that a relationship is not material. The Board of Directors has determined that a majority of the current members of the Board of Directors, namely James M. Karis, Chiang J. Li, M.D., Gregory Sessler and Michael D. Taylor, Ph.D., are independent directors within the meaning of such NASDAQ independence standards in terms of independence from management, such members constituting four (4) of the six (6) current members of the Board of Directors. Prior to our 2010 Annual Meeting of Shareholders, which was held on July 21, 2010, the Board of Directors had determined that four (4) of the six (6) members of the Board of Directors serving at that time were independent directors, namely James M. Karis, Daniel Peters, Gregory Sessler and Bruce R. Thaw. In making these independence determinations, the Board of Directors did not exclude from consideration as immaterial any relationship potentially compromising the independence of any of the above directors.

ITEM 14. ***Principal Accounting Fees and Services.***

KPMG LLP served as our independent registered public accounting firm for the year ended December 31, 2010, and has been our independent registered public accounting firm for each completed fiscal year beginning with the year ended December 31, 1996.

Total fees to KPMG LLP for the years ended December 31, 2010 and 2009 were $330,800 and $310,338, respectively, and were comprised of the following:

Audit Fees. The aggregate fees for professional services rendered in connection with (i) the audit of our annual financial statements, (ii) the review of the financial statements included in our Quarterly Reports on Form 10-Q for the quarters ended March 31, June 30 and September 30, (iii) consents and comfort letters issued in connection with equity offerings and (iv) services provided in connection with statutory and regulatory filings or engagements were $314,800 for the year ended December 31, 2010 and $285,208 for the year ended December 31, 2009.

Audit-Related Fees. We incurred $16,000 in audit-related fees in 2010 for the audit of our 401(k) plan for the year ended December 31, 2009, and $25,130 in audit-related fees in 2009 for the audit of our 401(k) plan for the year ended December 31, 2008.

Tax Fees. We did not incur any fees to KPMG LLP for professional services rendered in connection with tax compliance, tax planning and federal and state tax advice for the years ended December 31, 2010 and December 31, 2009.

All Other Fees. We did not incur any such other fees to KPMG LLP for the years ended December 31, 2010 and December 31, 2009.

Pre-Approval Policies and Procedures

Pursuant to its charter, the Audit Committee has the sole authority to appoint or replace our independent registered public accounting firm (subject, if applicable, to stockholder ratification). The Audit Committee is directly responsible for the compensation and oversight of the work of the independent registered public accounting firm (including resolution of disagreements between management and the independent registered public accounting firm regarding financial reporting) for the purpose of preparing or issuing an audit report or related work. The independent registered public accounting firm is engaged by, and reports directly to, the Audit Committee.

The Audit Committee pre-approves all audit services and permitted non-audit services (including the fees and terms thereof) to be performed for us by our independent registered public accounting firm, subject to the *de minimis* exceptions for non-audit services described in Section 10A(i)(1)(B) of the Exchange Act and SEC Rule 2-01(c)(7)(i)(C) of Regulation S-X, provided that all such excepted services are subsequently approved by the Audit Committee prior to the completion of the audit. In the event pre-approval for such audit services and permitted non-audit services cannot be obtained as a result of inherent time constraints in the matter for which such services are required, the Chairman of the Audit Committee has been granted the authority to pre-approve such services, provided that the estimated cost of such services on each such occasion does not exceed $15,000, and the Chairman of the Audit Committee reports for ratification such pre-approval to the Audit Committee at its next scheduled meeting. The Audit Committee has complied with the procedures set forth above, and has otherwise complied with the provisions of its charter.

PART IV

ITEM 15. ***Exhibits, Financial Statement Schedules.***

(a)(1) *Financial Statements and Financial Statement Schedule*

The financial statements listed in the Index to Financial Statements are filed as part of this Form 10-K.

(a)(3) *Exhibits*

The exhibits required by this item are set forth on the Exhibit Index attached hereto.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Bothell, State of Washington, on March 23, 2011.

MARINA BIOTECH, INC.

By: /s/ J. Michael French
J. Michael French
Director, President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of the Registrant and in the capacities indicated on March 23, 2011.

Signature	Title
/s/ J. Michael French J. Michael French	Director, President and Chief Executive Officer (Principal Executive Officer)
/s/ Peter S. Garcia Peter S. Garcia	Secretary and Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)
/s/ James M. Karis James M. Karis	Director
/s/ Chiang J. Li Chiang J. Li, M.D.	Director
/s/ Peter D. Parker Peter D. Parker	Director
/s/ Gregory Sessler Gregory Sessler	Director
/s/ Michael D. Taylor Michael D. Taylor, Ph.D.	Director

EXHIBIT INDEX

Exhibit No.	Description
2.1	Agreement and Plan of Reorganization, dated August 8, 2000, among the Registrant, Atossa Acquisition Corporation, a Delaware corporation and our wholly-owned subsidiary, and Atossa HealthCare, Inc. (filed as Exhibit 2.1 to our Current Report on Form 8-K dated August 8, 2000, and incorporated herein by reference).
2.2	Agreement and Plan of Merger dated as of March 31, 2010 by and among the Registrant, Cequent Pharmaceuticals, Inc., Calais Acquisition Corp. and a representative of the stockholders of Cequent Pharmaceuticals, Inc. (filed as Exhibit 2.1 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).
3.1	Restated Certificate of Incorporation of the Registrant dated July 20, 2005 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated July 20, 2005, and incorporated herein by reference).
3.2	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Registrant, dated June 10, 2008 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated June 10, 2008, and incorporated herein by reference).
3.3	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Registrant, dated July 21, 2010 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated July 21, 2010, and incorporated herein by reference).
3.4	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Registrant, dated July 21, 2010 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated July 21, 2010, and incorporated herein by reference).
3.5	Amended and Restated Bylaws of the Registrant dated September 19, 2007 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated September 19, 2007, and incorporated herein by reference).
3.6	Certificate of Designation, Rights and Preferences of Series A Junior Participating Preferred Stock dated January 17, 2007 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated January 19, 2007, and incorporated herein by reference).
3.7	Amended Designation, Rights, and Preferences of Series A Junior Participating Preferred Stock, dated June 10, 2008 (filed as Exhibit 3.2 to our Current Report on Form 8-K dated June 10, 2008, and incorporated herein by reference).
4.1	Rights Agreement, dated February 22, 2000, between the Registrant and American Stock Transfer & Trust Company, LLC as Rights Agent (filed as Exhibit 1 to our Current Report on Form 8-K dated February 22, 2000, and incorporated herein by reference).
4.2	Amendment No. 1 to Rights Agreement dated as of January 17, 2007 by and between the Registrant and American Stock Transfer & Trust Company, LLC (filed as Exhibit 4.1 to our Current Report on Form 8-K dated January 19, 2007, and incorporated herein by reference).
4.3	Amendment No. 2 to Rights Agreement dated as of March 17, 2010 by and between the Registrant and American Stock Transfer & Trust Company, LLC (filed as Exhibit 4.1 to our Current Report on Form 8-K dated March 5, 2010, and incorporated herein by reference).
4.4	Amendment No. 3 to Rights Agreement dated as of March 31, 2010 by and between the Registrant and American Stock Transfer & Trust Company, LLC (filed as Exhibit 4.3 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).
4.5	Form of Amended and Restated Common Stock Purchase Warrant originally issued by the Registrant in April 2008 (filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2009, and incorporated herein by reference).

Exhibit No.	Description
4.6	Form of Common Stock Purchase Warrant issued by the Registrant in June 2009 (filed as Exhibit 10.3 to our Current Report on Form 8-K dated June 10, 2009, and incorporated herein by reference).
4.7	Form of Common Stock Purchase Warrant issued by the Registrant in December 2009 (filed as Exhibit 4.2 to our Current Report on Form 8-K dated December 22, 2009, and incorporated herein by reference).
4.8	Form of Common Stock Purchase Warrant issued by the Registrant in January 2010 (filed as Exhibit 4.1 to our Current Report on Form 8-K dated January 13, 2010, and incorporated herein by reference).
4.9	Form of Subscription Investment Unit issued by the Registrant in November 2010 (filed as Exhibit 4.1 to our Current Report on Form 8-K dated November 4, 2010, and incorporated herein by reference).
4.10	Form of Common Stock Purchase Warrant issued by the Registrant in November 2010 (filed as Exhibit 4.2 to our Current Report on Form 8-K dated November 4, 2010, and incorporated herein by reference).
4.11	Form of Warrant Certificate issued by the Registrant in February 2011 (filed as Exhibit 4.1 to our Current Report on Form 8-K dated February 10, 2011, and incorporated herein by reference).
4.12	Form of Warrant Agreement by and between the Registrant and American Stock Transfer & Trust Company, LLC (filed as Exhibit 4.2 to our Current Report on Form 8-K dated February 10, 2011, and incorporated herein by reference).
10.1	Lease Agreement, dated April 23, 2002, with Phase 3 Science Center LLC, Ahwatukee Hills Investors LLC and J. Alexander's LLC (filed as Exhibit 10.26 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2002, and incorporated herein by reference).
10.2	First Amendment dated June 17, 2003, to Lease Agreement dated April 23, 2002, with Phase 3 Science Center LLC, Ahwatukee Hills Investors LLC and J. Alexander's LLC (filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2003, and incorporated herein by reference).
10.3	Second Amendment, dated February 4, 2004, to Lease Agreement dated April 23, 2002, with Phase 3 Science Center LLC, Ahwatukee Hills Investors LLC and J. Alexander's LLC (filed as Exhibit 10.24 to our Annual Report on Form 10-K for the year ended December 31, 2003, and incorporated herein by reference).
10.4	Third Amendment, dated as of March 5, 2009, to Lease Agreement dated April 23, 2002, with BMR-3450 Monte Villa Parkway LLC (as successor-in-interest to Phase 3 Science Center LLC) (filed as Exhibit 10.1 to our Current Report on Form 8-K dated March 5, 2009, and incorporated herein by reference).
10.5	Fourth Amendment, dated as of July 27, 2009, to Lease Agreement dated April 23, 2002, with BMR-3450 Monte Villa Parkway LLC (as successor-in-interest to Phase 3 Science Center LLC) (filed as Exhibit 10.3 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2009, and incorporated herein by reference).
10.6	Fifth Amendment, dated as of December 16, 2010, to Lease Agreement dated April 23, 2002, with BMR-3450 Monte Villa Parkway LLC (as successor-in-interest to Phase 3 Science Center LLC) (filed as Exhibit 10.1 to our Current Report on Form 8-K dated December 16, 2010, and incorporated herein by reference).

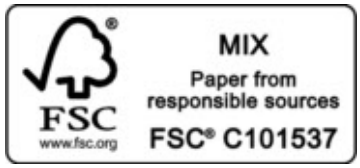
Exhibit No.	Description
10.7	Stock Purchase Agreement, dated as of March 5, 2009, between the Registrant and BioMed Realty, L.P. (filed as Exhibit 10.2 to our Current Report on Form 8-K dated March 5, 2009, and incorporated herein by reference).
10.8	Stock Purchase Agreement, dated as of December 16, 2010, between the Registrant and BioMed Realty, L.P. (filed as Exhibit 10.2 to our Current Report on Form 8-K dated December 16, 2010, and incorporated herein by reference).
10.9	Lease Agreement with Ditty Properties Limited Partnership for facilities at 3830 Monte Villa Parkway, Bothell, WA, effective as of March 1, 2006 (filed as Exhibit 10.1 to Amendment No. 1 to our Current Report on Form 8-K/A dated March 1, 2006 and filed on July 26, 2006, and incorporated herein by reference).(1)
10.10	First Amendment to Lease Agreement with Ditty Properties Limited Partnership for facilities at 3830 Monte Villa Parkway, Bothell, WA, effective as of July 17, 2006 (filed as Exhibit 10.7 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, and incorporated herein by reference).
10.11	Employment Agreement effective as of June 23, 2008 by and between the Registrant and J. Michael French (filed as Exhibit 10.2 to our Current Report on Form 8-K dated June 10, 2008, and incorporated herein by reference).**
10.12	Waiver Agreement dated as of March 31, 2010 by and between the Registrant and J. Michael French (filed as Exhibit 10.8 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).**
10.13	Employment Agreement effective as of January 2, 2009 by and between the Registrant and Barry Polisky (filed as Exhibit 10.1 to our Current Report on Form 8-K dated October 27, 2008, and incorporated herein by reference).**
10.14	Waiver Agreement dated as of March 31, 2010 by and between the Registrant and Barry Polisky (filed as Exhibit 10.10 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).**
10.15	Employment Agreement effective as of July 13, 2009 by and between the Registrant and Peter S. Garcia (filed as Exhibit 10.1 to our Current Report on Form 8-K dated July 13, 2009, and incorporated herein by reference).**
10.16	Waiver Agreement dated as of March 31, 2010 by and between the Registrant and Peter S. Garcia (filed as Exhibit 10.9 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).**
10.17	The Registrant's 1990 Stock Option Plan (filed as Exhibit 4.2 to our Registration Statement on Form S-8, File No. 333-28785, and incorporated herein by reference).**
10.18	The Registrant's Amended and Restated 2000 Nonqualified Stock Option Plan (filed as Exhibit 4.4 to our Registration Statement on Form S-8, File No. 333-49514, and incorporated herein by reference).**
10.19	Amendment No. 1 to the Registrant's Amended and Restated 2000 Nonqualified Stock Option Plan (filed as Exhibit 10.18 to our Annual Report on Form 10-K for the year ended December 31, 2005, and incorporated herein by reference).**
10.20	Amendment No. 2 to the Registrant's Amended and Restated 2000 Nonqualified Stock Option Plan (filed as Exhibit 10.19 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2006, and incorporated herein by reference).**

Exhibit No.	Description
10.21	The Registrant's 2002 Stock Option Plan (filed as Exhibit 10.28 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2002, and incorporated herein by reference).**
10.22	Amendment No. 1 to the Registrant's 2002 Stock Option Plan (filed as Exhibit 10.20 to our Annual Report on Form 10-K for the year ended December 31, 2005, and incorporated herein by reference).**
10.23	The Registrant's 2004 Stock Incentive Plan (filed as Exhibit 99 to our Registration Statement on Form S-8, File No. 333-118206, and incorporated herein by reference).**
10.24	Amendment No. 1 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.4 to our Current Report on Form 8-K dated July 20, 2005, and incorporated herein by reference).**
10.25	Amendment No. 2 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.18 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2005, and incorporated herein by reference).**
10.26	Amendment No. 3 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.24 to our Annual Report on Form 10-K for the year ended December 31, 2005, and incorporated herein by reference).**
10.27	Amendment No. 4 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.5 to our Registration Statement on Form S-8, File No 333-135724, and incorporated herein by reference).**
10.28	Amendment No. 5 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.27 to our Quarterly Report on Form 10-K for the quarter ended September 30, 2006, and incorporated herein by reference).**
10.29	The Registrant's 2008 Stock Incentive Plan (filed as Appendix A to our Definitive Proxy Statement on Schedule 14A filed on April 29, 2008, and incorporated herein by reference).**
10.30	Development and License Agreement by and between the Registrant and Amylin Pharmaceuticals, Inc. dated June 23, 2006 (filed as Exhibit 10.66 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, and incorporated herein by reference).
10.31	First Amendment, dated as of January 29, 2009, to the Development and License Agreement by and between the Registrant and Amylin Pharmaceuticals, Inc. (filed as Exhibit 10.5 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).
10.32	Patent Assignment and License Agreement, dated May 21, 2008, by and between the Registrant and Ribotask ApS (filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).
10.33	Amendment No. 1, dated October 9, 2008, to the Patent Assignment and License Agreement by and between the Registrant and Ribotask ApS (filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).
10.34	Amendment No. 2, dated June 18, 2009, to the Patent Assignment and License Agreement by and between the Registrant and Ribotask ApS (filed as Exhibit 10.3 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).
10.35	Amendment No. 3, dated June 4, 2010, to the Patent Assignment and License Agreement by and between the Registrant and Ribotask ApS (filed as Exhibit 10.4 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).

Exhibit No.	Description
10.36	Form of Restricted Stock Grant Agreement (filed as Exhibit 10.1 to our Current Report on Form 8-K dated February 6, 2007, and incorporated herein by reference).**
10.37	Form of Stock Option Agreement (filed as Exhibit 10.2 to our Current Report on Form 8-K dated February 6, 2007, and incorporated herein by reference).**
10.38	Form of Omnibus Amendment to Certain Grant Agreements, dated May 4, 2007 (filed as Exhibit 10.42 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2007, and incorporated herein by reference).**
10.39	The Registrant's 2007 Employee Stock Purchase Plan (filed as Exhibit 10.1 to our Registration Statement on Form S-8, File No. 333-146183, and incorporated herein by reference).**
10.40	Cequent Pharmaceuticals, Inc.'s 2006 Stock Incentive Plan (filed as Exhibit 10.3 to our Registration Statement on Form S-8, File No. 333-170071, and incorporated herein by reference).**
10.41	Amendment No. 1, dated October 31, 2006, to Cequent Pharmaceuticals, Inc.'s 2006 Stock Incentive Plan (filed as Exhibit 10.4 to our Registration Statement on Form S-8, File No. 333-170071, and incorporated herein by reference).**
10.42	Placement Agency Agreement, dated March 7, 2008, between the Registrant and Maxim Group LLC (filed as Exhibit 10.1 to our Current Report on Form 8-K dated April 25, 2008, and incorporated herein by reference).
10.43	Securities Purchase Agreement, dated as of April 25, 2008, between the Registrant and the purchasers identified on the signature page thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated April 25, 2008, and incorporated herein by reference).
10.44	Amendment No. 1 to the Securities Purchase Agreement, dated as of April 25, 2008, between the Registrant and the purchasers identified therein (filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2009, and incorporated herein by reference).
10.45	Non-Exclusive Patent License Agreement, effective as of February 12, 2009, by and between Hoffmann-La Roche Inc., F. Hoffmann-La Roche Ltd. and the Registrant (filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q/A for the quarter ended March 31, 2009, and incorporated herein by reference). (1)
10.46	License Agreement dated as of March 20, 2009 by and between Novartis Institutes for BioMedical Research, Inc. and the Registrant (filed as Exhibit 10.3 to our Quarterly Report on Form 10-Q/A for the quarter ended March 31, 2009, and incorporated herein by reference). (1)
10.47	Placement Agency Agreement, dated June 9, 2009, between the Registrant and Canaccord Adams Inc. (filed as Exhibit 10.1 to our Current Report on Form 8-K dated June 10, 2009, and incorporated herein by reference).
10.48	Securities Purchase Agreement, dated as of June 9, 2009, between the Registrant and the purchasers identified on the signature page thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated June 10, 2009, and incorporated herein by reference).
10.49	Note and Warrant Purchase Agreement, dated as of December 22, 2009, among the Registrant, MDRNA Research, Inc. and the purchasers identified in the signature pages thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated December 22, 2009, and incorporated herein by reference).
10.50	Placement Agency Agreement, dated January 13, 2010, between the Registrant and Canaccord Adams, Inc. (filed as Exhibit 10.1 to our Current Report on Form 8-K dated January 13, 2010, and incorporated herein by reference).

Exhibit No.	Description
10.51	Securities Purchase Agreement, dated as of January 13, 2010, between the Registrant and the purchasers identified on the signature page thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated January 13, 2010, and incorporated herein by reference).
10.52	Registration Rights Agreement, dated as of July 21, 2010, by and between the Registrant and each of the investors set forth on Schedule I thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated July 21, 2010, and incorporated herein by reference).
10.53	Stockholders' Agreement, dated as of July 21, 2010, by and among the Registrant and the holders identified on Annex I thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated July 21, 2010, and incorporated herein by reference).
10.54	Amendment to Securities Purchase Agreements, dated as of November 4, 2010, by and among the Registrant and the signatories thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated November 4, 2010, and incorporated herein by reference).
10.55	Securities Purchase Agreement, dated as of November 4, 2010, by and among the Registrant and the signatories thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated November 4, 2010, and incorporated herein by reference).
10.56	Form of Director's and Officer's Indemnification Agreement. (filed as Exhibit 10.45 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2009, and incorporated herein by reference).**
10.57	Indenture of Lease, dated December 19, 2006, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC.(2)
10.58	First Amendment of Lease, dated December 19, 2006, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC.(2)
10.59	Second Amendment of Lease, dated March 23, 2007, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC.(2)
10.60	Third Amendment of Lease, dated September 20, 2007, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC.(2)
10.61	Fourth Amendment of Lease, dated March 30, 2010, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC.(2)
21.1	Subsidiaries of the Registrant.(2)
23.1	Consent of KPMG LLP, independent registered public accounting firm.(2)
31.1	Certification of our Chief Executive Officer pursuant to Rules 13a-14 and 15d-14 under the Securities Exchange Act of 1934, as amended.(2)
31.2	Certification of our Chief Financial Officer pursuant to Rules 13a-14 and 15d-14 under the Securities Exchange Act of 1934, as amended.(2)
32.1	Certification of our Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.(3)
32.2	Certification of our Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.(3)

(1) Portions of this exhibit have been omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Securities Exchange Act of 1934, amended, and the omitted material has been separately filed with the Securities and Exchange Commission.
(2) Filed herewith.
(3) Furnished herewith.
** Indicates management contract or compensatory plan or arrangement.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