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As filed with the Securities and Exchange Commission on January 7, 2011

Registration No. 333-170594

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

AMENDMENT NO. 2
TO
FORM S-1
REGISTRATION STATEMENT

UNDER
THE SECURITIES ACT OF 1933

ACELRX PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware	2834	41-2193603
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

575 Chesapeake Drive
Redwood City, CA 94063
(650) 216-3500

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Richard King
President and Chief Executive Officer
575 Chesapeake Drive
Redwood City, CA 94063
(650) 216-3500

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration number of the earlier effective registration statement for the same offering. ☐

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.

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

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment that specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this prospectus is not complete and may be changed. We may not sell these securities until the Securities and Exchange Commission declares our registration statement effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to completion, dated January 7, 2011

Shares

ACELRX PHARMACEUTICALS, INC.

Common Stock

$ per share

- AcelRx Pharmaceuticals, Inc. is offering shares.
- We anticipate that the initial public offering price will be between $ and $ per share.
- This is our initial public offering and no public market currently exists for our shares.
- Proposed trading symbol: NASDAQ Global Market—ACRX.

This investment involves risk. See "Risk Factors" beginning on page 12.

	Per Share	Total
Public offering price	$	$
Underwriting discount	$	$
Proceeds, before expenses, to AcelRx Pharmaceuticals, Inc.	$	$

The underwriters have a 30-day option to purchase up to additional shares of common stock from us to cover over-allotments, if any.

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

Piper Jaffray

Canaccord Genuity **Cowen and Company** **JMP Securities**

The date of this prospectus is , 2011

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This product candidate has not been approved by the FDA. We have not generated any revenue from the sale of any of our product candidates.

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You should rely only on the information contained in this prospectus or any related free writing prospectus we may authorize to be delivered to you. We have not, and the underwriters have not, authorized anyone to provide you with information different from, or in addition to, that contained in this prospectus or any related free writing prospectus. If anyone provides you with different or inconsistent information, you should not rely on it. We are offering to sell, and are seeking offers to buy, shares of common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus or any related free writing prospectus is accurate only as of its date, regardless of its time of delivery, or of any sale of the common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

Until and including , 2011 (25 days after the date of this prospectus), all dealers that buy, sell or trade our common stock, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to the obligation of dealers to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

For investors outside of the United States: neither we nor any of the underwriters have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus.

Unless the context indicates otherwise, as used in this prospectus, the terms "AcelRx," "AcelRx Pharmaceuticals," "we," "us" and "our" refer to AcelRx Pharmaceuticals, Inc. The name "ACELRX" is our trademark. We have a trademark application pending for the term, "NANOTAB" and for our tagline, "ACCELERATE, INNOVATE, ALLEVIATE" in Class 5, in the United States. This prospectus also contains trademarks and trade names that are the property of their respective owners.

PROSPECTUS SUMMARY

The items in the following summary are described in more detail later in this prospectus. This summary provides an overview of selected information and does not contain all the information you should consider. Before you decide to invest in our common stock, you should read the entire prospectus carefully, including the "Risk Factors" and the financial statements and related notes included in this prospectus.

Overview

We are a specialty pharmaceutical company focused on the development and commercialization of innovative therapies for the treatment of acute and breakthrough pain. We were founded to solve the problems associated with post-operative intravenous patient-controlled analgesia, or IV PCA. Although widely used, IV PCA has been shown to cause harm to patients following surgery because of the side effects of morphine, the invasive IV route of delivery and the inherent potential for programming and delivery errors associated with the complexity of infusion pumps. We are preparing to initiate Phase 3 clinical trials for our lead product candidate, the Sufentanil NanoTab PCA System, or ARX-01. The system is designed to address these problems by utilizing:

- sufentanil, a high therapeutic index opioid;
- NanoTabs, our proprietary, non-invasive sublingual dosage form; and
- our novel handheld PCA device that enables simple patient-controlled delivery of NanoTabs in the hospital setting and eliminates the risk of programming errors.

We have completed Phase 2 clinical development for two additional product candidates, the Sufentanil NanoTab BTP Management System, or ARX-02, for the treatment of cancer breakthrough pain, or BTP, and the Sufentanil/Triazolam NanoTab, or ARX-03, designed to provide mild sedation, anxiety reduction and pain relief for patients undergoing painful procedures in a physician's office.

Sufentanil NanoTabs

All of our product candidates utilize sufentanil in our proprietary, non-invasive NanoTab sublingual dosage form.

Sufentanil has many pharmacological advantages over other opioids. Sufentanil has a high therapeutic index, or the ratio of the toxic dose to the therapeutic dose of a drug, which is used as a measure of the relative safety of a drug for a particular treatment. Published studies demonstrate that sufentanil produces less respiratory depressive effects relative to its analgesic effects compared to other opioids, which correlates well with preclinical studies demonstrating sufentanil's high therapeutic index. The molecular attributes of sufentanil allow rapid cell membrane penetration and onset of action, which we believe make sufentanil an attractive opioid for the treatment of both acute and breakthrough pain. Although the analgesic efficacy and tolerability of sufentanil has been well established, its use has been limited due to a short duration of action when delivered intravenously and low gastrointestinal uptake when delivered orally.

We have demonstrated that sublingual delivery of sufentanil avoids the high peak plasma levels and short duration of action of IV administration, enabling potential for broader use. Our proprietary NanoTab dosage form is a very small disc-shaped tablet with a bioadhesive excipient, or inactive ingredient, that enables the NanoTab to adhere to mucosal tissues. This allows sublingual delivery of sufentanil from the NanoTab by adherence to the sublingual mucosa, or tissues under the tongue. The NanoTab adheres within seconds after administration and full disintegration occurs within minutes. The small size of the NanoTab is designed to minimize the saliva response and amount of sufentanil swallowed, resulting in high oral transmucosal uptake, whereby a majority of the drug is absorbed through the oral tissues directly into the bloodstream, and consistent pharmacokinetics.

Our portfolio of product candidates leverages the inherent advantages of sufentanil that are underutilized in medical practice. We believe our non-invasive, proprietary NanoTab sublingual dosage form overcomes the limitations of the current treatment options available for both acute and breakthrough pain.

We have established and continue to build proprietary positions for our product candidates in the United States and internationally. We seek patent protection for compositions of matter related to NanoTabs, our formulations, our devices, the combination of our drugs and devices, and methods of treatment using these compositions. We have filed patent applications in the United States and internationally and have one issued patent in Europe. Our issued European patent, though granted, may be opposed by third parties during a nine-month opposition period that ends on April 21, 2011. If issued, we expect our patents will expire between 2027 and 2030.

Our Product Candidates

The following table summarizes key information about our existing product candidates. We currently hold worldwide commercialization rights to all of our product candidates.

Product Candidate	Description	Target Indication	Development Status
ARX-01	Sufentanil NanoTab PCA System	Acute post-operative pain	• Three Phase 2 clinical trials and End of Phase 2 meeting successfully completed • Two efficacy trials and one open label safety trial planned in Phase 3; the first efficacy trial is anticipated to begin in the second half of 2011
ARX-02	Sufentanil NanoTab BTP Management System	Cancer breakthrough pain	• Phase 2 clinical trial and End of Phase 2 meeting successfully completed • One efficacy trial and two open label safety trials planned in Phase 3
ARX-03	Sufentanil/Triazolam NanoTab	Mild sedation for painful procedures in a physician's office	• Phase 2 clinical trial and End of Phase 2 meeting successfully completed • Two efficacy trials planned in Phase 3

The Market Opportunity for Our Product Candidates

Acute Post-Operative Pain

The post-operative pain market in the United States, Europe and Japan is growing steadily and is expected to reach $6.5 billion by 2018. Despite its size, this market remains underserved. Studies report that up to 75% of patients experience inadequate pain relief after surgery. Inadequate pain relief can lead to decreased mobility, which increases the risks of other medical complications, including deep vein thrombosis and partial lung collapse, and can result in extended hospital stays.

In the post-operative environment, the most common method for the treatment of acute pain is through IV PCA, in which patients self-dose by pushing a button to administer morphine via a programmable intravenous pump. Despite the common use of IV PCA, there are many deficiencies associated with this treatment that create a significant unmet medical need, including:

- *Drug-Related Side Effects*. Morphine, the most commonly used opioid for post-operative pain control, can produce many side effects, such as excessive somnolence, delirium, oxygen desaturation and respiratory depression. Morphine has active metabolites, the compounds that are produced when the body breaks down, or metabolizes, morphine, which amplify these side effects.
- *Complications Associated with IV Delivery*. IV PCA poses infection risk and creates opportunities for analgesic gaps due to dislodged catheters. Peripheral venous catheters have been associated with phlebitis and bacteremia. Catheter tubing tethering the patient to the PCA pump also hinders early post-operative mobility that can lead to increased post-operative complications.
- *Medication Delivery Errors*. The complexity associated with ordering, dispensing, preparing, programming and administering the IV PCA pump results in many analgesia related errors. Human factors, such as programming the PCA pump, or administering the wrong dose, are among the most common and serious type of errors. According to published literature, the estimated annual error rate is 407 errors per 10,000 people treated with IV PCA in the United States. Published analysis of a national medication error-reporting program, or Medmarx, from 2000 to 2005 reveals that IV PCA errors represent a four-fold higher relative risk of harm compared to all other medication errors. The most recent published analysis of the FDA Manufacturer and User Facility Device Experience, or MAUDE, database reports that 5% of IV PCA operator errors reported during a two-year index period, from 2002 to 2003, resulted in patient deaths. Recently, the risks associated with the use of infusion pumps, such as those used in IV PCA, have been the subject of scrutiny by the FDA, resulting in a new initiative to address the safety problems associated with infusion pumps and the underreporting of errors.

Cancer Breakthrough Pain

Breakthrough pain is a common component of chronic pain and is characterized by its rapid onset, intensity and relatively short duration, which breaks through the analgesic effect of chronic pain medication. According to published data, in 2006 more than 700,000 cancer patients in the United States experienced breakthrough pain. Fentanyl-based products are the only medications indicated to treat cancer breakthrough pain and account for less than 20,000 prescriptions per month. We believe this demonstrates a need for additional and improved cancer breakthrough pain medications.

Currently available fentanyl-based cancer breakthrough pain products have limited ability to provide effective and focused pain relief because their average half-lives extend to 6 to 14 hours, which is significantly longer than the average 15 to 60 minute duration of a cancer breakthrough pain episode. Oral transmucosal fentanyl, unlike sufentanil, is swallowed and absorbed extensively through the gastrointestinal tract in addition to the oral mucosal tissue, leading to erratic and delayed timing to peak plasma levels, ranging from 20 to 240 minutes. In addition, we believe none of the currently approved cancer breakthrough pain products have effective deterrent features to address the problem of abuse and misuse of pain medication.

Mild Sedation for Painful Procedures in a Physician's Office

Each year in the United States, more than 100 million procedures take place in a physician's office. A substantial subset of these procedures are painful and anxiety inducing. Many practitioners do not

provide any sedation or analgesic medications to their patients prior to or during short duration procedures, and instead rely solely on local anesthetic injections, which are often insufficient to provide effective pain relief and do not address patient anxiety.

ARX-01—Sufentanil NanoTab PCA System

ARX-01 is designed to avoid many of the limitations of IV PCA by delivering sufentanil, a high therapeutic index opioid, using our proprietary NanoTab sublingual tablet via a non-invasive, pre-programmed, handheld PCA device.

Sufentanil has one of the highest therapeutic indices of all commercially available opioids, making it an attractive candidate for the management of post-operative pain. Formulated in our proprietary sublingual NanoTab dosage form, sufentanil has relatively high bioavailability, with lower peak drug levels and a longer duration of action compared to IV delivery. Our novel handheld PCA device enables simple patient-controlled delivery of NanoTabs in the hospital setting. ARX-01 has the potential to address many of the key disadvantages of IV PCA by:

- reducing the incidence of drug related side effects;
- eliminating the risk of IV PCA related infections, reducing analgesic gaps and enhancing mobility; and
- eliminating the risk of programming errors.

We believe that ARX-01 will provide a favorable safety, efficacy and tolerability profile, enabling ARX-01 to become the new standard of care for patient-controlled analgesia.

We have completed three successful Phase 2 clinical trials of sufentanil NanoTabs in 212 patients in the post-operative setting and have completed an End of Phase 2 meeting with the FDA. Our Phase 2 studies for ARX-01 demonstrated analgesic efficacy, a low adverse event profile and excellent device functionality. Across all studies, the average time interval between doses was approximately 80 minutes, which compares favorably to typical redosing intervals for IV PCA, which have an average period between dosing of 20 to 40 minutes. The FDA stated that the demonstration of efficacy versus placebo in two Phase 3 studies with a total safety database of at least 600 patients exposed to the active drug, should suffice to support a new drug application, or NDA, for the treatment of acute post-operative pain.

We plan to conduct two Phase 3 trials to evaluate the efficacy of ARX-01 and one Phase 3 open-label active comparator study. Manufacturing scale up activities and Phase 3 clinical trial planning are ongoing to enable initiation and patient enrollment in our first Phase 3 trial in the second half of 2011. We expect to receive top-line data from this trial in the first half of 2012 and expect to complete all studies by the end of 2012, with a potential NDA submission in 2013 if the results from these studies are positive.

ARX-02—Sufentanil NanoTab BTP Management System

ARX-02 is a potential new treatment option for cancer patients who suffer from breakthrough pain. ARX-02 is designed to avoid many of the limitations of currently available cancer breakthrough pain medications by combining the rapid onset and appropriate offset of sufentanil with abuse-deterrent packaging. The ARX-02 system consists of a magazine containing 30 single dose applicators. Each single dose applicator includes a sufentanil NanoTab that a patient can self-administer under their tongue for rapid transmucosal absorption.

We have completed a Phase 2 study of the analgesic efficacy of the sufentanil NanoTab in adult cancer patients who are opioid tolerant and suffering from breakthrough pain events and have completed an End of Phase 2 meeting with the FDA. Our Phase 2 study for ARX-02 demonstrated analgesic efficacy versus placebo and a low adverse event profile. The FDA stated that the demonstration of efficacy versus placebo in a single Phase 3 study with a total safety database of 300 to 500 patients exposed to the active drug, with at least 100 patients treated for a minimum of three months, may support an indication for the treatment of breakthrough pain in cancer patients with underlying chronic pain.

Based on the availability of additional financial resources subsequent to this offering, we plan to conduct one Phase 3 efficacy study for ARX-02 and two open-label studies to demonstrate long term safety.

ARX-03—Sufentanil/Triazolam NanoTab

ARX-03 is a single, fixed-dose sublingual product candidate designed to provide non-invasive sedation, anxiety reduction and pain relief for patients prior to a painful procedure in a physician's office. ARX-03 is designed to eliminate the need for specialized personnel and requires only minimal monitoring equipment. We have completed a successful Phase 2 clinical trial of ARX-03 demonstrating rapid onset of mild sedation and reduction in anxiety in 15 to 30 minutes. We have preliminary guidance as to a clinical development path for this product as a result of completion of an End of Phase 2 meeting with the FDA.

Further development of ARX-03 will depend on the identification of a partner to support this effort.

Our Strategy

Our strategy is to develop and commercialize a portfolio of sufentanil NanoTab-based products in specialty markets. We have designed and are developing product candidates which have clearly defined clinical development programs, target large commercial market opportunities, and require modest commercial organizations in the United States. We selectively utilize third party contractors in order to maximize the capital efficiency of our development and commercialization efforts. We plan to enter into partnerships to market our product candidates outside the United States.

We plan to advance ARX-01 into Phase 3 trials, to submit an NDA and, if approved, to commercialize ARX-01 ourselves in the United States. Based on the availability of additional financial resources, we plan
to advance ARX-02 into Phase 3 trials, submit an NDA and, if approved, commercialize ARX-02 ourselves or with a partner in the United States. Further development of ARX-03 will depend on the identification of a partner to support this effort.

Risks Associated with Our Business

Our business is subject to numerous risks, as more fully described in the section entitled "Risk Factors" immediately following this prospectus summary, beginning on page 12. You should read these risks before you invest in our common stock. We may be unable, for many reasons, including those that are beyond our control, to implement our business strategy. In particular, our risks include:

- We have incurred significant losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future.
- We have never generated any revenue and may never be profitable.
- We depend substantially on the success of our product candidate ARX-01, which is still under clinical development and may not receive regulatory approval or be successfully commercialized.

- We depend substantially on the successful completion of Phase 3 clinical trials for our product candidates. The positive clinical results obtained for our product candidates in Phase 2 clinical studies may not be repeated in Phase 3.
- Delays in clinical trials are common and have many causes, and any delay could result in increased costs to us and jeopardize or delay our ability to obtain regulatory approval and commence product sales.
- Our product candidates may cause adverse effects or have other properties that could delay or prevent their regulatory approval or limit the scope of any approved label or market acceptance.
- Our designs for the device components of our product candidates for Phase 3 clinical trials may not be fully functional or commercially viable.
- The commercial success of ARX-01 and our other product candidates will depend upon the acceptance of these products by the medical community, including physicians, patients and health care payors.
- We have numerous pending patent applications, but no issued patents in the United States, and the degree of future protection for our proprietary rights is uncertain.

Corporate Information

We were originally incorporated as SuRx Pharmaceuticals, Inc. in Delaware on July 13, 2005. We subsequently changed our name to AcelRx Pharmaceuticals, Inc. on August 13, 2006. Our principal executive offices are located at 575 Chesapeake Drive, Redwood City, California 94063, and our telephone number is (650) 216-3500. Our website address is www.acelrx.com. The information contained in or that can be accessed through our website is not part of this prospectus.

THE OFFERING

Common stock offered	shares
Over-allotment option	We have granted the underwriters an option for a period of 30 days to purchase up to additional shares of common stock.
Common stock outstanding after the offering	shares
Use of proceeds	We intend to use the net proceeds from this offering of approximately $ million (assuming an initial public offering price of $ per share, which is the mid-point of the price range set forth on the cover page of this prospectus) to fund Phase 3 development of ARX-01, and for working capital and other general corporate purposes. See "Use of Proceeds" on page 38.
Proposed NASDAQ Global Market symbol	ACRX
Risk factors	You should read the "Risk Factors" section of, and all of the other information set forth in, this prospectus for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.

The number of shares of common stock outstanding immediately after this offering is based on shares of common stock outstanding as of September 30, 2010. This number excludes:

- 7,571,440 shares of common stock issuable upon the exercise of stock options outstanding as of September 30, 2010 under our 2006 Stock Plan having a weighted average exercise price at September 30, 2010 of $0.47 per share (or $0.69 per share assuming that the December 2010 stock option modification described under "Management's Discussion and Analysis of Financial Condition and Results of Operations —Critical Accounting Policies and Estimates—Stock-Based Compensation" had occurred as of September 30, 2010);
- 670,518 shares of common stock reserved for future issuance under our 2006 Stock Plan as of September 30, 2010, which share reserve will become available for issuance under our 2011 Equity Incentive Plan upon the execution and delivery of the underwriting agreement for this offering;
- 926,717 shares of common stock issuable upon the exercise of warrants outstanding as of September 30, 2010 having a weighted average exercise price of $0.99 per share, which warrants are expected to remain outstanding upon completion of this offering;
- 7,500,000 shares of common stock (which will include the shares then reserved for issuance under our 2006 Stock Plan at the time of the execution and delivery of the underwriting agreement for this offering) reserved for future issuance under our 2011 Equity Incentive Plan, which will become effective immediately upon the execution and delivery of the underwriting agreement for this offering; and
- 1,000,000 shares of common stock reserved for future issuance under our 2011 Employee Stock Purchase Plan, which will become effective immediately upon the execution and delivery of the underwriting agreement for this offering.

Unless otherwise indicated, all information in this prospectus assumes or gives effect to:

- a -for- reverse stock split of our common stock and preferred stock to be effective prior to the closing of this offering;

- the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 34,217,503 shares of common stock upon completion of this offering;
- the exercise, on a net issuance basis, of warrants outstanding as of September 30, 2010 that we issued in connection with a bridge loan financing in September 2010, or the 2010 warrants, which will be exercisable for shares of our Series C convertible preferred stock immediately prior to this offering, and the concomitant conversion of the shares of Series C convertible preferred stock acquired upon exercise into shares of common stock upon completion of this offering, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus;
- the automatic conversion of our remaining warrants to purchase convertible preferred stock, which warrants are expected to remain outstanding upon completion of this offering, into warrants to purchase an aggregate of 926,717 shares of common stock upon completion of this offering;
- the automatic conversion of the principal and accrued interest outstanding under our $8.0 million in aggregate principal amount of convertible promissory notes into shares of common stock immediately prior to the closing of this offering at a conversion price equal to 80% of the initial public offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and assuming the conversion occurs on , 2011;
- the filing of our amended and restated certificate of incorporation, which will occur immediately prior to the completion of this offering; and
- no exercise of the underwriters' over-allotment option.

Because the number of shares that will be issued upon exercise of the 2010 warrants and conversion of the 2010 notes depends upon the actual initial public offering price per share in this offering and, in the case of the 2010 notes, the closing date of this offering, the actual number of shares issuable upon such exercise and conversion will likely differ from the respective number of shares set forth above.

A $1.00 increase in the assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, would decrease the number of shares of our common stock issued on conversion of the 2010 notes (and therefore the number of shares to be outstanding after this offering) by shares, assuming that the closing date of this offering (and therefore the conversion date of the 2010 notes) is , 2011. A $1.00 decrease in the assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, would increase the number of shares of our common stock issued on conversion of the 2010 notes (and therefore the number of shares to be outstanding after this offering) by shares, assuming that the closing date of this offering (and therefore the conversion date of the 2010 notes) is , 2011. To the extent the closing date of this offering occurs after , 2011, the 2010 notes will continue to accrue interest at a rate of 4.0% per annum and additional shares of our common stock will be issued upon conversion of this additional accrued interest. Likewise, if the closing date occurs prior to , 2011, fewer shares will be issued on conversion of the 2010 notes.

A $1.00 increase in the assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, would increase the number of shares of our common stock issued upon the net exercise of the 2010 warrants (and therefore the number of shares to be outstanding after this offering) by shares. A $1.00 decrease in the assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, would decrease the number of shares of our common stock issued upon the net exercise of the 2010 warrants (and therefore the number of shares to be outstanding after this offering) by shares.

SUMMARY FINANCIAL DATA

The following table summarizes our financial data. We have derived the following summary statement of operations data for the years ended December 31, 2007, 2008 and 2009 from our audited financial statements included elsewhere in this prospectus. The summary statement of operations data for the nine months ended September 30, 2009 and 2010 and the balance sheet data as of September 30, 2010 have been derived from our unaudited interim financial statements included elsewhere in this prospectus. The unaudited interim financial results have been prepared on the same basis as the audited financial statements and reflect all adjustments necessary to fairly reflect our financial position as of September 30, 2010 and results of operations for the nine months ended September 30, 2009 and 2010. Our historical results are not necessarily indicative of the results that may be expected in the future. The following summary financial data should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included elsewhere in this prospectus.

	Year Ended December 31,			Nine Months Ended September 30,	
	2007	2008	2009	2009	2010
				(Unaudited)	
	(in thousands, except share and per share data)				
Statement of Operations Data:					
Operating Expenses:					
Research and development	$ 8,209	$ 18,325	$ 15,502	$ 13,180	$ 6,309
General and administrative	2,082	2,365	3,529	2,510	3,033
Total operating expenses	10,291	20,690	19,031	15,690	9,342
Loss from operations	(10,291)	(20,690)	(19,031)	(15,690)	(9,342)
Interest income	687	484	33	37	2
Interest expense	(25)	(404)	(1,242)	(965)	(656)
Other income (expense), net	(1)	(52)	121	196	(825)
Loss before provision for income taxes	(9,630)	(20,662)	(20,119)	(16,422)	(10,821)
Provision for income taxes	—	—	—	—	—
Net loss	$ (9,630)	$ (20,662)	$ (20,119)	$ (16,422)	$ (10,821)
Net loss per share of common stock, basic and diluted	$ (6.61)	$ (10.92)	$ (8.73)	$ (7.27)	$ (4.16)
Shares used in computing net loss per share of common stock, basic and diluted	1,456,183	1,891,677	2,304,116	2,258,310	2,603,113
Pro forma net loss per share of common stock, basic and diluted (unaudited)[1]			$ (0.55)		$ (0.27)
Shares used in computing pro forma net loss per share of common stock, basic and diluted (unaudited)[1]			36,521,619		36,820,616

[1] See Note 11 of the audited financial statements included elsewhere in this prospectus for a discussion regarding the calculations for the net loss per share and the pro forma net loss per share and the shares used in these calculations.

	As of September 30, 2010		
	Actual	Pro Forma (Unaudited) (in thousands)	Pro Forma as Adjusted
Balance Sheet Data:			
Cash, cash equivalents and short-term investments	$8,082	$ 8,082	
Working capital (deficit)	(1,894)	2,709	
Total assets	9,786	9,786	
Total debt, including convertible notes	10,479	6,382	
Convertible preferred stock warrant liability	2,219	—	
Convertible preferred stock	55,941	—	
Total stockholders' equity (deficit)	(60,986)	2,253	

The pro forma column in the balance sheet data above gives effect to the following transactions and adjustments as if they had occurred as of September 30, 2010:

(1) the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 34,217,503 shares of common stock upon completion of this offering;

(2) the exercise, on a net issuance basis, of warrants outstanding as of September 30, 2010 that we issued in connection with a bridge loan financing in September 2010, or the 2010 warrants, which will be exercisable for shares of our Series C convertible preferred stock immediately prior to this offering, and the concomitant conversion of the shares of Series C convertible preferred stock acquired upon exercise into shares of common stock upon completion of this offering, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus;

(3) the automatic conversion of our remaining warrants to purchase convertible preferred stock, which warrants are expected to remain outstanding upon the completion of this offering, into warrants to purchase an aggregate of 926,717 shares of common stock upon completion of this offering;

(4) the reclassification of the liability associated with the warrants to purchase convertible preferred stock to additional paid-in capital; and

(5) the automatic conversion of the principal and accrued interest outstanding under our $8.0 million in aggregate principal amount of convertible promissory notes, or the 2010 notes, into shares of common stock immediately prior to the closing of this offering at a conversion price equal to 80% of the initial public offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and assuming the conversion occurs on , 2011, and the reclassification of the convertible note liability to common stock and additional paid-in capital in connection with the conversion.

The pro forma as adjusted column in the balance sheet data above gives further effect to the sale of shares of common stock in this offering at an assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, as if the sale of the shares in this offering had occurred as of September 30, 2010.

Because the number of shares of common stock that will be issued upon exercise of the 2010 warrants and conversion of the 2010 notes depends upon the actual initial public offering price per share in this

offering and, in the case of the 2010 notes, the closing date of this offering, the actual number of shares issuable upon such exercise and conversion will likely differ from the respective number of shares set forth above. See "Prospectus Summary – The Offering."

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, would increase (decrease) each of cash, cash equivalents and short-term investments, working capital, total assets and total stockholders' equity (deficit) by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase (decrease) of 1.0 million shares in the number of shares of common stock offered by us would increase (decrease) each of cash, cash equivalents and short-term investments, working capital, total assets and total stockholders' equity (deficit) by approximately $ million, assuming that the assumed initial public offering price, as set forth on the cover page of this prospectus, remains the same. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual public offering price and other terms of this offering.

RISK FACTORS

Before you decide to invest in our common stock, you should consider carefully the risks described below, together with the other information contained in this prospectus. We believe the risks described below are the risks that are material to us as of the date of this prospectus. If any of the following risks comes to fruition, our business, financial condition, results of operations and future growth prospects would likely be materially and adversely affected. In these circumstances, the market price of our common stock could decline, and you may lose all or part of your investment.

Risks Related to Our Financial Condition and Need for Additional Capital

We have incurred significant losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future.

We are a development stage company with limited operating history. To date, we have focused primarily on developing our lead product candidate, the Sufentanil NanoTab PCA System, or ARX-01. We have two additional product candidates, the Sufentanil NanoTab BTP Management System, or ARX-02, and the Sufentanil/Triazolam NanoTab, or ARX-03. We have incurred significant net losses in each year since our inception in July 2005, including net losses of approximately $9.6 million, $20.7 million, $20.1 million and $10.8 million for fiscal years 2007, 2008, 2009 and for the nine months ended September 30, 2010, respectively. As of September 30, 2010, we had an accumulated deficit of $65.0 million.

We have devoted most of our financial resources to research and development, including our non-clinical development activities and clinical trials. To date, we have financed our operations exclusively through the sale of equity securities and debt. The size of our future net losses will depend, in part, on the rate of future expenditures and our ability to generate revenues. To date, none of our product candidates have been commercialized, and if our product candidates are not successfully developed or commercialized, or if revenues are insufficient following marketing approval, we will not achieve profitability and our business may fail. Even if we successfully obtain regulatory approval to market our product candidates in the United States, our revenues are also dependent upon the size of the markets outside of the United States, as well as our ability to obtain market approval and achieve commercial success.

We expect to continue to incur substantial and increased expenses as we expand our research and development activities and advance our clinical programs. We also expect an increase in our expenses associated with preparing for the potential commercialization of ARX-01 and creating additional infrastructure to support operations as a public company. As a result of the foregoing, we expect to continue to incur significant and increasing losses and negative cash flows for the foreseeable future.

We have never generated any revenue and may never be profitable.

Our ability to generate revenue and achieve profitability depends on our ability, alone or with collaborators, to successfully complete the development, obtain the necessary regulatory approvals and commercialize our product candidates. We do not anticipate generating revenues from sales of our product candidates for the foreseeable future, if ever. Our ability to generate future revenues from product sales depends heavily on our success in:

- completing the clinical development of ARX-01, initially for the treatment of post-operative pain in the hospital setting;
- obtaining regulatory approval for ARX-01;
- launching and commercializing ARX-01, including building a hospital-directed sales force and collaborating with third parties; and
- completing the clinical development, obtaining regulatory approval, launching and commercializing ARX-02 and ARX-03, which will require additional funding.

Because of the numerous risks and uncertainties associated with pharmaceutical product development, we are unable to predict the timing or amount of increased expenses, when, or if, we will be able to achieve or maintain profitability. In addition, our expenses could increase beyond expectations if we are required by the FDA to perform studies in addition to those that we currently anticipate.

Even if one or more of our product candidates is approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved product candidate. Even if we are able to generate revenues from the sale of our products, we may not become profitable and may need to obtain additional funding to continue operations.

We have a limited operating history which may make it difficult to predict our future performance or evaluate our business and prospects.

We were incorporated in 2005. Since inception, our operations have been primarily limited to organizing and staffing our company, developing our technology and undertaking preclinical studies and clinical trials for our product candidates. We have not yet obtained regulatory approval for any of our product candidates. Consequently, any predictions you make about our future success or viability or evaluation of our business and prospects may not be accurate.

If we fail to obtain additional financing, we would be forced to delay, reduce or eliminate our product development programs.

Developing pharmaceutical products, including conducting preclinical studies and clinical trials, is expensive. We expect our research and development expenses to substantially increase in connection with our ongoing activities, particularly as we advance our clinical programs. As of September 30, 2010, we had negative working capital of approximately $1.9 million, and our audit report in our 2009 financial statements contains an explanatory paragraph stating that our recurring losses from operations and cash used in operating activities raise substantial doubt about our ability to continue as a going concern. If we are unable to successfully complete this offering, we will need to seek alternative financing or operational plans to continue as a going concern. Even if the offering is successful, we will need to raise additional funds to support our operations, and such funding may not be available to us on acceptable terms, or at all.

We estimate that the net proceeds from this offering will be approximately $ million, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and offering expenses payable by us. We expect that the net proceeds from this offering and our existing cash and cash equivalents, together with interest, will be sufficient to fund our current operations at least through the end of 2012. However, changing circumstances beyond our control may cause us to consume capital more rapidly than we currently anticipate. For example, our clinical trials may encounter technical, enrollment or other difficulties that could increase our development costs more than we expected. We may need to raise additional funds or otherwise obtain partnering if we choose to initiate clinical trials for our product candidates other than ARX-01. In any event, we will require additional capital to obtain regulatory approval for, and to commercialize, our product candidates. Raising funds in the current economic environment, when the capital markets have been affected by the global recession, may present additional challenges.

Securing additional financing may divert our management from our day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates. In addition, we cannot guarantee that future financing will be available in sufficient amounts or on terms acceptable to us, if at all. If we are unable to raise additional capital when required or on acceptable terms, we may be required to:

- significantly delay, scale back or discontinue the development or commercialization of our product candidates;

- seek corporate partners for ARX-01 at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available; or
- relinquish or license on unfavorable terms, our rights to technologies or product candidates that we otherwise would seek to develop or commercialize ourselves.

If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we will be prevented from pursuing development and commercialization efforts, which will have a material adverse effect on our business, operating results and prospects.

We might be unable to service our current debt due to a lack of cash flow and might be subject to default.

Pursuant to the loan agreement with Pinnacle Ventures L.L.C., or Pinnacle, we granted to Pinnacle a first priority security interest in substantially all of our assets, with the exception of our intellectual property, where the security interest is limited to proceeds of intellectual property. As of September 30, 2010, we had $6.4 million of outstanding debt under the Pinnacle loan agreement. Under the terms of this agreement, we are required to make monthly payments of approximately $442,000 on the first day of each month through November 1, 2011, the maturity date of the loan, with an additional final interest payment of $600,000 due on November 1, 2011. The loan carries an 8.5% annual interest rate. If we do not make the required payments when due, either at maturity, or at applicable installment payment dates, if we breach the agreement or become insolvent, Pinnacle could elect to declare all amounts outstanding, together with accrued and unpaid interest and penalty, to be immediately due and payable. Even if we were able to prepay the full amount in cash, any such repayment could leave us with little or no working capital for our business. If we are unable to repay those amounts, Pinnacle will have a first claim on our assets pledged under the loan agreement. If Pinnacle should attempt to foreclose on the collateral, it is unlikely that there would be any assets remaining after repayment in full of such secured indebtedness. Any default under the loan agreement and resulting foreclosure would have a material adverse effect on our financial condition and our ability to continue our operations.

We may sell additional equity or debt securities to fund our operations, which may result in dilution to our stockholders and impose restrictions on our business.

In order to raise additional funds to support our operations, we may sell additional equity or debt securities, which would result in dilution to all of our stockholders or impose restrictive covenants that adversely impact our business. The sale of additional equity or convertible debt securities would result in the issuance of additional shares of our capital stock and dilution to all of our stockholders. The incurrence of indebtedness would result in increased fixed payment obligations and could also result in certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we are unable to expand our operations or otherwise capitalize on our business opportunities, our business, financial condition and results of operations could be materially adversely affected and we may not be able to meet our debt service obligations.

Risks Related to Clinical Development and Regulatory Approval

We depend substantially on the success of our product candidate, ARX-01, which is still under clinical development, and may not obtain regulatory approval or be successfully commercialized.

We have not marketed, distributed or sold any products. The success of our business depends primarily upon our ability to develop and commercialize ARX-01, which has completed Phase 2 clinical trials for the treatment of post-operative pain. We plan to initiate Phase 3 clinical trials for ARX-01 in the second half of 2011. We intend to use these trials as a basis to submit an NDA for ARX-01. There is no guarantee that our Phase 3 clinical trials will be completed, or if completed, will be successful.

Any delay in obtaining, or inability to obtain, regulatory approval would prevent us from commercializing ARX-01, generating revenues and achieving profitability. If any of these events occur, we may be forced to abandon our development efforts for ARX-01, which would have a material adverse effect on our business and could potentially cause us to cease operations.

We depend substantially on the successful completion of Phase 3 clinical trials for our product candidates. The positive clinical results obtained for our product candidates in Phase 2 clinical studies may not be repeated in Phase 3.

We have completed Phase 2 clinical studies and participated in an End of Phase 2 meeting for each of our three product candidates. However, we have never conducted a Phase 3 clinical trial. Our product candidates are subject to the risks of failure inherent in pharmaceutical and medical device development. Before obtaining regulatory approval for the commercial sale of any product candidate, we must successfully complete Phase 3 clinical trials. Negative or inconclusive results of a Phase 3 clinical study could cause the FDA to require that we repeat it or conduct additional clinical studies. Furthermore, while we have obtained positive safety and efficacy results for our sufentanil-based product candidates during our prior clinical trials, we cannot be certain that these results will be duplicated when our product candidates are tested in a larger number of patients in our Phase 3 clinical trials.

Delays in clinical trials are common and have many causes, and any delay could result in increased costs to us and jeopardize or delay our ability to obtain regulatory approval and commence product sales.

We may experience delays in clinical trials of our product candidates. We plan to initiate our first Phase 3 clinical trial of ARX-01 in the second half of 2011. Our planned clinical trials may not begin on time, have an effective design, enroll a sufficient number of patients, or be completed on schedule, if at all. Our clinical trials can be delayed for a variety of reasons, including:

- inability to raise funding necessary to initiate or continue a trial;
- delays in pharmacokinetic studies required prior to Phase 3 initiation;
- delays in obtaining regulatory approval to commence a trial;
- delays in reaching agreement with the FDA on final trial design;
- imposition of a clinical hold following an inspection of our clinical trial operations or trial sites by the FDA or other regulatory authorities;
- delays in reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and clinical trial sites;
- delays in obtaining required institutional review board approval at each site;
- delays in recruiting suitable patients to participate in a trial;
- delays in the testing, validation, manufacturing and delivery of the device components of our product candidates;
- delays in having patients complete participation in a trial or return for post-treatment follow-up;
- clinical sites dropping out of a trial to the detriment of enrollment;
- time required to add new clinical sites; or
- delays by our contract manufacturers to produce and deliver sufficient supply of clinical trial materials.

If initiation or completion of the Phase 3 trials are delayed for our product candidates for any of the above reasons, our development costs may increase, our approval process could be delayed and our

ability to commercialize and commence sales of our product candidates could be materially harmed, which could have a material adverse effect on our business.

Our product candidates may cause adverse effects or have other properties that could delay or prevent their regulatory approval or limit the scope of any approved label or market acceptance.

Adverse events, or AEs, caused by our product candidates could cause us, other reviewing entities, clinical study sites or regulatory authorities to interrupt, delay or halt clinical studies and could result in the denial of regulatory approval. Phase 2 clinical studies conducted by us with our product candidates have generated some AEs, but no serious adverse events, or SAEs. For example, in ARX-01 clinical studies completed to date, 11% of the patients experienced vomiting and 8% experienced itching for 10 mcg and 15 mcg treated groups, as compared to the placebo treated subjects, of which 6% experienced vomiting and none experienced itching. If SAEs are observed in any of our clinical studies, our ability to obtain regulatory approval for our product candidates may be adversely impacted.

Further, if our products cause serious or unexpected side effects after receiving market approval, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw their approval of the product or impose restrictions on its distribution in a form of a modified Risk Evaluation and Mitigation Strategy, or REMS;
- regulatory authorities may require the addition of labeling statements, such as warnings or contraindications;
- we may be required to change the way the product is administered or conduct additional clinical studies;
- we could be sued and held liable for harm caused to patients; or
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the affected product candidate and could substantially increase the costs of commercializing our product candidates.

Additional time may be required to obtain regulatory approval for our ARX-01 product candidate because it is a drug/device combination.

ARX-01 is a drug/device combination. We have filed an IND for ARX-01. Based on our discussions with the FDA, we believe that ARX-01 will be reviewed as a combination product, with both drug and device components submitted in the IND, and both components will eventually be part of an NDA. There are very few examples of the FDA approval process for drug/device combination products such as ARX-01. As a result, we may experience delays in regulatory approval for ARX-01 due to uncertainties in the approval process, in particular as it relates to device approval under an NDA.

After the completion of our clinical trials, we cannot predict whether or when we will obtain regulatory approval to commercialize ARX-01 and we cannot, therefore, predict the timing of any future revenue from ARX-01.

We cannot commercialize ARX-01 until the appropriate regulatory authorities, such as the FDA, have reviewed and approved the product candidate. The regulatory agencies may not complete their review processes in a timely manner, or we may not be able to obtain regulatory approval for ARX-01. Additional delays may result if ARX-01 is taken before an FDA Advisory Committee which may recommend restrictions on approval or recommend non-approval. In addition, we may experience delays or rejections based upon additional government regulation from future legislation or administrative action, or changes in regulatory agency policy during the period of product development, clinical studies and the review process.

Even if we obtain regulatory approval for ARX-01 and our other product candidates, we will still face extensive regulatory requirements and our products may face future development and regulatory difficulties.

Even if we obtain regulatory approval in the United States, the FDA may still impose significant restrictions on the indicated uses or marketing of our product candidates, or impose ongoing requirements for potentially costly post-approval studies or post-market surveillance. For example, the labeling ultimately approved for ARX-01 and our other product candidates will likely include restrictions on use due to the opiate nature of sufentanil. ARX-01 and our other product candidates will also be subject to ongoing FDA requirements governing the labeling, packaging, storage, distribution, safety surveillance, advertising, promotion, record-keeping and reporting of safety and other post-market information. The holder of an approved NDA is obligated to monitor and report AEs and any failure of a product to meet the specifications in the NDA. The holder of an approved NDA must also submit new or supplemental applications and obtain FDA approval for certain changes to the approved product, product labeling or manufacturing process. Advertising and promotional materials must comply with FDA rules and are subject to FDA review, in addition to other potentially applicable federal and state laws.

In addition, manufacturers of drug products and their facilities are subject to payment of user fees and continual review and periodic inspections by the FDA and other regulatory authorities for compliance with current good manufacturing practices, or cGMP, and adherence to commitments made in the NDA. If we, or a regulatory agency discovers previously unknown problems with a product, such as AEs of unanticipated severity or frequency, or problems with the facility where the product is manufactured, a regulatory agency may impose restrictions relative to that product or the manufacturing facility, including requiring recall or withdrawal of the product from the market or suspension of manufacturing.

If we fail to comply with applicable regulatory requirements following approval of our product candidate, a regulatory agency may:

- issue a warning letter asserting that we are in violation of the law;
- seek an injunction or impose civil or criminal penalties or monetary fines;
- suspend or withdraw regulatory approval;
- suspend any ongoing clinical trials;
- refuse to approve a pending NDA or supplements to an NDA submitted by us;
- seize product; or
- refuse to allow us to enter into supply contracts, including government contracts.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may inhibit our ability to commercialize our products and generate revenues.

Even if we obtain FDA approval for ARX-01 in the United States, we may never obtain approval for or commercialize our products outside of the United States, which would limit our ability to realize their full market potential.

In order to market any products outside of the United States, we must establish and comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy. Clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not mean that regulatory approval will be obtained in any other country. Approval processes vary among countries and can involve additional product testing and validation and additional administrative review periods. Seeking foreign regulatory approval could result

in difficulties and costs for us and require additional non-clinical studies or clinical trials which could be costly and time consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of our products in those countries. We do not have any product candidates approved for sale in any jurisdiction, including international markets, and we do not have experience in obtaining regulatory approval in international markets. If we fail to comply with regulatory requirements in international markets or to obtain and maintain required approvals, or if regulatory approval in international markets are delayed, our target market will be reduced and our ability to realize the full market potential of our products will be harmed.

ARX-01 and our other product candidates will require Risk Evaluation and Mitigation Strategies.

The FDA Amendments Act of 2007 implemented safety-related changes to product labeling and require the adoption of REMS. Our product candidates will require REMS. The REMS may include requirements for special labeling or medication guides for patients, special communication plans to health care professionals and restrictions on distribution and use. While we have received information from the FDA regarding certain aspects of the required REMS for ARX-01, we cannot predict the specific REMS to be required as part of the FDA's approval of ARX-01. Depending on the extent of the REMS requirements, our costs to commercialize ARX-01 may increase significantly. ARX-02 and ARX-03, if approved, will also require REMS programs that may increase our costs to commercialize these product candidates. Furthermore, risks of sufentanil that are not adequately addressed through proposed REMS for our product candidates may also prevent or delay their approval for commercialization.

Risks Related to Our Reliance on Third Parties

We rely on third party manufacturers to produce our preclinical and clinical drug supplies, and we intend to rely on third parties to produce commercial supplies of any approved product candidates.

Reliance on third party manufacturers entails risks to which we would not be subject if we manufactured the pharmaceutical, device and drug cartridge aspects of our product candidates ourselves, including:

- the inability to meet our product specifications and quality requirements consistently;
- a delay or inability to procure or expand sufficient manufacturing capacity;
- manufacturing and product quality issues related to scale-up of manufacturing;
- costs and validation of new equipment and facilities required for scale-up;
- a failure to comply with cGMP and similar foreign standards;
- the inability to negotiate manufacturing agreements with third parties under commercially reasonable terms;
- termination or nonrenewal of manufacturing agreements with third parties in a manner or at a time that is costly or damaging to us;
- the reliance on a limited number of sources, and in some cases, single sources for product components, such that if we are unable to secure a sufficient supply of these product components, we will be unable to manufacture and sell our product candidates in a timely fashion, in sufficient quantities or under acceptable terms;
- the lack of qualified backup suppliers for those components that are currently purchased from a sole or single source supplier;
- operations of our third party manufacturers or suppliers could be disrupted by conditions unrelated to our business or operations, including the bankruptcy of the manufacturer or supplier;

- carrier disruptions or increased costs that are beyond our control; and
- the failure to deliver our products under specified storage conditions and in a timely manner.

Any of these events could lead to clinical study delays, failure to obtain regulatory approval or impact our ability to successfully commercialize our products. Some of these events could be the basis for FDA action, including injunction, recall, seizure, or total or partial suspension of production.

We rely on limited sources of supply for the drug component of our product candidates and any disruption in the chain of supply may cause delay in developing and commercializing our product candidates.

Currently we use two established suppliers of sufentanil citrate for our NanoTabs, Covidien plc and Johnson Matthey plc. For each product candidate, only one of the two suppliers will be qualified as a vendor with the FDA. If supply from the approved vendor is interrupted, there could be a significant disruption in commercial supply. The alternative vendor would need to be qualified through an NDA supplement which could result in further delay. The FDA or other regulatory agencies outside of the United States may also require additional studies if a new sufentanil supplier is relied upon for commercial production. In addition, the Drug Enforcement Administration, or the DEA, may reduce, delay or refuse our quota for sufentanil, which would disrupt our supply of sufentanil citrate and cause delay in the development and commercialization of our product candidates.

Currently, we use one supplier of triazolam for our ARX-03 NanoTabs. Switching triazolam suppliers may involve substantial cost and is a likely to result in a delay in our desired clinical and commercial timelines.

These factors could cause the delay of clinical trials, regulatory submissions, required approvals or commercialization of our product candidates, cause us to incur higher costs and prevent us from commercializing them successfully. Furthermore, if our suppliers fail to deliver the required commercial quantities of active pharmaceutical ingredient on a timely basis and at commercially reasonable prices, and we are unable to secure one or more replacement suppliers capable of production at a substantially equivalent cost, our clinical trials may be delayed or we could lose potential revenue.

Manufacture of sufentanil NanoTabs requires specialized equipment and expertise.

Ethanol, which is used in the manufacturing process, is flammable, which necessitates the use of specialized equipment and facilities for manufacture of sufentanil NanoTabs. There are a limited number of facilities that can accommodate our manufacturing process and we need to use dedicated equipment throughout development and commercial manufacturing to avoid the possibility of cross-contamination. If our equipment breaks down or needs to be repaired or replaced, it may cause significant disruption in clinical or commercial supply, which could result in delay in the process of obtaining approval for or sale of our products. Furthermore, we are using one facility to manufacture our sufentanil NanoTabs and have not identified a back up facility to date. Any problems with our existing facility or equipment may delay or impair our ability to complete our clinical trials or commercialize our product candidates and increase our cost.

Manufacturing issues may arise that could increase product and regulatory approval costs or delay commercialization.

As we scale up manufacturing of our product candidates and conduct required stability testing, product, packaging, equipment and process-related issues may require refinement or resolution in order to proceed with our planned clinical trials and obtain regulatory approval for commercial marketing. In the past we have identified impurities in the drug substance or excipients that comprise the sufentanil or sufentanil/triazolam NanoTab products. In the future we may identify significant impurities, which could result in increased scrutiny by the regulatory agencies, delays in clinical program and regulatory approval, increases in our operating expenses, or failure to obtain or maintain approval for our products.

Our designs for the device components of our product candidates for Phase 3 clinical trials may not be fully functional or commercially viable.

The ARX-01 device we plan to use in Phase 3 clinical trials and commercially, or Phase 3 device, has more features than the device used in Phase 2, including additional software and functionality. Although we have conducted multiple human factor and usability studies, the design of the ARX-01 Phase 3 device is still under development. We plan to complete an additional user testing study prior to release of the device for Phase 3 clinical trials. However, we cannot predict if the Phase 3 device will be fully functional or acceptable for commercial use. If we need to modify the Phase 3 device after the completion of the Phase 3 studies, we may incur higher costs and experience delay in regulatory approval and commercialization of ARX-01. Furthermore, if the changes to the device are substantial, we may need to conduct further clinical studies in order to have the commercial device approved by the FDA.

The dispensing components of ARX-02 and ARX-03 are still under development. We cannot be certain that the dispensing components of ARX-02 and ARX-03 will be fully functional or acceptable for commercial use or that we will be able to effectively scale up the manufacturing process. Failure to do so may delay or prevent regulatory approval or commercialization of ARX-02 and ARX-03.

We have no experience manufacturing the ARX-01 Phase 3 device on a clinical or commercial scale and do not own or operate a manufacturing facility.

We have relied on contract manufacturers, component fabricators and secondary service providers to produce ARX-01 devices for Phase 2 clinical trials. We currently outsource manufacturing and packaging of the controller, dispenser and cartridge components of the ARX-01 device to third parties and intend to continue to do so. We may encounter unanticipated problems in the scale-up and automation process that will result in delays in the manufacturing of the ARX-01 cartridge, dispenser or controller.

We do not currently have any agreements with third party manufacturers for the manufacture of the Phase 3 device. We may not be able to enter into agreements for commercial supply of ARX-01 with third party manufacturers, or may be unable to do so on acceptable terms.

We may not be able to establish additional sources of supply for device manufacture. Such suppliers are subject to FDA regulations requiring that materials be produced under cGMPs, or Quality System Regulations, or QSR, and subject to ongoing inspections by regulatory agencies. Failure by any of our suppliers to comply with applicable regulations may result in delays and interruptions to our product candidate supply while we seek to secure another supplier that meets all regulatory requirements.

Reliance on third party manufacturers entails risks to which we would not be subject if we manufactured the product candidates ourselves, including the possible breach of the manufacturing agreements by the third parties because of factors beyond our control; and the possibility of termination or nonrenewal of the agreements by the third parties because of our breach of the manufacturing agreement or based on their own business priorities.

We rely on third parties to conduct, supervise and monitor our clinical studies, and if those third parties perform in an unsatisfactory manner, it may harm our business.

We rely on clinical research organizations, or CROs, and clinical trial sites to ensure the proper and timely conduct of our clinical trials. While we have agreements governing their activities, we have limited influence over their actual performance. We have relied and plan to continue to rely upon CROs to monitor and manage data for our ongoing clinical programs for ARX-01 and our other product candidates, as well as the execution of nonclinical studies. We control only certain aspects of our CROs' activities. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards and our reliance on the CROs does not relieve us of our regulatory responsibilities.

Since our drug products are controlled substances, all of our contract manufacturing organizations, or CMOs, and CROs must follow proper DEA rules and procedures or comparable rules and procedures in other countries. Failure to properly follow these rules and procedures could results in DEA action, up to and including losing their license to work with controlled substances. This would result in a major delay in our clinical studies and/or NDA submission.

We and our CROs are required to comply with the FDA's current good clinical practices, or cGCPs, which are regulations and guidelines enforced by the FDA for all of our product candidates in clinical development. The FDA enforces these cGCPs through periodic inspections of trial sponsors, principal investigators and clinical trial sites. If we or our CROs fail to comply with applicable cGCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA may require us to perform additional clinical trials before approving our marketing applications. Upon inspection, the FDA may determine that our Phase 3 clinical trials do not comply with cGCPs. In addition, our Phase 3 clinical trials will require a sufficiently large number of test subjects to evaluate the safety and effectiveness of ARX-01. Accordingly, if our CROs fail to comply with these regulations or fail to recruit a sufficient number of patients, we may be required to repeat the Phase 3 clinical trials, which would delay the regulatory approval process.

Our CROs are not our employees, and we cannot control whether or not they devote sufficient time and resources to our ongoing clinical and nonclinical programs. These CROs may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical studies, or other drug development activities which could harm our competitive position. We face the risk of potential unauthorized disclosure or misappropriation of our intellectual property by CROs, which may allow our potential competitors to access our proprietary technology. If our CROs do not successfully carry out their contractual duties or obligations, fail to meet expected deadlines, or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements, or for any other reasons, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain regulatory approval for, or successfully commercialize ARX-01, or our other product candidates. As a result, our financial results and the commercial prospects for ARX-01 and any future product candidates that we develop would be harmed, our costs could increase, and our ability to generate revenues could be delayed.

Risks Related to Commercialization of Our Product Candidates

The commercial success of ARX-01 and our other product candidates will depend upon the acceptance of these products by the medical community, including physicians, patients and health care payors.

The degree of market acceptance of any of our product candidates will depend on a number of factors, including:

- demonstration of clinical safety and efficacy compared to other products;
- the relative convenience, ease of administration and acceptance by physicians, patients and health care payors;
- the prevalence and severity of any AEs;
- overcoming the perception of sufentanil as a potentially unsafe drug due to its high potency;
- limitations or warnings contained in the FDA-approved label for ARX-01;
- availability of alternative treatments;
- pricing and cost-effectiveness;
- the effectiveness of our or any future collaborators' sales and marketing strategies;

- our ability to obtain hospital formulary approval;
- our ability to obtain and maintain sufficient third party coverage or reimbursement; and
- the willingness of patients to pay out-of-pocket in the absence of third party coverage.

If ARX-01 is approved, but does not achieve an adequate level of acceptance by physicians, patients and health care payors, we may not generate sufficient revenue from ARX-01 and we may not become or remain profitable.

If we are unable to establish sales and marketing capabilities or enter into agreements with third parties to market and sell our product candidates, we may be unable to generate any revenue.

We currently do not have an organization for the sales, marketing and distribution of pharmaceutical products and the cost of establishing and maintaining such an organization may exceed the cost- effectiveness of doing so. In order to market any products that may be approved, we must build our sales, marketing, managerial and other non-technical capabilities or make arrangements with third parties to perform these services. We intend to enter into strategic partnerships with third parties to commercialize our product candidates outside of the United States. We will also consider the option to enter into strategic partnerships for our product candidates in the United States.

To date, we have not entered into any strategic partnerships for any of our product candidates. We face significant competition in seeking appropriate strategic partners, and these strategic partnerships can be intricate and time consuming to negotiate and document. We may not be able to negotiate strategic partnerships on acceptable terms, or at all. We are unable to predict when, if ever, we will enter into any strategic partnerships because of the numerous risks and uncertainties associated with establishing strategic partnerships. Our strategy for ARX-01 is to develop a hospital-directed sales force and/or collaborate with third parties to promote the product to healthcare professionals and third party payors in the United States. Our future collaboration partners, if any, may not dedicate sufficient resources to the commercialization of our product candidates or may otherwise fail in their commercialization due to factors beyond our control. If we are unable to establish effective collaborations to enable the sale of our product candidates to healthcare professionals and in geographical regions, including the United States, that will not be covered by our own marketing and sales force, or if our potential future collaboration partners do not successfully commercialize our product candidates, our ability to generate revenues from product sales will be adversely affected.

If we are unable to negotiate a strategic partnership or obtain additional financial resources for ARX-02 or ARX-03, we may be forced to curtail the development of ARX-02 or ARX-03, delay potential commercialization, reduce the scope of our sales or marketing activities or undertake development or commercialization activities at our own expense. In addition, without a partnership, we will bear all the risk related to the development of ARX-02 or ARX-03. If we elect to increase our expenditures to fund development or commercialization activities ourselves, we will need to obtain additional capital, which may not be available to us on acceptable terms, or at all. If we do not have sufficient funds, we will not be able to bring ARX-02 or ARX-03 to market or generate product revenue.

If we are unable to establish adequate sales, marketing and distribution capabilities, whether independently or with third parties, we may not be able to generate sufficient product revenue and may not become profitable. We will be competing with many companies that currently have extensive and well-funded marketing and sales operations. Without an internal team or the support of a third party to perform marketing and sales functions, we may be unable to compete successfully against these more established companies.

If we obtain approval to commercialize our products outside of the United States, a variety of risks associated with international operations could materially adversely affect our business.

If our product candidates are approved for commercialization, we intend to enter into agreements with third parties to market ARX-01 outside the United States. We expect that we will be subject to additional risks related to entering into international business relationships, including:

- different regulatory requirements for drug approvals in foreign countries;
- reduced protection for intellectual property rights;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenues, and other obligations incident to doing business in another country;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geopolitical actions, including war and terrorism, or natural disasters including earthquakes, typhoons, floods and fires.

If we are unable to compete effectively, our product candidates may not reach their commercial potential.

The market for our product candidates is characterized by intense competition and rapid technological advances. If our product candidates obtain FDA approval, they will compete with a number of existing and future pharmaceuticals and drug delivery devices developed, manufactured and marketed by others. We will compete against fully integrated pharmaceutical companies and smaller companies that are collaborating with larger pharmaceutical companies, academic institutions, government agencies and other public and private research organizations.

The primary competition for ARX-01 is the IV PCA pump, which is widely used in the post-operative setting. Leading manufacturers of IV PCA pumps include Hospira Inc., CareFusion Corporation, Baxter International Inc., Curlin Medical, Inc. and Smiths Medical. The most common opioids used to treat post-operative pain are morphine, hydromorphone and fentanyl, all of which are available as generics. Also available on the market is the Avancen Medication on Demand, or MOD, Oral PCA Device developed by Avancen MOD Corporation.

Additional potential competitors for ARX-01 include products in development, including the fentanyl iontophoretic transdermal system, IONSYS, originally developed by ALZA Corporation and Ortho-McNeil Pharmaceutical, Inc., both Johnson & Johnson subsidiaries, and currently under development by Incline Therapeutics, Inc.; and Rylomine, an intranasal morphine product developed by Javelin Pharmaceuticals, Inc.

Our potential competitors for ARX-02 include products approved in the United States for cancer breakthrough pain, including: ACTIQ and FENTORA, currently manufactured by Cephalon Inc.; and

Onsolis, currently manufactured by BioDelivery Sciences International, Inc.; as well as products approved in Europe, including: Abstral, currently manufactured by ProStrakan Group plc and Instanyl, currently manufactured by Nycomed International Management GmbH. The active ingredient in all approved products for cancer breakthrough pain is fentanyl. Additional potential competitors for ARX-02 include products in late stage development for cancer breakthrough pain, such as PecFent, currently manufactured by Archimedes Pharma Limited; Fentanyl TAIFUN, currently manufactured by Akela Pharma, Inc. and SL Spray, currently manufactured by Insys Therapeutics, Inc.

It is possible that any of these competitors could develop or improve technologies or products that would render our product candidates obsolete or non-competitive, which could adversely affect our revenue potential. Key competitive factors affecting the commercial success of our product candidates are likely to be efficacy, safety profile, reliability, convenience of dosing, price and reimbursement.

Many of our potential competitors have substantially greater financial, technical and human resources than we do and significantly greater experience in the discovery and development of drug candidates, obtaining FDA and other regulatory approval of products and the commercialization of those products. Accordingly, our competitors may be more successful than we are in obtaining FDA approval for drugs and achieving widespread market acceptance. Our competitors' drugs or drug delivery systems may be more effective, have fewer adverse effects, be less expensive to develop and manufacture, or be more effectively marketed and sold than any product candidate we may commercialize. This may render our product candidates obsolete or non-competitive before we can recover our loses. We anticipate that we will face intense and increasing competition as new drugs enter the market and additional technologies become available. These entities may also establish collaborative or licensing relationships with our competitors, which may adversely affect our competitive position. Finally, the development of different methods for the treatment of post-operative pain or breakthrough pain could render ARX-01 and ARX-02, respectively, non-competitive or obsolete. These and other risks may materially adversely affect our ability to attain or sustain profitable operations.

Hospital formulary approval and reimbursement may not be available for ARX-01 and our other product candidates, which could make it difficult for us to sell our products profitably.

Obtaining formulary approval can be an expensive and time consuming process. We cannot be certain if and when we will obtain formulary approval to allow us to sell our products into our target markets. Failure to obtain timely formulary approval will limit our commercial success.

Furthermore, market acceptance and sales of ARX-01, or any future product candidates that we develop, will depend on reimbursement policies and may be affected by future healthcare reform measures. Government authorities and third party payors, such as private health insurers, hospitals and health maintenance organizations, decide which drugs they will pay for and establish reimbursement levels. We cannot be sure that reimbursement will be available for ARX-01, or any future product candidates. Also, reimbursement amounts may reduce the demand for, or the price of, our products. If reimbursement is not available, or is available only to limited levels, we may not be able to successfully commercialize ARX-01, or any future product candidates that we develop.

There have been a number of legislative and regulatory proposals to change the healthcare system in the United States and in some foreign jurisdictions that could affect our ability to sell our products profitably. These legislative and/or regulatory changes may negatively impact the reimbursement for our products, following approval. The availability of numerous generic pain medications may also substantially reduce the likelihood of reimbursement for ARX-01. The potential application of user fees to generic drug products may expedite the approval of additional pain medication generic drugs. We expect to experience pricing pressures in connection with the sale of ARX-01 and any other products that we develop, due to the trend toward managed healthcare, the increasing influence of health

maintenance organizations and additional legislative changes. If we fail to successfully secure and maintain reimbursement coverage for our products or are significantly delayed in doing so, we will have difficulty achieving market acceptance of our products and our business will be harmed.

Risks Related to Our Business Operations and Industry

Failure to comply with the Drug Enforcement Administration regulations, or the cost of compliance with these regulations, may adversely affect our business.

Our sufentanil-based products are subject to extensive regulation by the DEA, due to their status as scheduled drugs. Sufentanil is a Schedule II opioid, considered to present the highest risk of abuse. The manufacture, shipment, storage, sale and use of controlled substances are subject to a high degree of regulation, including security, record-keeping and reporting obligations enforced by the DEA. This high degree of regulation can result in significant costs in order to comply with the required regulations, which may have an adverse effect on the development and commercialization of our product candidates.

The DEA limits the availability and production of all Schedule II substances, including sufentanil, through a quota system. The DEA requires substantial evidence and documentation of expected legitimate medical and scientific needs before assigning quotas to manufacturers. At present, our contract manufacturers have applied for a quota on our behalf which allocates a sufficient quantity of sufentanil to meet our planned clinical and pre-clinical needs during 2011. In future years, we may need greater amounts of sufentanil to sustain and complete our Phase 3 development program for ARX-01, and we will need significantly greater amounts of sufentanil to implement our commercialization plans if the FDA approves ARX-01. Any delay or refusal by the DEA in establishing the procurement quota or a reduction in our quota for sufentanil or a failure to increase it over time as we anticipate could delay or stop the clinical development or commercial sale of ARX-01. This could have a material adverse effect on our business, results of operations, financial condition and prospects.

In addition, we purchase sufentanil in the United States and ship it to our third party manufacturer, Patheon Inc. in Toronto, Canada, where much of our clinical trial manufacturing has been completed to date. Shipping across international borders is a bureaucratic process that takes a minimum of three months and requires permits to export drug out of the United States and import NanoTabs into the United States. If we fail to comply with applicable regulatory requirements or fail to submit permit applications in a timely manner, the government could refuse to permit sufentanil to be exported from or imported into the United States. Our failure to comply with these requirements could result in increased costs, delayed shipments, the loss of DEA registration for one of our suppliers, significant restrictions on ARX-01, civil penalties or criminal prosecution and delays in conducting our clinical trials.

Drug Enforcement Administration regulations require that sufentanil be manufactured in the United States if sufentanil-based products are to be marketed in the United States, and there is no guarantee that we will secure a commercial supply agreement with a manufacturer based in the United States.

A substantial portion of our clinical trial manufacturing to date has been completed at Patheon Inc. in Toronto, Canada. However, we cannot rely on the Patheon facility located in Toronto for commercial manufacturing of sufentanil because the DEA requires that sufentanil be manufactured in the United States if our product candidates are marketed in the United States.

We have identified potential commercial manufacturers for ARX-01 in the United States. However, we do not yet have a commercial supply contract in place. If we cannot establish a supply contract on commercially reasonable terms, or if facility modifications, equipment manufacture or modification do not meet expected deadlines, we may not be able to successfully commercialize our product candidates.

Switching or adding commercial manufacturing capability can involve substantial cost and require extensive management time and focus, as well as additional regulatory filings. In addition, there is a

natural transition period when a new manufacturing facility commences work. As a result, delays may occur, which can materially impact our ability to meet our desired commercial timelines, thereby increasing our costs and reducing our ability to generate revenue.

The facilities of any of our future manufacturers of sufentanil-containing NanoTabs must be approved by the FDA after we submit our NDA and before approval of ARX-01 and our other product candidates. We do not control the manufacturing process of sufentanil NanoTabs and are completely dependent on these third party manufacturing partners for compliance with the FDA's requirements for manufacture. In addition, although our third party manufacturers are well established commercial manufacturers, we are dependent on their continued adherence to cGMP manufacturing and acceptable changes to their process. If our manufacturers cannot successfully produce material that conforms to our specifications and the FDA's strict regulatory requirements, they will not be able to secure FDA approval for their manufacturing facilities. If the FDA does not approve these facilities for the commercial manufacture of sufentanil NanoTabs, we will need to find alternative suppliers, which would result in significant delays in obtaining FDA approval for ARX-01. These challenges may have a material adverse impact on our business, results of operations, financial condition and prospects.

Business interruptions could delay us in the process of developing our products and could disrupt our sales.

Our headquarters is located in the San Francisco Bay Area, near known earthquake fault zones and is vulnerable to significant damage from earthquakes. We are also vulnerable to other types of natural disasters and other events that could disrupt our operations. We do not carry insurance for earthquakes or other natural disasters and we may not carry sufficient business interruption insurance to compensate us for losses that may occur. Any losses or damages we incur could have a material adverse effect on our business operations.

Our future success depends on our ability to retain key executives and to attract, retain and motivate qualified personnel.

We are highly dependent on principal members of our executive team listed under "Management" on page 96 of this prospectus, the loss of whose services may adversely impact the achievement of our objectives. While we have entered into offer letters with each of our executive officers, any of them could leave our employment at any time, as all of our employees are "at will" employees. Recruiting and retaining other qualified employees for our business, including scientific and technical personnel, will also be critical to our success. There is currently a shortage of skilled executives in our industry, which is likely to continue. As a result, competition for skilled personnel is intense and the turnover rate can be high. We may not be able to attract and retain personnel on acceptable terms given the competition among numerous pharmaceutical companies for individuals with similar skill sets. In addition, failure to succeed in clinical studies may make it more challenging to recruit and retain qualified personnel. The inability to recruit or loss of the services of any executive or key employee might impede the progress of our research, development and commercialization objectives.

We will need to expand our organization, and we may experience difficulties in managing this growth, which could disrupt our operations.

As of December 31, 2010, we had 19 full-time employees. As our company matures, we expect to expand our employee base to increase our managerial, scientific and engineering, operational, sales, marketing, financial and other resources and to hire more consultants and contractors. Future growth would impose significant additional responsibilities on our management, including the need to identify, recruit, maintain, motivate and integrate additional employees, consultants and contractors. Also, our management may need to divert a disproportionate amount of its attention away from our day-to-day activities and devote a substantial amount of time to managing these growth activities. We may not be

able to effectively manage the expansion of our operations, which may result in weaknesses in our infrastructure, give rise to operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Our expected growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of additional product candidates. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our ability to generate and/or grow revenues could be reduced, and we may not be able to implement our business strategy. Our future financial performance and our ability to commercialize ARX-01 and our other product candidates and compete effectively will depend, in part, on our ability to effectively manage any future growth.

We face potential product liability, and, if successful claims are brought against us, we may incur substantial liability.

The use of our product candidates in clinical studies and the sale of any products for which we obtain marketing approval exposes us to the risk of product liability claims. Product liability claims might be brought against us by consumers, health care providers, pharmaceutical companies or others selling or otherwise coming into contact with our products. If we cannot successfully defend against product liability claims, we could incur substantial liability and costs. In addition, regardless of merit or eventual outcome, product liability claims may result in:

- impairment of our business reputation;
- withdrawal of clinical study participants;
- costs due to related litigation;
- distraction of management's attention from our primary business;
- substantial monetary awards to patients or other claimants;
- the inability to commercialize our product candidates; and
- decreased demand for our product candidates, if approved for commercial sale.

Our current product liability insurance coverage may not be sufficient to reimburse us for any expenses or losses we may suffer. Moreover, insurance coverage is becoming increasingly expensive and in the future we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses due to liability. If and when we obtain marketing approval for our product candidates, we intend to expand our insurance coverage to include the sale of commercial products; however, we may be unable to obtain product liability insurance on commercially reasonable terms or in adequate amounts. On occasion, large judgments have been awarded in class action lawsuits based on drugs that had unanticipated adverse effects. A successful product liability claim or series of claims brought against us could cause our stock price to decline and, if judgments exceed our insurance coverage, could adversely affect our results of operations and business.

Risks Related to Our Intellectual Property

We have numerous pending patent applications in the United States, but no issued patents. Our only patent, which is issued in Europe, is currently in the opposition period. If our pending patent applications fail to issue or if our issued European patent is successfully opposed, our business will be adversely affected.

Our commercial success will depend in part on obtaining and maintaining patent protection for our product candidates, as well as successfully defending our current and future patents against third party challenges. To protect our proprietary technology, we rely on patents as well as other intellectual property protections, including trade secrets, nondisclosure agreements and confidentiality provisions.

In addition, there can be no assurance that our pending patent applications will result in issued patents. As of December 31, 2010, we are the owner of record and are pursuing 15 U.S. non-provisional patent applications, three pending international Patent Cooperation Treaty applications and 39 foreign national and ten European regional counterpart patent applications directed to our product candidates. The patent applications that we have filed and have not yet been granted may fail to result in issued patents in the United States or in foreign countries. Even if the patents do successfully issue, third parties may challenge the patents.

Our European patent, though granted, may be opposed by third parties during a nine-month opposition period that ends on April 21, 2011. If a third party opposes our European patent, we will need to spend considerable time and resources to defend our granted patent claims. European opposition proceedings may fail and, even if successful, may result in substantial costs and distract our management.

The patent positions of pharmaceutical companies, including us, can be highly uncertain and involve complex and evolving legal and factual questions. No consistent policy regarding the breadth of claims allowed in pharmaceutical patents has emerged to date in the United States. Legal developments may preclude or limit the scope of available patent protection.

Litigation involving patents, patent applications and other proprietary rights is expensive and time consuming. If we are involved in such litigation, it could cause delays in bringing our product candidates to market and interfere with our business.

Our commercial success depends in part on not infringing patents and proprietary rights of third parties. Although we are not currently aware of litigation or other proceedings or third party claims of intellectual property infringement related to our product candidates, the pharmaceutical industry is characterized by extensive litigation regarding patents and other intellectual property rights.

As we enter our markets, it is possible that competitors or other third parties will claim that our products and/or processes infringe their intellectual property rights. These third parties may have obtained and may in the future obtain patents covering products or processes that are similar to, or may include compositions or methods that encompass our technology, allowing them to claim that the use of our technologies infringes these patents.

In a patent infringement claim against us, we may assert, as a defense, that we do not infringe the relevant patent claims, that the patent is invalid or both. The strength of our defenses will depend on the patents asserted, the interpretation of these patents, and our ability to invalidate the asserted patents. However, we could be unsuccessful in advancing non-infringement and/or invalidity arguments in our defense. In the United States, issued patents enjoy a presumption of validity, and the party challenging the validity of a patent claim must present clear and convincing evidence of invalidity, which is a high burden of proof. Conversely, the patent owner need only prove infringement by a preponderance of the evidence, which is a lower burden of proof.

If we were found by a court to have infringed a valid patent claim, we could be prevented from using the patented technology or be required to pay the owner of the patent for the right to license the patented technology. If we decide to pursue a license to one or more of these patents, we may not be able to obtain a license on commercially reasonable terms, if at all, or the license we obtain may require us to pay substantial royalties or grant cross licenses to our patent rights. For example, if the relevant patent is owned by a competitor, that competitor may choose not to license patent rights to us. If we decide to develop alternative technology, we may not be able to do so in a timely or cost-effective manner, if at all.

In addition, because patent applications can take years to issue and are often afforded confidentiality for some period of time there may currently be pending applications, unknown to us, that later result in issued patents that could cover one or more of our products.

It is possible that we may in the future receive, particularly as a public company, communications from competitors and other companies alleging that we may be infringing their patents, trade secrets or other intellectual property rights, offering licenses to such intellectual property or threatening litigation. In addition to patent infringement claims, third parties may assert copyright, trademark or other proprietary rights against us. We may need to expend considerable resources to counter such claims and may not be able to successful in our defense. Our business may suffer if a finding of infringement is established.

It is difficult and costly to protect our proprietary rights, and we may not be able to ensure their protection.

The patent positions of pharmaceutical companies can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. No consistent policy regarding the breadth of claims allowed in pharmaceutical patents has emerged to date in the United States. The pharmaceutical patent situation outside the United States is even more uncertain. Changes in either the patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property. Accordingly, we cannot predict the breadth of claims that may be allowed or enforced in the patents that may be issued from the applications we currently or may in the future own or license from third parties. Further, if any patents license we obtain is deemed invalid and/or unenforceable, it could impact our ability to commercialize or partner our technology.

The degree of future protection for our proprietary rights is uncertain, and we cannot ensure that:

- we were the first to make the inventions covered by each of our pending patent applications;
- we were the first to file patent applications for these inventions;
- others will not independently develop similar or alternative technologies or duplicate any of our technologies;
- any patents issued to us or our collaborators will provide a basis for commercially viable products, will provide us with any competitive advantages or will not be challenged by third parties; or
- the patents of others will not have an adverse effect on our business.

If we do not adequately protect our proprietary rights, competitors may be able to use our technologies and erode or negate any competitive advantage we may have, which could materially harm our business, negatively affect our position in the marketplace, limit our ability to commercialize our product candidates and delay or render impossible our achievement of profitability.

We may be unable to adequately prevent disclosure of trade secrets and other proprietary information.

We rely on trade secrets to protect our proprietary know-how and technological advances, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. We rely in part on confidentiality agreements with our employees, consultants, outside scientific collaborators, sponsored researchers and other advisors to protect our trade secrets and other proprietary information. These agreements may not effectively prevent disclosure of confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. In addition, others may independently discover our trade secrets and proprietary information. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights. Failure to obtain or maintain trade secret protection could enable competitors to use our proprietary information to develop products that compete with our products or cause additional, material adverse effects upon our competitive business position.

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be due to be paid to the United States Patent and Trademark Office and various foreign governmental patent agencies in several stages over the lifetime of the patents and/or applications.

We have systems in place to remind us to pay these fees, and we employ an outside firm, McDonnell Boehnen Hulbert Berghoff LLP, or MBHB, in Chicago, Illinois, to pay these fees. The United States Patent and Trademark Office, or the USPTO, and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. We employ MBHB and other professionals to help us comply, and in many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. If this occurs, our competitors might be able to enter the market, which would have a material adverse effect on our business.

We may not be able to enforce our intellectual property rights throughout the world.

The laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the United States. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of some countries, particularly developing countries, do not favor the enforcement of patents and other intellectual property protection, especially those relating to life sciences. This could make it difficult for us to stop the infringement of our patents or the misappropriation of our other intellectual property rights. For example, many foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties. In addition, many countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit.

Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate. In addition, changes in the law and legal decisions by courts in the United States and foreign countries may affect our ability to obtain adequate protection for our technology and the enforcement of intellectual property.

We have not yet registered our trademarks in all of our potential markets, and failure to secure those registrations could adversely affect our business.

We have registered our ACELRX mark in Class 5, “Pharmaceutical preparations for treating pain; pharmaceutical preparations for treating anxiety,” and Class 10, “Drug delivery systems; medical device, namely, a mechanical and electronic device used to administer medications, perform timed medication delivery, and to provide secure access to and delivery of medications,” in the United States. Our ACELRX mark has also been registered in the European Community and in Canada, and is pending in India. We have filed a trademark application for our NANOTAB mark and our tagline, ACCELERATE, INNOVATE, ALLEVIATE in Class 5, in the United States. Although we are not currently aware of any oppositions to or cancellations of our registered trademarks or pending applications, it is possible that one or more of the applications could be subject to opposition or cancellation after the marks are registered. The registrations will be subject to use and maintenance requirements. It is also possible that we have not yet registered all of our trademarks in all of our potential markets, and that there are names or symbols other than “ACELRX” that may be protectable marks for which we have not sought registration, and failure to secure those registrations could adversely affect our business. Opposition or cancellation proceedings may be filed against our trademarks and our trademarks may not survive such proceedings.

Risks Related to this Offering and Ownership of Our Common Stock

The market price of our common stock may be highly volatile, and you may not be able to resell your shares at or above the initial public offering price.

Prior to this offering, there has not been a public market for our common stock. An active trading market for our common stock may not develop following this offering. You may not be able to sell your shares quickly or at the market price if trading in our common stock is not active. The initial public offering price for the shares will be determined by negotiations between us and representatives of the underwriters and may not be indicative of prices that will prevail in the trading market.

The trading price of our common stock is likely to be volatile. Our stock price could be subject to wide fluctuations in response to a variety of factors, including the following:

- adverse results or delays in clinical trials;
- inability to obtain additional funding;
- any delay in filing an NDA for any of our product candidates and any adverse development or perceived adverse development with respect to the FDA's review of that NDA;
- failure to successfully develop and commercialize our product candidates;
- changes in laws or regulations applicable to our products;
- inability to obtain adequate product supply for our product candidates, or the inability to do so at acceptable prices;
- adverse regulatory decisions;
- introduction of new products, services or technologies by our competitors;
- failure to meet or exceed financial projections we provide to the public;
- failure to meet or exceed the estimates and projections of the investment community;
- the perception of the pharmaceutical industry by the public, legislatures, regulators and the investment community;
- announcements of significant acquisitions, strategic partnerships, joint ventures or capital commitments by us or our competitors;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- additions or departures of key scientific or management personnel;
- significant lawsuits, including patent or stockholder litigation;
- changes in the market valuations of similar companies;
- sales of our common stock by us or our stockholders in the future; and
- trading volume of our common stock.

In addition, the stock market in general, and the NASDAQ Global Market in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

Our executive officers, directors, 5% stockholders and their affiliates beneficially own approximately 97% of our voting stock and, upon completion of this offering, that same group will beneficially own approximately % of our outstanding voting stock. Therefore, even after this offering these stockholders will have the ability to influence us through this ownership position. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders, acting together, may be able to control elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may believe are in your best interest as one of our stockholders.

We will incur significant increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. In addition, the Sarbanes-Oxley Act of 2002, as amended, or the Sarbanes-Oxley Act, as well as rules subsequently implemented by the Securities and Exchange Commission, or SEC, and the NASDAQ Global Market have imposed various requirements on public companies. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain our current levels of such coverage.

As a public company, we will be subject to the requirements of Section 404 of the Sarbanes-Oxley Act. If we are unable to comply with Section 404 in a timely manner, it may affect the reliability of our internal control over financial reporting. Assessing our staffing and training procedures to improve our internal control over financial reporting is an ongoing process. We are not currently required to comply with Section 404 of the Sarbanes-Oxley Act and are therefore not required to make an assessment of the effectiveness of our internal control over financial reporting. Further, our independent registered public accounting firm has not been engaged to express, nor have they expressed, an opinion on the effectiveness of our internal control over financial reporting.

We plan to continue to assess our internal controls and procedures and intend to take further action as necessary or appropriate to address any other matters we identify. For the year ending December 31, 2011, pursuant to Section 404 of the Sarbanes-Oxley Act, our management will be required to deliver a report that assesses the effectiveness of our internal control over financial reporting. In addition, our independent registered public accounting firm will also be required to deliver an attestation report on the operating effectiveness of our internal control over financial reporting beginning with the year ending December 31, 2012, unless we qualify for an exemption as a non-accelerated filer under the applicable SEC rules and regulations.

We have been and will continue to be involved in a substantial effort to implement appropriate processes, document the system of internal control over key processes, assess their design, remediate any deficiencies identified and test their operation. We cannot be certain at this time whether our measures to improve internal controls will be successful, that we will be able to successfully complete the procedures, certification and attestation requirements of Section 404 or that we or our independent registered public accounting firm will not identify material weaknesses in our internal control over financial reporting. If we fail to comply with the requirements of Section 404, it may affect the reliability of our internal control over financial reporting and negatively impact the quality of disclosure to our investors. If we or our independent registered public accounting firm identify and report a material weakness, it could adversely affect our stock price.

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

The assumed initial public offering price is substantially higher than the pro forma net tangible book value (deficit) per share of our common stock. Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the pro forma book value (deficit) per share of our tangible assets after subtracting our liabilities. As a result, investors purchasing common stock in this offering will incur immediate dilution of $ per share, based on an assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and our pro forma net tangible book value (deficit) as of September 30, 2010. Further, based on these assumptions, investors purchasing common stock in this offering will contribute approximately % of the total amount invested by stockholders since our inception, but will own only approximately % of the shares of common stock outstanding. For information on how the foregoing amounts were calculated, see "Dilution."

This dilution is due to the substantially lower price paid by our investors who purchased shares prior to this offering as compared to the price offered to the public in this offering, and the exercise of stock options granted to our employees. In addition, as of September 30, 2010, options to purchase 7,571,440 shares of our common stock at a weighted average exercise price at September 30, 2010 of $0.47 per share (or $0.69 per share assuming that the December 2010 stock option modification described under "Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Estimates—Stock-Based Compensation" had occurred as of September 30, 2010) and warrants exercisable for up to 926,717 shares of our common stock, that are expected to remain outstanding after completion of this offering at a weighted average exercise price of approximately $0.99 per share, were outstanding. The exercise of any of these options or warrants would result in additional dilution. As a result of the dilution to investors purchasing shares in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation.

Sales of a substantial number of shares of our common stock in the public market by our existing stockholders could cause our stock price to fall.

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. We are unable to predict the effect that sales may have on the prevailing market price of our common stock.

Substantially all of our existing stockholders are subject to lock-up agreements with the underwriters of this offering that restrict the stockholders' ability to transfer shares of our common stock for at least 180 days from the date of this prospectus. The lock-up agreements limit the number of shares of common stock that may be sold immediately following the public offering. Subject to certain limitations, approximately shares will become eligible for sale upon expiration of the lock-up period, as calculated and described in more detail in the section entitled "Shares Eligible for Future Sale". In addition, shares issued or issuable upon exercise of options and warrants vested as of the expiration of the lock-up period will be eligible for sale at that time. Sales of stock by these stockholders could have a material adverse effect on the trading price of our common stock.

Certain holders of our securities are entitled to rights with respect to the registration of their shares under the Securities Act of 1933, as amended, or the Securities Act, subject to the 180-day lock-up arrangement described above. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares held by our affiliates as defined in Rule 144 under the Securities Act. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that significant additional capital will be needed in the future to continue our planned operations. To the extent we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. We may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell common stock, convertible securities or other equity securities in more than one transaction, investors may be materially diluted by subsequent sales. These sales may also result in material dilution to our existing stockholders, and new investors could gain rights superior to our existing stockholders.

Pursuant to our 2011 Equity Incentive Plan, adopted by our board of directors in January 2011, or the 2011 Plan, our management is authorized to grant stock options and other equity-based awards to our employees, directors and consultants. The number of shares available for future grant under our 2011 Plan will automatically increase each year by 4% of all shares of our capital stock outstanding as of December 31 of the prior calendar year, subject to the ability of our board of directors to take action to reduce the size of the increase in any given year. Currently, we plan to register the increased number of shares available for issuance under our 2011 Plan each year. If our board of directors elects to increase the number of shares available for future grant by the maximum amount each year, our stockholders may experience additional dilution, which could cause our stock price to fall.

We are at risk of securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because pharmaceutical companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds, including for any of the purposes described in the section entitled "Use of Proceeds," and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. The failure by our management to apply these funds effectively could harm our business. Pending their use, we may invest the net proceeds from this offering in short-term, investment-grade, interest-bearing securities. These investments may not yield a favorable return to our stockholders.

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.

Under Section 382 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an "ownership change," generally defined as a greater than 50% change (by value) in its equity ownership over a three year period, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes (such as research tax credits) to offset its post-change income may be limited. We believe that, with our initial public offering, our most recent private placement and other transactions that have occurred over the past three years, we may have triggered an "ownership change" limitation. We may also experience ownership changes in the future as a result of subsequent shifts in our stock ownership. As a result, if we earn net taxable income, our ability to use our pre-change net operating loss carryforwards to offset United States federal taxable income may be subject to limitations, which could potentially result in increased future tax liability to us.

We do not intend to pay dividends on our common stock so any returns will be limited to the value of our stock.

We have never declared or paid any cash dividend on our common stock. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any return to stockholders will therefore be limited to the appreciation of their stock.

Provisions in our amended and restated certificate of incorporation and bylaws, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us or increase the cost of acquiring us, even if doing so would benefit our stockholders or remove our current management.

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders and may prevent attempts by our stockholders to replace or remove our current management. These provisions include:

- authorizing the issuance of "blank check" preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval;
- limiting the removal of directors by the stockholders;
- creating a staggered board of directors;
- prohibiting stockholder action by written consent, thereby requiring all stockholder actions to be taken at a meeting of our stockholders;
- eliminating the ability of stockholders to call a special meeting of stockholders; and
- establishing advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted upon at stockholder meetings.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management. In addition, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with an interested stockholder for a period of three years following the date on which the stockholder became an interested stockholder, unless such transactions are approved by our board of directors. This provision could have the effect of delaying or preventing a change of control, whether or not it is desired by or beneficial to our stockholders. Further, other provisions of Delaware law may also discourage, delay or prevent someone from acquiring us or merging with us.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Some of the statements under "Prospectus Summary," "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business" and elsewhere in this prospectus contain forward-looking statements. In some cases, you can identify forward-looking statements by the following words: "may," "will," "could," "would," "should," "expect," "intend," "plan," "anticipate," "believe," "estimate," "predict," "project," "potential," "continue," "ongoing" or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements involve risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Although we believe that we have a reasonable basis for each forward-looking statement contained in this prospectus, we caution you that these statements are based on a combination of facts and factors currently known by us and our projections of the future, about which we cannot be certain. Many important factors affect our ability to achieve our objectives, including:

- the success, cost and timing of our product development activities and clinical trials;
- our ability to obtain and maintain regulatory approval of our product candidates, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- our ability to obtain funding for our operations;
- our plans to research, develop and commercialize our product candidates;
- our ability to attract collaborators with development, regulatory and commercialization expertise;
- the size and growth potential of the markets for our product candidates, and our ability to serve those markets;
- our ability to successfully commercialize our product candidates;
- the rate and degree of market acceptance of our product candidates;
- our ability to develop sales and marketing capabilities, whether alone or with potential future collaborators;
- regulatory developments in the United States and foreign countries;
- the performance of our third party suppliers and manufacturers;
- the success of competing therapies that are or become available;
- the loss of key scientific or management personnel;
- our use of the proceeds from this offering;
- the accuracy of our estimates regarding expenses, future revenues, capital requirements and needs for additional financing; and
- our ability to obtain and maintain intellectual property protection for our product candidates.

In addition, you should refer to the "Risk Factors" section of this prospectus for a discussion of other important factors that may cause our actual results to differ materially from those expressed or implied by our forward-looking statements. As a result of these factors, we cannot assure you that the forward-looking statements in this prospectus will prove to be accurate. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties

in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

USE OF PROCEEDS

We estimate that our net proceeds from the sale of the common stock that we are offering will be approximately $ million, assuming an initial public offering price of $ per share, which is the mid-point of the price range set forth on the cover page of this prospectus, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters' over-allotment option to purchase additional shares in this offering is exercised in full, we estimate that our net proceeds will be approximately $ million, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the net proceeds to us from this offering by approximately $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same. We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1.0 million shares in the number of shares offered by us would increase (decrease) the net proceeds to us from this offering by approximately $ million, assuming that the assumed initial public offering price remains the same, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We do not expect that a change in the offering price or the number of shares by these amounts would have a material effect on our uses of the proceeds from this offering, although it may accelerate the time at which we will need to seek additional capital.

We currently expect to use the net proceeds from this offering as follows:

- approximately $ million of these net proceeds to fund our Phase 3 development of ARX-01; and
- the remainder to fund working capital needs and other general corporate purposes.

The costs and timing of drug development and marketing approval, particularly conducting clinical trials, are highly uncertain, are subject to substantial risks and can often change. Accordingly, we may change the allocation of use of these proceeds as a result of contingencies such as the progress and results of our clinical trials and other development activities, the establishment of collaborations, our manufacturing requirements and regulatory or competitive developments.

Pending their use, we plan to invest the net proceeds from this offering in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the United States government.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain all available funds and any future earnings to support our operations and finance the growth and development of our business. We do not intend to pay cash dividends on our common stock for the foreseeable future. Any future determination related to dividend policy will be made at the discretion of our board of directors and will depend on then-existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects and other factors our board of directors may deem relevant.

CAPITALIZATION

The following table sets forth our cash, cash equivalents and short-term investments and our capitalization as of September 30, 2010:

- on an actual basis;
- on a pro forma basis to give effect to the following transactions and adjustments as if they had occurred as of September 30, 2010:
  - (1) the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 34,217,503 shares of common stock upon completion of this offering;
  - (2) the exercise, on a net issuance basis, of warrants outstanding as of September 30, 2010 that we issued in connection with a bridge loan financing in September 2010, or the 2010 warrants, which will be exercisable for shares of our Series C convertible preferred stock immediately prior to this offering, and the concomitant conversion of the shares of Series C convertible preferred stock acquired upon exercise into shares of common stock upon completion of this offering, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus;
  - (3) the automatic conversion of our remaining warrants to purchase convertible preferred stock, which warrants are expected to remain outstanding upon the completion of this offering, into warrants to purchase an aggregate of 926,717 shares of common stock upon completion of this offering;
  - (4) the reclassification of the liability associated with the warrants to purchase convertible preferred stock to additional paid-in capital; and
  - (5) the automatic conversion of the principal and accrued interest outstanding under our $8.0 million in aggregate principal amount of convertible promissory notes, or the 2010 notes, into shares of common stock immediately prior to the closing of this offering at a conversion price equal to 80% of the initial public offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and assuming the conversion occurs on , 2011, and the reclassification of the convertible note liability to common stock and additional paid-in capital in connection with the conversion; and
- on a pro forma as adjusted basis to give further effect to the sale of shares of common stock in this offering at an assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, as if the sale of the shares in this offering had occurred as of September 30, 2010.

Because the number of shares of common stock that will be issued upon exercise of the 2010 warrants and conversion of the 2010 notes depends upon the actual initial public offering price per share in this offering and, in the case of the 2010 notes, the closing date of this offering, the actual number of shares issued upon such exercise and conversion will likely differ from the respective number of shares set forth above. See “Prospectus Summary – The Offering.”

You should read this table in conjunction with the sections titled “Selected Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and related notes included elsewhere in this prospectus. The pro forma as adjusted information discussed above is illustrative only and will adjust based on the actual initial public offering price and other terms of this offering determined at pricing.

	September 30, 2010		
	Actual	Pro Forma	Pro Forma as Adjusted
	(in thousands, except share and per share data) (Unaudited)		
Cash, cash equivalents and short-term investments	$ 8,082	$ 8,082	
Long-term debt, including current portion	6,382	6,382	6,382
Convertible notes	4,603	—	—
Call option liability	476	—	—
Convertible preferred stock warrant liability	2,219	—	—
Convertible preferred stock, $0.001 par value: 46,736,125 shares authorized, 28,607,248 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	55,941	—	—
Stockholders' equity (deficit):			
Common stock, $0.001 par value: 71,000,000 shares authorized, 2,697,420 shares issued and outstanding, actual; shares authorized, shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	3		
Additional paid-in capital	4,051		
Deficit accumulated during the development stage	(65,040)	(65,040)	
Total stockholders' equity (deficit)	(60,986)	2,253	
Total capitalization	$ 8,635	$	

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, would increase (decrease) each of cash, cash equivalents and short-term investments, additional paid-in capital, total stockholders' equity (deficit) and total capitalization by approximately $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. Each increase (decrease) of 1.0 million shares in the number of shares offered by us would increase (decrease) each of cash, cash equivalents and short-term investments, additional paid-in capital, total stockholders' equity (deficit) and total capitalization by approximately $ million, assuming that the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will adjust based on the actual initial public offering price and other terms of this offering determined at pricing.

The outstanding share information in the table above excludes:

- 7,571,440 shares of common stock issuable upon the exercise of stock options outstanding as of September 30, 2010 under our 2006 Stock Plan having a weighted average exercise price at September 30, 2010 of $0.47 per share (or $0.69 per share assuming that the December 2010 stock option modification described under "Management's Discussion and Analysis of Financial Condition and Results of Operations —Critical Accounting Policies and Estimates—Stock-Based Compensation" had occurred as of September 30, 2010);
- 670,518 shares of common stock reserved for future issuance under our 2006 Stock Plan as of September 30, 2010, which share reserve will become available for issuance under our

2011 Equity Incentive Plan upon the execution and delivery of the underwriting agreement for this offering;

- 926,717 shares of common stock issuable upon the exercise of warrants outstanding as of September 30, 2010 having a weighted average exercise price of $0.99 per share, which warrants are expected to remain outstanding upon completion of this offering;
- 7,500,000 shares of common stock (which will include the shares then reserved for issuance under our 2006 Stock Plan at the time of the execution and delivery of the underwriting agreement for this offering) reserved for future issuance under our 2011 Equity Incentive Plan, which will become effective immediately upon the execution and delivery of the underwriting agreement for this offering; and
- 1,000,000 shares of common stock reserved for future issuance under our 2011 Employee Stock Purchase Plan, which will become effective immediately upon the execution and delivery of the underwriting agreement for this offering.

DILUTION

If you invest in our common stock, you will experience immediate and substantial dilution to the extent of the difference between the initial public offering price of our common stock and the pro forma as adjusted net tangible book value (deficit) per share of our common stock immediately after the offering.

Our historical net tangible book value (deficit) per share is determined by dividing our total tangible assets, less total liabilities and convertible preferred stock, by the actual number of outstanding shares of our common stock. The historical net tangible book value (deficit) of our common stock as of September 30, 2010 was $(61.0) million, or $(22.61) per share. The pro forma net tangible book value (deficit) of our common stock as of September 30, 2010 was $ million, or $ per share. The pro forma net tangible book value (deficit) per share gives effect to:

(1) the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 34,217,503 shares of common stock upon completion of this offering;

(2) the exercise, on a net issuance basis, of warrants outstanding as of September 30, 2010 that we issued in connection with a bridge loan financing in September 2010, or the 2010 warrants, which will be exercisable for shares of our Series C convertible preferred stock immediately prior to this offering, and the concomitant conversion of the shares of Series C convertible preferred stock acquired upon exercise into shares of common stock upon completion of this offering, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus;

(3) the automatic conversion of our remaining warrants to purchase convertible preferred stock, which warrants are expected to remain outstanding upon the completion of this offering, into warrants to purchase an aggregate of 926,717 shares of common stock upon completion of this offering;

(4) the reclassification of the liability associated with the warrants to purchase convertible preferred stock to additional paid-in capital; and

(5) the automatic conversion of the principal and accrued interest outstanding under our $8.0 million in aggregate principal amount of convertible promissory notes, or the 2010 notes, into shares of common stock immediately prior to the closing of this offering at a conversion price equal to 80% of the initial public offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and assuming the conversion occurs on , 2011, and the reclassification of the convertible note liability to common stock and additional paid-in capital in connection with the conversion.

Because the number of shares of common stock that will be issued upon exercise of the 2010 warrants and conversion of the 2010 notes depends upon the actual initial public offering price per share in this offering and, in the case of the 2010 notes, the closing date of this offering, the actual number of shares issuable upon such exercise and conversion will likely differ from the respective number of shares set forth above. See “Prospectus Summary – The Offering.”

The pro forma as adjusted net tangible book value (deficit) of our common stock as of September 30, 2010 was $ million, or $ per share. The pro forma as adjusted net tangible book value (deficit) gives effect to (1) the sale of shares of common stock in this offering at an assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, and (2) the pro forma transactions and other adjustments described in the second preceding paragraph. The difference between the initial public offering price and the pro forma as adjusted net tangible book value (deficit) per share represents an immediate dilution of $ per share to new investors purchasing common stock in this offering.

The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of September 30, 2010	$(22.61)	
Pro forma increase in net tangible book value (deficit) per share attributable to the pro forma transactions and other adjustments described in the preceding second paragraph		
Pro forma net tangible book value (deficit) per share before this offering		
Pro forma increase in net tangible book value (deficit) per share attributable to investors participating in this offering		
Pro forma as adjusted net tangible book value (deficit) per share after this offering		
Dilution per share to new investors purchasing common stock in this offering		$

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, would increase (decrease) our pro forma as adjusted net tangible book value (deficit) by approximately $ million, or approximately $ per share, and the dilution per share to new investors purchasing common stock in this offering by approximately $ per share, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. An increase of 1.0 million shares in the number of shares offered by us would increase our pro forma as adjusted net tangible book value (deficit) by approximately $ million, or $ per share, and the dilution per share to new investors purchasing common stock in this offering would be $ per share, assuming that the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, a decrease of 1.0 million shares in the number of shares offered by us would decrease our pro forma as adjusted net tangible book value (deficit) by approximately $ million, or $ per share, and the dilution per share to new investors purchasing common stock in this offering would be $ per share, assuming that the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will adjust based on the actual initial public offering price and other terms of this offering determined at pricing.

If the underwriters' over-allotment option to purchase additional shares from us is exercised in full, and assuming the initial public offering price is $ per share, the mid-point of the price range set forth on the cover page of this prospectus, the pro forma as adjusted net tangible book value (deficit) per share after this offering would be $ per share, the increase in pro forma as adjusted net tangible book value (deficit) per share to existing stockholders would be $ per share and the dilution to new investors purchasing shares in this offering would be $ per share.

The table below summarizes as of September 30, 2010, on the pro forma as adjusted basis described above, the number of shares of our common stock we issued and sold, the total consideration we received and the average price per share (1) paid to us by existing stockholders; (2) to be paid by new investors purchasing our common stock in this offering at the assumed initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by

us; and (3) the average price per share paid by existing stockholders and by new investors who purchase shares of common stock in this offering.

	Shares Purchased		Total Consideration		Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders		%	$	%	$
New investors					
Totals		100.0%	$	100.0%	

The number of shares of common stock outstanding immediately after this offering is based on shares of common stock outstanding as of September 30, 2010, after giving effect to the pro forma transactions described in the second preceding paragraph. This number excludes:

- 7,571,440 shares of common stock issuable upon the exercise of stock options outstanding as of September 30, 2010 under our 2006 Stock Plan having a weighted average exercise price at September 30, 2010 of $0.47 per share (or $0.69 per share assuming that the December 2010 stock option modification described under "Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies and Estimates – Stock-Based Compensation" had occurred as of September 30, 2010);
- 670,518 shares of common stock reserved for future issuance under our 2006 Stock Plan as of September 30, 2010, which share reserve will become available for issuance under our 2011 Equity Incentive Plan upon the execution and delivery of the underwriting agreement for this offering;
- 926,717 shares of common stock issuable upon the exercise of warrants outstanding as of September 30, 2010 having a weighted average exercise price of $0.99 per share, which warrants are expected to remain outstanding upon completion of this offering;
- 7,500,000 shares of common stock (which will include the shares then reserved for issuance under our 2006 Stock Plan at the time of the execution and delivery of the underwriting agreement for this offering) reserved for future issuance under our 2011 Equity Incentive Plan, which will become effective immediately upon the execution and delivery of the underwriting agreement for this offering; and
- 1,000,000 shares of common stock reserved for future issuance under our 2011 Employee Stock Purchase Plan, which will become effective immediately upon the execution and delivery of the underwriting agreement for this offering.

If the underwriters' over-allotment option is exercised in full, the pro forma as adjusted number of shares held by the existing stockholders after this offering would be reduced to , or % of the pro forma as adjusted total number of shares of our common stock outstanding after this offering, and the number of shares held by new investors would increase to , or %, of the pro forma as adjusted total number of shares of our common stock outstanding after this offering.

Effective upon the closing of this offering, an aggregate of up to shares of our common stock will be reserved for future issuance under our equity benefit plans, and the number of reserved shares will also be subject to automatic annual increases in accordance with the terms of the plans. To the extent that new options are issued under our equity benefit plans or we issue additional shares of common stock in the future, there will be further dilution to investors purchasing common stock in this offering.

SELECTED FINANCIAL DATA

We derived the selected statements of operations data for the years ended December 31, 2007, 2008 and 2009 and the balance sheet data as of December 31, 2008 and 2009 from our audited financial statements included elsewhere in this prospectus. The summary statement of operations data for the nine months ended September 30, 2009 and 2010 and the balance sheet data as of September 30, 2010 have been derived from our unaudited financial statements included elsewhere in this prospectus. We derived the selected statements of operations data for the period from July 13, 2005 (inception) through December 31, 2005 and the year ended December 31, 2006 and the balance sheet data as of December 31, 2005, 2006 and 2007 from our audited financial statements which are not included in this prospectus. Our historical results are not necessarily indicative of the results that may be expected in the future. You should read the following selected financial data below in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included elsewhere in this prospectus. The selected financial data in this section is not intended to replace the financial statements and is qualified in its entirety by the financial statements and related notes included in this prospectus.

	Period from July 13, 2005 (Inception) Through December 31, 2005	Year Ended December 31,				Nine Months Ended September 30,	
		2006	2007	2008	2009	2009	2010
						(Unaudited)	
				(in thousands, except share and per share data)			
Statement of Operations Data:							
Operating Expenses:							
Research and development	$ 35	$ 3,533	$ 8,209	$ 18,325	$ 15,502	$ 13,180	$ 6,309
General and administrative	5	520	2,082	2,365	3,529	2,510	3,033
Total operating expenses	40	4,053	10,291	20,690	19,031	15,690	9,342
Loss from operations	(40)	(4,053)	(10,291)	(20,690)	(19,031)	(15,690)	(9,342)
Interest income	—	347	687	484	33	37	2
Interest expense	—	(62)	(25)	(404)	(1,242)	(965)	(656)
Other income (expense), net	—	—	(1)	(52)	121	196	(825)
Loss before provision for income taxes	(40)	(3,768)	(9,630)	(20,662)	(20,119)	(16,422)	(10,821)
Provision for income taxes	—	—	—	—	—	—	—
Net loss	(40)	$ (3,768)	$ (9,630)	$ (20,662)	$ (20,119)	$ (16,422)	$ (10,821)
Net loss per share of common stock, basic and diluted	$ 0.00	$ (9.23)	$ (6.61)	$ (10.92)	$ (8.73)	$ (7.27)	$ (4.16)
Shares used in computing net loss per share of common stock, basic and diluted	—	408,408	1,456,183	1,891,677	2,304,116	2,258,310	2,603,113
Pro forma net loss per share of common stock, basic and diluted (unaudited)[1]					$ (0.55)		$ (0.27)
Shares used in computing pro forma net loss per share of common stock, basic and diluted (unaudited)[1]					36,521,619		36,820,616

[1] See Note 11 of the audited financial statements included elsewhere in this prospectus for discussion regarding the calculations for the net loss per share and the pro forma net loss per share and the shares used in these calculations.

	As of December 31,					September 30,
	2005	2006	2007	2008	2009	2010 (Unaudited)
				(in thousands)		
Balance Sheet Data:						
Cash, cash equivalents and short-term investments	$—	$ 17,098	$ 7,699	$ 20,207	$ 12,546	$ 8,082
Working capital (deficit)	(40)	16,537	6,959	16,450	6,931	(1,894)
Total assets	—	18,193	10,038	22,679	14,491	9,786
Total debt, including convertible notes	—	—	525	12,334	9,734	10,497
Convertible preferred stock warrant liability	—	—	—	240	169	2,219
Convertible preferred stock	—	21,016	21,016	41,156	55,871	55,941
Total stockholders' deficit	(40)	(3,715)	(13,189)	(33,335)	(52,994)	(60,986)

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our financial statements and the related notes included elsewhere in this prospectus. This discussion contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results could differ materially from those discussed below. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those discussed in the section entitled "Risk Factors" included elsewhere in this prospectus.

Overview

We are a specialty pharmaceutical company focused on the development and commercialization of innovative therapies for the treatment of acute and breakthrough pain. We were founded to solve the problems associated with post-operative intravenous patient-controlled analgesia, or IV PCA. Although widely used, IV PCA has been shown to cause harm to patients following surgery because of the side effects of morphine, the invasive IV route of delivery and the inherent potential for programming and delivery errors associated with the complexity of infusion pumps. We are preparing to initiate Phase 3 clinical trials for our lead product candidate, the Sufentanil NanoTab PCA System, or ARX-01. The system is designed to address these problems by utilizing:

- sufentanil, a high therapeutic index opioid;
- NanoTabs, our proprietary, non-invasive sublingual dosage form; and
- our novel handheld PCA device that enables simple patient-controlled delivery of NanoTabs in the hospital setting and eliminates the risk of programming errors.

We have completed Phase 2 clinical development for two additional product candidates, the Sufentanil NanoTab BTP Management System, or ARX-02, for the treatment of cancer breakthrough pain, or BTP, and the Sufentanil/Triazolam NanoTab, or ARX-03, designed to provide mild sedation, anxiety reduction and pain relief for patients undergoing painful procedures in a physician's office.

We are a development stage company with a limited operating history. We have funded our operations to date primarily from the private placement of convertible preferred stock and proceeds received from our debt financings. From inception through September 30, 2010, we have received net proceeds of $55.9 million from the sale of convertible preferred stock and $20.6 million from proceeds of our debt financings. As of September 30, 2010, we had $14.4 million of debt outstanding, of which $6.4 million relates to our loan and security agreement and $8.0 million, which does not include the debt discount of $3.4 million, relates to our convertible note agreement.

Since our inception in July 2005, we have not generated any revenue from the sale of our products and do not anticipate generating any revenues for the foreseeable future. We have incurred losses and generated negative cash flows from operations since inception. Our net losses were $20.1 million and $10.8 million for the year ended December 31, 2009 and the nine months ended September 30, 2010. As of September 30, 2010, we had an accumulated deficit of $65.0 million. Substantially all of our operating losses resulted from costs incurred in connection with our development programs and from general and administrative costs associated with our operations. As of September 30, 2010, our principal sources of liquidity are our cash, cash equivalents and short-term investments, which totaled $8.1 million.

We expect to incur increasing expenses over the next several years, principally to develop ARX-01, as well as to further increase our spending to manufacture, sell and market our product candidates. Based on the availability of additional financial resources, subsequent to this offering, we plan to advance ARX-02 into Phase 3 trials, submit an NDA and commercialize it ourselves or with a partner in the United States. Further development of ARX-03 will depend on the identification of a partner to support this effort.

Furthermore, upon closing of this offering, we expect to incur additional costs associated with operating as a public company. As a result, we expect to continue to incur significant and increasing operating losses for the foreseeable future.

Financial Overview

Revenue

To date, we have not generated any revenue. We do not expect to receive any revenues from any product candidates that we develop until we obtain regulatory approval and commercialize our products or enter into collaborative agreements with third parties.

Research and Development Expenses

The majority of our operating expenses to date have been for research and development activities related to ARX-01, ARX-02 and ARX-03. Research and development expenses consist of:

- expenses incurred under agreements with contract research organizations, or CROs, and clinical trial sites;
- employee and consultant-related expenses, which include salaries, benefits and stock-based compensation;
- payments to third party pharmaceutical and engineering development contractors;
- payments to third party manufacturers; and
- depreciation and other allocated expenses, which include direct and allocated expenses for rent and maintenance of facilities and equipment, depreciation of leasehold improvements and equipment and laboratory and other supply costs.

Conducting research and development is central to our business model. Product candidates in late stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of late stage clinical trials. We plan to increase our research and development expenses for the foreseeable future as we seek to complete development of ARX-01 and subsequently advance the development of ARX-02 and ARX-03.

Prior to January 1, 2009, we did not track our internal research and development costs or our personnel and personnel-related costs on a project-by-project basis. Our development resources are shared among all of our programs. Since January 1, 2009, we have tracked external development expenses on a program-by-program basis. Compensation and benefits, facilities, depreciation, stock-based compensation, and development support services are not allocated specifically to projects and are considered research and development overhead. Below is a summary of our research and development expenses for the year ended December 31, 2009 and the nine months ended September 30, 2010:

	Year Ended December 31, 2009	Nine Months Ended September 30, 2010
	(in thousands)	
ARX-01	$ 5,343	$ 505
ARX-02	2,721	517
ARX-03	1,426	1,538
Overhead	6,012	3,749
Total Research & Development Expenses	$ 15,502	$ 6,309

Due to the inherently unpredictable nature of product development, we are unable to estimate the costs we will incur in the continued development of ARX-01, ARX-02 and ARX-03. Development timelines, the probability of success and development costs can differ materially from expectations. While we are currently focused on advancing ARX-01, and subsequently ARX-02 and ARX-03, our future research and development expenses will depend on the clinical success of each product candidate as well as ongoing assessments of the commercial potential of our product candidates. In addition, we cannot predict which product candidates may be subject to future collaborations, when these arrangements will be secured, if at all, and to what degree these arrangements would affect our development plans and capital requirements. We expect to incur increased research and development expenses as we commence our Phase 3 clinical program including the clinical trials necessary to obtain regulatory approval for ARX-01.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries, benefits and stock-based compensation for personnel in administration, finance and business development. Other significant expenses include legal expenses to pursue patent protection of our intellectual property, allocated facility costs and professional fees for general legal and consulting services. We expect general and administrative expenses to increase as we begin operating as a public company and continue to build our corporate infrastructure in support of continued development of our product candidates.

Interest Income

Interest income consists of interest earned on our cash, cash equivalents and short-term investments.

Interest Expense

Interest expense consists primarily of interest accrued or paid on our loan and security agreement and our convertible notes.

Other Income (Expense), net

Other income (expense), net consists primarily of the change in the fair value of our warrants to purchase convertible preferred stock. Our outstanding warrants to purchase convertible preferred stock are classified as liabilities and, as such, are remeasured to fair value at each balance sheet date with the corresponding gain or loss from the adjustment recorded as other income (expense), net. We will continue to record adjustments to the fair value of the warrants until they are exercised, converted to warrants to purchase common stock or expire, at which time the warrants will no longer be remeasured at each balance sheet date. Upon the closing of this offering, our outstanding warrants to purchase convertible preferred stock will automatically convert into warrants to purchase common stock.

Provision for Income Taxes

Since inception, we have incurred net losses and have not recorded any U.S. federal or state income tax provisions as these losses have been offset by valuation allowances.

Reduction in Work Force

On December 7, 2009, we announced a workforce reduction of approximately 44%, or 14 employees, a majority of whom were employed in product development and related support functions. This decision was made based on the challenging economic conditions and a decline in forecasted research and development activities then expected for the year ended December 31, 2010.

As a result of this workforce reduction, we recorded a charge of $0.1 million related to employee severance and other benefits which was included as operating expenses in the statement of operations for

the year ended December 31, 2009. As of December 31, 2009, we had paid $30,000 for these employee severance and other termination benefits and had accrued the remaining $89,000 on the balance sheet. During the nine months ended September 30, 2010, we paid the remaining amounts outstanding.

Critical Accounting Policies and Estimates

Our financial statements are prepared in accordance with generally accepted accounting principles in the United States which requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expenses and related disclosures. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. In many instances, we could have reasonably used different accounting estimates, and in other instances, changes in the accounting estimates are reasonably likely to occur from period-to-period. Accordingly, actual results could differ significantly from the estimates made by our management. To the extent that there are material differences between these estimates and actual results, our future financial statement presentation, financial condition, results of operations and cash flows will be affected. We believe that the accounting policies discussed below are critical to understanding our historical and future performance, as these policies relate to the more significant areas involving management's judgments and estimates.

Stock-Based Compensation

We recognize compensation costs related to stock options and shares of restricted stock granted to employees based on the estimated fair value of the awards on the date of grant, net of estimated forfeitures. We estimate the grant date fair value, and the resulting stock-based compensation expense, using the Black-Scholes option-pricing model. The grant date fair value of the stock-based awards is generally recognized on a straight-line basis over the requisite service period, which is generally the vesting period of the respective awards.

The fair value of the stock-based awards granted to our employees was estimated on the grant dates using the Black-Scholes option-pricing model with the following assumptions:

	Year Ended December 31,			Nine Months Ended September 30,	
	2007	2008	2009	2009	2010
				(Unaudited)	
Expected volatility	72%	74%	73%	73%	75%
Expected term (in years)	6.25	6.25	6.25	6.25	5.75 - 6.25
Risk-free interest rate	3.6% - 4.6%	3.5%	3.0%	3.0%	1.6% - 2.4%
Expected dividend yield	0%	0%	0%	0%	0%

The Black-Scholes model requires the use of highly subjective and complex assumptions which determine the fair value of share-based awards, including the option's expected term and the price volatility of the underlying stock. These assumptions include:

Expected Term. The expected term represents the period that our share-based awards are expected to be outstanding and was primarily determined using the simplified method in accordance with guidance provided by the SEC. For option grants considered to be "plain vanilla," the simplified method calculates the expected term as the average of the time-to-vesting and the contractual life of the awards. For awards that are not considered "plain vanilla," the expected term is based on the historical option exercise behavior of our employees and post-vesting cancellations.

Expected Volatility. The expected volatility is derived from historical volatilities of several unrelated public companies within our industry that are deemed to be comparable to our business because we have limited information on the volatility of our common stock since we have no trading history. When making the selections of our industry peer companies to be used in the volatility calculation, we considered the size, operational and economic similarities to our principle business operations.

Expected Dividend. The expected dividend was assumed to be zero as we have never paid dividends and have no current plans to do so.

Risk-Free Interest Rate. The risk-free interest rate is based on the U.S. Treasury yield in effect at the time of grant for zero coupon U.S. Treasury notes with maturities approximately equal to each award's expected term.

In addition to assumptions used in the Black-Scholes option-pricing model, we must also estimate a forfeiture rate to calculate the stock-based compensation for our awards. Our forfeiture rate is based on an analysis of our actual forfeitures. We will continue to evaluate the appropriateness of the forfeiture rate based on actual forfeiture experience, analysis of employee turnover and other factors. Quarterly changes in the estimated forfeiture rate can have a significant impact on our stock-based compensation expense as the cumulative effect of adjusting the rate is recognized in the period the forfeiture estimate is changed. If a revised forfeiture rate is higher than the previously estimated forfeiture rate, an adjustment is made that will result in a decrease to the stock-based compensation expense recognized in the financial statements. If a revised forfeiture rate is lower than the previously estimated forfeiture rate, an adjustment is made that will result in an increase to the stock-based compensation expense recognized in the financial statements.

We will continue to use judgment in evaluating the expected term, expected volatility and forfeiture rate related to our own stock-based compensation on a prospective basis. As we continue to accumulate additional data related to our common stock, we may have refinements to the estimates of our expected volatility, expected terms and forfeiture rates, which could materially impact our future stock-based compensation expense.

We are also required to estimate the fair value of the common stock underlying our stock-based awards when performing the fair value calculations with the Black-Scholes option-pricing model. The fair values of the common stock underlying our stock-based awards were estimated on each grant date by our board of directors, with input from management. Our board of directors is comprised of a majority of non-employee directors with significant experience in the pharmaceutical and biotechnology industries. We believe that our board of directors has the relevant experience and expertise to determine a fair value of our common stock on each respective grant date. Given the absence of a public trading market of our common stock, and in accordance with the American Institute of Certified Public Accountants Practice Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*, our board of directors exercised reasonable judgment and considered numerous objective and subjective factors to determine the best estimate of the fair value of our common stock including:

- contemporaneous and retrospective valuations performed by unrelated third party specialists;
- prices for our convertible preferred stock sold to outside investors in arm's-length transactions;
- rights, preferences and privileges of our convertible preferred stock relative to those of our common stock;
- actual operating and financial performance;
- hiring of key personnel and the experience of our management;
- status of research and development efforts, including the clinical results for ARX-01, ARX-02 and ARX-03;
- risks inherent in the development of our products and services;
- likelihood of achieving a liquidity event, such as an initial public offering or a sale of our company given prevailing market conditions and the nature and history of our business;

- market value of a comparable group of privately held pharmaceutical and biotechnology companies that are in a similar state of development to ours;
- illiquidity of stock-based awards involving securities in a private company;
- industry information such as market size and growth; and
- macroeconomic conditions.

In valuing our common stock, the board of directors determined the equity value of our business by taking a weighted combination of the value indications under two valuation approaches, an income approach and a market approach. The income approach estimates the present value of future estimated cash flows, based upon forecasted revenue and costs. These future cash flows are discounted to their present values using a discount rate derived from an analysis of the cost of capital of comparable publicly traded companies in our industry or similar lines of business as of each valuation date and is adjusted to reflect the risks inherent in our cash flows. The market approach estimates the fair value of a company by applying market multiples of comparable publicly traded companies in our industry or similar lines of business which are based on key metrics implied by the enterprise values or acquisition values of our comparable publicly traded companies.

The fair value of our business was then allocated to each of our classes of stock using either the Option Pricing Method or the Probability Weighted Expected Return Method.

The Option Pricing Method, or OPM, treats common stock and convertible preferred stock as call options on an enterprise value, with exercise prices based on the liquidation preference of the convertible preferred stock. Therefore, the common stock has value only if the funds available for distribution to the stockholders exceeds the value of the liquidation preference at the time of a liquidity event such as a merger, sale or initial public offering, assuming the enterprise has funds available to make a liquidation preference meaningful and collectible by the stockholders. The common stock is modeled to be a call option with a claim on the enterprise at an exercise price equal to the remaining value immediately after the convertible preferred stock is liquidated. The OPM uses the Black-Scholes option-pricing model to price the call option. The OPM is appropriate to use when the range of possible future outcomes is so difficult to predict that forecasts would be highly speculative.

The Probability Weighted Expected Return Method, or PWERM, involves a forward-looking analysis of the possible future outcomes of the enterprise. This method is particularly useful when discrete future outcomes can be predicted at a high confidence level with a probability distribution. Discrete future outcomes considered under the PWERM included non-IPO market based outcomes as well as IPO scenarios. In the non-IPO scenarios, a large portion of the equity value is allocated to the convertible preferred stock to incorporate higher aggregate liquidation preferences. In the IPO scenarios, the equity value is allocated pro rata among the shares of common stock and each series of convertible preferred stock, which causes the common stock to have a higher relative value per share than under the non-IPO scenario. The fair value of the enterprise determined using the IPO and non-IPO scenarios will be weighted according to the board of directors' estimate of the probability of each scenario.

Over time, as certainty developed regarding possible discrete events, including an IPO, the allocation methodology utilized to allocate our enterprise value to our common stock transitioned from the OPM, which was utilized through July 2009, to the PWERM, which has been utilized since July 2009.

Information regarding stock option grants to our employees since January 1, 2009 is summarized as follows:

Grant Date	Number of Options Granted	Exercise Price	Fair Value Per Share of Common Stock	Aggregate Grant Date Fair Value[1]
July 1, 2009	927,500	$1.38	$ 1.38	$ 449,000
June 15, 2010	332,500	0.30	0.64	166,000
June 15, 2010	4,933,940	0.64	0.64	2,465,000
November 4, 2010	500,000	1.33	1.33	450,000

[1] Aggregate grant date fair value was determined using the Black-Scholes option pricing model.

The intrinsic value of all outstanding options as September 30, 2010 was $ million based on the estimated fair value for our common stock of $ per share, the mid-point of the price range set forth on the cover page of this prospectus.

No single event caused the valuation of our common stock to increase or decrease through September 30, 2010. Instead, a combination of the factors described below in each period led to the changes in the fair value of the underlying common stock.

October 2008 to July 2009. After a period of significant volatility in the United States and global capital markets during the third and fourth quarters of 2008, capital market conditions began to stabilize and recover in early 2009. During this time period, we reported our first successful ARX-01 Phase 2 study results in November 2008, in the midst of significant financial market turmoil. We reported positive results for an additional efficacy study for ARX-01 in April 2009 and a device functionality study for ARX-01 in July 2009.

As of December 31, 2008, the board determined a fair value of our common stock to be $1.38 per share. The December 31, 2008 contemporaneous valuation determined the enterprise value using a market approach due to the uncertain nature of the financial projections underlying the income approach and the significant ongoing capital requirements for our business to reach profitability. In applying the OPM to the enterprise value during this period, the expected time to a liquidity event of 3.0 years was based on a reasonable time frame for us to achieve significant milestones in our business strategy and experience a liquidity event. The volatility of 62% was based on the median volatility over the expected time to a liquidity event for our comparable publicly traded companies. The risk-free interest rate of 1.0% was based on the yield on a three-year U.S. Treasury bond corresponding to the expected time to a liquidity event. Based on a lack of a public market for our common stock, a discount of 39% was based upon a protective put analysis using the same assumptions for the term, volatility and risk-free rate. For options granted during this period, our board of directors determined that the fair value of our common stock remained unchanged at $1.38 per share as the positive clinical data results were offset by the deterioration of the financial markets during the period.

December 2009 to June 2010. In late October 2009, we completed a successful ARX-01 End of Phase 2 meeting with the FDA. Between November 2009 and April 2010, the United States economy and capital markets continued to improve. We also reported our first positive Phase 2 data from our ARX-03 program in October 2009. In early 2010, we were successful in hiring a new Chief Executive Officer. During the second quarter of 2010, we received positive Phase 2 data on our ARX-02 program and completed an End of Phase 2 meeting with the FDA for our ARX-03 program. Despite our positive clinical results, the End of Phase 2 meetings with the FDA and the improved conditions of the public markets, there was a limited availability for private capital. In November 2009, we closed our Series C convertible preferred stock financing for approximately $0.99 per share raising a total of $14.7 million in proceeds, which was below the $4.00 per share we received in connection with our Series B convertible preferred stock financing in February 2008. During the first quarter of 2010, we continued to

focus on private sources of capital, but traditional venture capital investors continued to be highly risk averse and faced significant industry-wide challenges. During the second quarter of 2010, we became focused on establishing a financing strategy that would enable our product candidates to advance into Phase 3 development. Despite the challenges in the private financing, we began to have initial discussions with a small number of banks regarding our prospects for an IPO.

As of December 31, 2009, the board determined a fair value of our common stock to be $0.30 per share. As noted previously, the OPM is preferred when future outcomes are difficult to predict and the PWERM becomes useful when discrete future outcomes become more predictable. During the period between July 2, 2009 and December 30, 2009, when the board of directors did not make valuation determinations or grant any stock-based awards, the range of discrete events, specifically IPO scenarios, became fairly well established; therefore, the PWERM was utilized to estimate the fair value of our common stock during this period. The PWERM allocation method used a risk-adjusted discount rate of 46% based upon an adjusted capital asset pricing model and a lack of marketability discount rate of 30% in the remaining private scenario. The expected outcomes were weighted as follows: (1) 20% towards IPO scenarios occurring during late 2010 and through 2012, valued using the market approach; (2) 20% towards a sale occurring during late 2010 and through 2012, valued using the market approach; (3) 20% towards a recapitalization, valued using the income approach; and (4) 40% to remaining a private operating company, valued using the income approach. For options granted in June 2010, our board of directors originally estimated the fair value of our common stock to be $0.30 per share. However, this fair value, which was used as the exercise price for the stock options granted in June 2010, was subsequently revisited for financial reporting purposes when our board of directors began to analyze the prospects of an IPO. As such, our board of directors subsequently determined a fair value of our common stock for financial reporting purposes to be $0.64 per share. The PWERM allocation method was used with a risk-adjusted discount rate of 39% based upon an adjusted capital asset pricing model and a lack of marketability discount rate of 30% in the remaining private scenario. The slight decrease in the discount rate from the December 31, 2009 valuation was due to changes in industry and market conditions. The expected outcomes were weighted as follows: (1) 32.5% towards IPO scenarios occurring during late 2010 and through 2012, valued using the market approach; (2) 20% towards a sale occurring during late 2010 and through 2012, valued using the market approach; (3) 20% towards a recapitalization, valued using the income approach; and (4) 27.5% to remaining a private operating company, valued using the income approach. The increase in the fair value of our common stock from our December 30, 2009 valuation was primarily attributable to our business developments in 2010 along with our move towards an IPO, including meeting with banks to discuss our IPO prospects. For the stock options we granted in June 2010, we recorded our stock-based compensation utilizing the updated fair value of $0.64 per share because our board determined that there were no events in the period between the option grants on June 15, 2010 and the date of the retrospective valuation on June 30, 2010 that would result in a change to the fair value of the underlying common stock. Most of the stock options granted in June 2010 were subsequently modified in December 2010 as discussed further below.

July 2010 to November 2010. As of September 30, 2010, the board determined a fair value of our common stock to be $1.33 per share. The PWERM allocation method was used with a risk-adjusted discount rate of 33.7% based upon an adjusted capital asset pricing model and a lack of marketability discount rate of 30% in the remaining private scenario. The slight decrease in the discount rate from the June 30, 2010 retrospective valuation was due to changes in industry and market conditions. The expected outcomes were weighted as follows: (1) 57.5% towards IPO scenarios occurring during 2011 and through 2012, valued using the market approach; (2) 20% towards a sale occurring during 2011, valued using the market approach; (3) 12.5% towards a recapitalization, valued using the income approach; and (4) 10% to remaining a private operating company, valued using the income approach. The increase in the fair value of our common stock from our June 2010 valuation was primarily attributable to our progress towards an IPO, including discussions with investment banks regarding our IPO.

Stock option modification in December 2010. In December 2010, our board of directors, out of an abundance of caution, allowed all employees and non-employees to increase the exercise price of stock options granted to them on June 15, 2010 in light of the potential risk of adverse tax consequences under Internal Revenue Service Code Section 409A. Under Section 409A, stock options with an exercise price that is less than the fair market value of the stock on the date of grant may be deemed deferred compensation subject to adverse taxation under Section 409A. As described above, when setting the exercise price for the June 15, 2010 stock option grants, the board determined the fair market value of our common stock to be $0.30 per share, which valuation was subsequently revisited for financial reporting purposes, when our board of directors began to analyze the prospects of an IPO, and determined it to be $0.64 per share. We believe that the board's determination of the fair market value of our common stock on June 15, 2010 in reliance upon all material facts available to the board on that date, was reasonable. However, given the potential adverse tax consequences to the optionees if the Internal Revenue Service determines that our original determination was grossly unreasonable, our board decided, out of an abundance of caution, to make the offer to amend. Based on the elections made by the optionees, 4,933,940 of the 5,266,440 options granted on June 15, 2010, including vested and unvested options, were amended on December 27, 2010, such that the original exercise prices of $0.30 per share were increased to $0.64 per share. Accordingly, holders of options to purchase an aggregate 332,500 shares of common stock elected to leave their options unchanged. No other terms of the options were modified and there were no incremental stock-based compensation charges as a result of the re-pricing.

Our stock-based compensation expense for awards granted to our employees is as follows:

	Year Ended December 31,			Nine Months Ended September 30,	
	2007	2008	2009	2009	2010
			(in thousands)	(Unaudited)	
Research and development	$ 25	$ 66	$167	$ 74	$ 539
General and administrative	4	60	115	97	444
Total stock-based compensation	$ 29	$126	$282	$171	$ 983

As of December 31, 2009 and September 30, 2010, we had $710,000 and $2.3 million of unrecognized stock-based compensation expense, net of estimated forfeitures, that is expected to be recognized over a weighted average period of 2.7 and 1.6 years. In future periods, our stock-based compensation expense is expected to increase as a result of our existing unrecognized stock-based compensation to be recognized as these awards vest and as we issue additional stock-based awards to attract and retain employees.

Non-Employee Stock-Based Compensation

We account for stock options and shares of restricted stock granted to non-employees based on the estimated fair value of the awards using the Black-Scholes option-pricing model. The measurement of stock-based compensation for awards granted to non-employees is subject to periodic adjustments as the awards vest, and the resulting change in value, if any, is recognized in our statement of operations during the period the related services are rendered.

Stock-based compensation expense for awards granted to non-employees was $4,000, $71,000, $30,000, $30,000 and $31,000 during the years ended December 31, 2007, 2008, 2009 and the nine months ended September 30, 2009 and 2010.

There is inherent uncertainty in these estimates and if different assumptions had been used, the fair value of the awards granted to non-employees and the related stock-based compensation expense could have been significantly different.

Liability Associated with Warrants to Purchase Convertible Preferred Stock

Freestanding warrants to purchase shares of our convertible preferred stock are classified as liabilities on our balance sheets at fair value because the warrants may conditionally obligate us to redeem the underlying convertible preferred stock at some point in the future. The warrants are subject to remeasurement at each balance sheet date, and any change in fair value is recognized as a component of other income (expense), net, in the statements of operations. We estimated the fair value of these warrants at the respective balance sheet dates using the Black-Scholes option-pricing model. We use assumptions to estimate the fair value of the warrants including the remaining contractual terms of the warrants, risk-free interest rates, expected dividend yields and the expected volatility of the underlying stock. These assumptions are subjective and the fair value of the warrants to purchase convertible preferred stock could have differed significantly had we used different assumptions.

In connection with an equipment financing agreement entered into in March 2007, we issued warrants to purchase 10,000 shares of our Series A convertible preferred stock. The relative fair value of our Series A warrants of $1,000 was recorded on our balance sheet upon issuance as a warrant liability and as a deferred financing cost in other assets. The Series A warrant liability has subsequently been remeasured to fair value at each reporting date and, as of December 31, 2009 and September 30, 2010, the Series A warrant liability was $2,000 and $10,000. The change in the fair value of these warrants resulted in a gain of $8,000 during the year ended December 31, 2009 and a charge of $8,000 for the nine months ended September 30, 2010 to other income (expense), net.

In connection with a loan and security agreement entered into in September 2008, we issued warrants to purchase 225,000 shares of our Series B convertible preferred stock. At the close of our Series C convertible preferred stock offering in November 2009, these warrants became exercisable for the Series C convertible preferred stock and the number of exercisable shares increased to 913,056. The relative fair value of these warrants of $0.2 million upon issuance was recorded on our balance sheet as a warrant liability and as a deferred financing cost in other assets. The Series C warrant liability related to the loan and security agreement has subsequently been remeasured to fair value at each reporting date and, as of December 31, 2009 and September 30, 2010, the warrant liability was $0.2 million and $1.0 million. The change in the fair value of these warrants resulted in a gain of $0.1 million during the year ended December 31, 2009 and a charge of $0.8 million during the nine months ended September 30, 2010 to other income (expense), net.

In connection with the issuance of a bridge loan financing in September 2010, we issued convertible notes, or the 2010 notes, and warrants, or the 2010 warrants, that are exercisable into (1) shares of preferred stock sold in the next equity financing with proceeds in excess of $15.0 million with an exercise price equal to the price of the preferred stock sold in such equity financing or (2) shares of our Series C convertible preferred stock at a price $0.99 per share. The aggregate number of shares exercisable under the 2010 warrants will equal 25% of the principal amount of the corresponding 2010 notes divided by (1) the per share price of the equity securities sold in the next qualified equity financing or (2) the price of the Series C convertible preferred stock of $0.99 per share. In order to determine a fair value for the 2010 warrants upon issuance of the bridge loan, we evaluated multiple potential outcomes using the intrinsic value or Black-Scholes value depending on the scenario and discounted these values back to September 30, 2010 while applying our estimated probabilities to each scenario value. These scenarios included a potential initial public offering or potential merger or sale at different times during 2011 and 2012 as well as remaining private with estimated future qualifying equity financings. Accordingly, we determined the fair value of the 2010 warrants to be $1.2 million, which was recorded as a convertible preferred stock warrant liability and a debt discount. There was no change in the fair value of these between the time of issuance on September 14, 2010 and the end of the period on September 30, 2010.

We will continue to record adjustments to the fair value of the warrants to purchase convertible preferred stock until they are exercised, converted into warrants to purchase common stock or expire, at

which time the warrants will no longer be remeasured at each balance sheet date. At that time, the then-current aggregate fair value of these warrants will be reclassified from liabilities to additional paid-in capital and we will no longer remeasure the liability associated with these warrants to purchase convertible preferred stock to fair value.

Bridge Loan and Beneficial Conversion Features

On September 14, 2010, we entered into a bridge loan financing, in which we issued 2010 notes to certain existing investors for an aggregate purchase price of $8.0 million. The 2010 notes cannot be prepaid without written consent of the holders of the 2010 notes, accrue interest at a rate of 4.0% per annum and have a maturity date of the earliest of (1) September 14, 2011 or (2) an event of default. The principal and the interest under the 2010 notes are automatically convertible (1) into the securities that are sold in our next equity financing prior to September 14, 2011, with total proceeds of not less than $15.0 million, or qualified financing, at the price at which such securities are sold to other investors in the qualified financing, (2) into securities that are sold in our initial public offering at a conversion price equal to 80% of the initial public offering price or (3) following September 14, 2011, with the consent of the holders of a majority of the principal amount of the 2010 notes still outstanding, into shares of Series C convertible preferred stock at the Series C price of $0.99 per share. In addition, holders of the 2010 notes have the option to convert the 2010 notes into shares of Series C convertible preferred stock in connection with a liquidation, sale of substantially all of our assets, or merger, if such liquidation, sale of substantially all of our assets, or merger occurs before the qualified financing or initial public offering.

Upon the election of the holders of a majority of the aggregate principal amount payable under the 2010 notes, we will issue an additional $4.0 million 2010 notes. This additional $4.0 million was determined to be a call option that has been recorded at its fair value of $0.5 million as a debt discount that will be amortized to interest expense over the one-year term of the loan. The fair value of the call option was determined by evaluating multiple potential outcomes using a market approach and an income approach depending on the scenario and discounted these values back to September 30, 2010 while applying estimated probabilities to each scenario value. These scenarios include a potential initial public offering, merger or sale at different times during 2011 and 2012 as well as remaining private. The call option will be remeasured to its fair value at the end of each reporting period until expired or exercised.

Also in connection with the bridge loan financing, we issued the 2010 warrants with a fair value of $1.2 million, which were recorded as a debt discount that will be amortized to interest expense over the one-year term of the loan.

We used considerable judgment in determining the fair value of these instruments and had we used different assumptions, the resulting fair values could have been materially different.

In addition, we also recognized a beneficial conversion feature related to the 2010 warrants and the call option discussed above in the aggregate amount of $1.7 million as an additional debt discount that will also be amortized to interest expense the one-year term of the bridge loan. In addition to these beneficial conversion features, the 2010 notes have contingent beneficial conversion features related to the conversion options following the maturity of the 2010 notes or in connection with a liquidation, sale or merger into Series C convertible preferred stock. The contingent beneficial features were determined on the date of the issuance of the 2010 notes based on the intrinsic value of this feature in the amount of $2.8 million. This beneficial conversion feature will be recorded if and when the related contingent event occurs.

Income Taxes

Significant management judgment is required in determining our provision or benefit for income taxes, any uncertain tax positions, deferred tax assets and liabilities, and any valuation allowance recorded

against our net deferred tax assets. We make these estimates and judgments about our future taxable income that are based on assumptions that are consistent with our future plans. As of December 31, 2008 and 2009, we have recorded a full valuation allowance on our net deferred tax assets due to uncertainties related to our ability to utilize our deferred tax assets in the foreseeable future. These deferred tax assets primarily consist of certain net operating loss carryforwards and research and development tax credits. Should the actual amounts differ from our estimates, the amount of our valuation allowance could be materially impacted.

Since inception, we have incurred operating losses and, accordingly, we have not recorded a provision for income taxes for any of the periods presented. Accordingly, there have not been significant changes to our provision or benefit for income taxes during the years ended December 31, 2007, 2008 or 2009 and we do not expect any significant changes until we are no longer incurring losses.

As of December 31, 2009, we had federal net operating loss carryforwards of $52.9 million and state net operating loss carryforwards of $52.8 million. We also had federal and state research credit carryforwards of $0.9 million and $0.6 million. Realization of deferred tax assets is dependent upon future earnings, if any, the timing and amount of which are uncertain. Accordingly, the net deferred tax assets have been fully offset by a valuation allowance. If not utilized, the federal net operating loss and tax credit carryforwards will expire beginning in 2025 and the state net operating loss will begin expiring in 2017. Utilization of these net operating losses and credit carryforwards may be subject to an annual limitation due to applicable provisions of the Internal Revenue Section 382 and state and local tax laws if we experience an "ownership change" in the future including, for example, as a result of the shares issued in this offering aggregated with certain other sales of our stock before or after this offering.

Results of Operations—Comparison of the Nine Months Ended September 30, 2009 and 2010

	Nine Months Ended September 30,		Increase / (Decrease)	% Increase / (Decrease)
	2009	2010		
	(Unaudited) (dollars in thousands)			
Research and development	$ 13,180	$ 6,309	$(6,871)	(52)%
General and administrative	2,510	3,033	523	21 %
Interest income	37	2	(35)	(95)%
Interest expense	(965)	(656)	(309)	(32)%
Other income (expense), net	196	(825)	(1,021)	(521)%

Revenue

We did not generate any revenue during the nine months ended September 30, 2009 or 2010.

Research and Development Expenses

Research and development expenses decreased by $6.9 million, or 52%, to $6.3 million during the nine months ended September 30, 2010 from $13.2 million during the nine months ended September 30, 2009. The $6.8 million decrease reflects a decrease of $4.6 million in development expenses related to our ARX-01 development program and a decrease of $1.8 million in development expenses related to our ARX-02 development program.

General and Administrative Expenses

General and administrative expenses increased by $0.5 million, or 21%, to $3.0 million during the nine months ended September 30, 2010 from $2.5 million during the nine months ended September 30, 2009. This increase was due to $0.3 million in stock option compensation expense, $0.1 million in personnel related expense and $0.1 million in legal expense.

Interest Income

Interest income decreased by $35,000 to $2,000 during the nine months ended September 30, 2010 from $37,000 during the nine months ended September 30, 2009. This decrease was due to a decrease in our average cash, cash equivalent and short-term investment balances during the nine months ended September 30, 2010.

Interest Expense

Interest expense decreased by $0.3 million to $0.7 million during the nine months ended September 30, 2010 from $1.0 million during the nine months ended September 30, 2009. This decrease was primarily attributable to our paying down of our outstanding debt during the related periods without incurring additional debt until the end of the nine months ended September 30, 2010, therefore, maintaining lower average debt balance during the nine months ended September 30, 2010.

Other Income (Expense), net

Other income (expense), net changed by $1.0 million to an expense of $0.8 million during the nine months ended September 30, 2010 from income of $0.2 million during the nine months ended September 30, 2009. The change in other income (expense), net primarily reflects the remeasurement of our convertible preferred stock warrant liabilities.

Results of Operations—Comparison of the Years Ended December 31, 2008 and 2009

	Year Ended December 31,		Increase / (Decrease)	% Increase / (Decrease)
	2008	2009		
	(dollars in thousands)			
Research and development	$18,325	$15,502	$(2,823)	(15)%
General and administrative	2,365	3,529	1,164	49 %
Interest income	484	33	(451)	(93)%
Interest expense	(404)	(1,242)	838	207 %
Other income (expense), net	(52)	121	173	333 %

Revenue

We did not generate any revenue for the years ended December 31, 2008 or 2009.

Research and Development Expenses

Research and development expenses decreased by $2.8 million, or 15%, to $15.5 million during the year ended December 31, 2009 from $18.3 million during the year ended December 31, 2008. This decrease was primarily attributable to a $2.1 million reduction in clinical development costs for ARX-01 as two Phase 2 studies, which were initiated in the year ended December 31, 2008 and completed later that year and early in the year ended December 31, 2009. This resulted in fewer contract pharmaceutical, engineering and manufacturing costs and lab expenses during the year ended December 31, 2009. The remaining decrease was attributable to a reduction in activity related to contract pharmaceutical, engineering and manufacturing efforts associated with our ARX-02 and ARX-03 development programs during the year ended December 31, 2009.

General and Administrative Expenses

General and administrative expenses increased by $1.1 million, or 49%, to $3.5 million during the year ended December 31, 2009 from $2.4 million during the year ended December 31, 2008. This increase was attributable to a $0.5 million increase in personnel costs as result of increased headcount, a $0.4 million increase in consulting and professional services related to market research for ARX-01, ARX-02

and ARX-03, and a $0.1 million increase in travel costs related to business development and legal fees to pursue international and domestic patents of our intellectual property during the year ended December 31, 2009.

Interest Income

Interest income decreased by $0.5 million to $33,000 during the year ended December 31, 2009 from $0.5 million during the year ended December 31, 2008. This decrease was directly attributable to the $9.5 million decrease in our working capital during the year ended December 31, 2009 as we used the proceeds received from our Series B convertible preferred stock financing and debt financing during the year ended December 31, 2008 to fund operations until we completed our Series C convertible preferred stock financing in November 2009.

Interest Expense

Interest expense increased by $0.8 million to $1.2 million during the year ended December 31, 2009 from $0.4 million during the year ended December 31, 2008. This increase was primarily due to the interest and deferred financing costs we incurred as a result of the $12.0 million in proceeds received from our debt financing in November 2008.

Other Income (Expense), net

Other income (expense), net changed by $0.2 million to income of $0.1 million during the year ended December 31, 2009 from an expense of $0.1 million during the year ended December 31, 2008. The change in other income (expense), net was due to the decrease in the fair value of our warrants to purchase convertible preferred stock combined with realized gains on the sale of investments during the year ended December 31, 2009.

Results of Operations—Comparison of the Years Ended December 31, 2007 and 2008

	Year Ended December 31,		Increase / (Decrease)	% Increase / (Decrease)
	2007	2008		
	(dollars in thousands)			
Research and development	$8,209	$18,325	$10,116	123 %
General and administrative	2,082	2,365	283	14 %
Interest income	687	484	(203)	(30)%
Interest expense	(25)	(404)	379	1,516 %
Other income (expense), net	(1)	(52)	(51)	(5,100)%

Revenue

We did not generate any revenue for the years ended December 31, 2007 or 2008.

Research and Development Expenses

Research and development expenses increased by $10.1 million, or 123%, to $18.3 million during the year ended December 31, 2008 from $8.2 million during the year ended December 31, 2007. This increase in research and development costs was directly attributable to an additional $3.7 million in clinical research costs, $3.8 million in pharmaceutical, engineering and manufacturing costs, $1.1 million in increased personnel costs to support our Phase 2 clinical trials for ARX-01 and the commencement and completion of our Phase 1 trial for ARX-03 during the year ended December 31, 2008. In addition, we also incurred costs later in the year ended December 31, 2008 associated with the ARX-02 Phase 2 trial and related development.

General and Administrative Expenses

General and administrative expenses increased by $0.3 million, or 14%, to $2.4 million during the year ended December 31, 2008 from $2.1 million during the year ended December 31, 2007. This increase was primarily attributable to higher personnel costs including stock-based compensation costs due to increased headcount.

Interest Income

Interest income decreased by $0.2 million to $0.5 million during the year ended December 31, 2008 from $0.7 million during the year ended December 31, 2007. This decrease was primarily attributable to the use of the proceeds from our Series A convertible preferred financing in August 2006, combined with lower yields on our cash equivalents and short-term investments due to adverse market conditions during the year ended December 31, 2008.

Interest Expense

Interest expense increased by $0.4 million during the year ended December 31, 2008 from $25,000 during the year ended December 31, 2007. The increase was primarily due to the interest and deferred financing costs related to the proceeds received from the $12.0 million loan and security agreement in November 2008.

Other Income (Expense), net

Other income (expense), net changed by $0.1 million during the year ended December 31, 2008 from an expense of $1,000 during the year ended December 31, 2007. The change is primarily attributable to the increase in the fair value of our convertible preferred stock warrant liability due to the issuance of warrants in conjunction with the loan and security agreement entered into during the year ended December 31, 2008.

Liquidity and Capital Resources

To date, we have funded our operations primarily with proceeds from the sale of convertible preferred stock and the proceeds received from our debt financings. To date, we have not generated any revenue from the sale of our product candidates and do not anticipate generating any revenues for the foreseeable future. We have incurred losses and generated negative cash flows from operations since inception. As of September 30, 2010, our principal sources of liquidity are our cash, cash equivalents and short-term investments, which totaled $8.1 million. We believe that our available cash, cash equivalents and short-term investments, not including the proceeds we will receive in this offering, will allow us to meet our obligations through at least March 2011. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is forward-looking statement that involves risks and uncertainties, and actual results could vary materially.

From inception through September 30, 2010, we have received net proceeds of $55.9 million from the sale of convertible preferred stock and $20.6 million from our debt agreements. As of September 30, 2010, we have $14.4 million of debt outstanding, of which $6.4 million relates to our loan and security agreement and $8.0 million relates to our convertible notes.

Our recurring operating losses and our need for additional sources of capital to fund our ongoing operations raise substantial doubt about our ability to continue as a going concern. As a result, our independent registered public accounting firm included an explanatory paragraph in its report on our financial statements as of and for the year ended December 31, 2009 with respect to this uncertainty. We have no current source of revenue to sustain our present activities, and we do not expect to generate revenue for the foreseeable future. Accordingly, our ability to continue as a going concern will require us to

obtain additional financing to fund our operations and there can be no assurance that additional financing will be available to us or that such financing, if available, will be available on terms favorable to us.

While we believe that our current cash and cash equivalents and the net proceeds from this offering and the interest earned on the proceeds will be sufficient to fund our current operations at least through the end of 2012, we may raise additional funds within this period of time through collaborations, public or private debt or equity financings. However, we do not expect that our existing capital resources and the net proceeds received from this offering will be sufficient to enable us to fund the completion of the development of our current product candidates, and we will need to raise substantial additional capital to fund our operations, continue to develop our product candidates, and commercialize and market our product candidates.

The sale of additional equity securities could result in additional dilution to our stockholders and those securities may have rights senior to those of our common stock. The incurrence of indebtedness would result in increased debt service obligations and could result in operating and financing covenants that would restrict our operations. We cannot assure you that financing will be available in the amounts we need or on terms acceptable to us, if at all.

Cash Flows

The following summary of our cash flows for the periods indicated and has been derived from our financial statements which are included elsewhere in this prospectus:

	Year Ended December 31,			Nine Months Ended September 30,	
	2007	2008	2009	2009	2010
			(in thousands)	(Unaudited)	
Net cash used in operating activities	$(8,861)	$(18,903)	$(19,418)	$(15,241)	$(9,042)
Net cash (used in) provided by investing activities	(2,217)	(9,935)	8,616	12,524	4,865
Net cash (used in) provided by financing activities	525	31,899	11,880	(1,627)	4,585

Cash Flows from Operating Activities

Net cash used in operating activities amounted to $8.9 million, $18.9 million, $19.4 million, $15.2 million and $9.0 million for the years ended December 31, 2007, 2008, 2009 and the nine months ended September 30, 2009 and 2010. The primary use of cash for our operating activities during these periods was to fund the development of our product candidates. Our cash used for operating activities also reflected changes in our working capital and adjustments for non-cash charges, such as depreciation and amortization of our fixed assets, stock-based compensation, interest expense related to our debt financings, and the revaluation of our convertible preferred stock warrant liability.

Cash used in operating activities of $9.0 million for the nine months ended September 30, 2010 reflected a net loss of $10.8 million, partially offset by aggregate non-cash charges of $2.5 million and a net change of $0.7 million in our net operating assets and liabilities. Non-cash charges primarily included $0.4 million of depreciation and amortization, $0.8 million for the revaluation of the convertible preferred stock warrant liability and $1.1 million in stock-based compensation. The net change in our operating assets and liabilities was primarily a result of accounts payable of $0.3 million.

Cash used in operating activities of $19.4 million during the year ended December 31, 2009 reflected a net loss of $20.1 million, partially offset by aggregate non-cash charges of $1.1 million and a net change of $0.4 million in our net operating assets and liabilities. Non-cash charges primarily included $0.5 million of depreciation and amortization, $0.5 million of stock-based compensation and $0.3 million of

interest expense relating to our debt offset by a $0.1 million gain on the revaluation of our convertible preferred stock warrant liability. The net change in our operating assets and liabilities was primarily a result of a $0.4 million decrease in accounts payable and accrued liabilities during the year.

Cash used in operating activities of $18.9 million during the year ended December 31, 2008 reflected a net loss of $20.7 million, partially offset by aggregate non-cash charges of $1.1 million and a net change of $0.7 million in our net operating assets and liabilities. Non-cash charges primarily included $0.4 million of depreciation and amortization, $0.5 million of stock-based compensation, $0.1 million on the revaluation of the convertible preferred stock warrant liability and $0.2 million of interest expense relating to our debt. The net change in our operating assets and liabilities was primarily a result of a $0.7 million increase in our accounts payable and accrued expenses during the year.

Cash used in operating activities of $8.9 million during the year ended December 31, 2007 reflected a net loss of $9.6 million, partially offset by aggregate non-cash charges of $0.3 million and a net change of $0.4 million in our net operating assets and liabilities. Non-cash charges included $0.2 million of depreciation and amortization and $0.1 million of stock-based compensation. The net change in our operating assets and liabilities was primarily a result of the $0.6 million increase in the deferred rent liability during the year ended December 31, 2007 relating to the tenant improvement allowance we received from our landlord when we entered into our lease agreement for the office and laboratory facilities and also as a result of a $0.4 million increase in our prepaids and other assets.

Cash Flows from Investing Activities

Our investing activities have consisted primarily of our capital expenditures and purchases and sales of our available-for-sale investments. To date, we have not had significant capital expenditures and we do not have any significant capital expenditures currently planned.

During the nine months ended September 30, 2010, cash provided by investing activities was $4.9 million primarily as a result of $9.7 million in proceeds from the sale of our investments, partially offset by $4.8 million of purchases of investments.

During the year ended December 31, 2009, cash provided by investing activities of $8.6 million was primarily a result of $22.6 million in proceeds received from the sale of our investments to fund our working capital needs, partially offset by $13.9 million used for purchases of our investments.

During the year ended December 31, 2008, cash used in investing activities of $9.9 million was primarily a result of $0.5 million in capital expenditures and $14.1 million in purchases of investments using the proceeds we received in our Series B convertible preferred stock financing and the proceeds from a debt financing, partially offset by $4.7 million in proceeds received from sales of our investments.

During the year ended December 31, 2007, cash used in investing activities of $2.2 million was primarily a result of our capital expenditures of $1.6 million relating to the acquisition of pharmaceutical and development equipment and $8.1 million in purchases of investments, partially offset by $7.5 million in proceeds received from sales of our investments.

Cash Flows from Financing Activities

To date, we have financed our operations primarily with proceeds from the sale of convertible preferred stock and the proceeds received from our debt financings. As of September 30, 2010, we had outstanding debt of $14.4 million.

During the nine months ended September 30, 2010, cash provided by financing activities was $4.6 million, primarily as a result of the receipt of $8.0 million in borrowings received from the convertible

note agreement entered into in September 2010 with certain existing investors, partially offset by principal repayments on our long-term debt of $3.5 million.

During the year ended December 31, 2009, cash provided by financing activities of $11.9 million was primarily a result of the receipt of $14.7 million from the sale of our Series C convertible preferred stock in November 2009, partially offset by principal repayments on our long-term debt of $2.9 million.

During the year ended December 31, 2008, cash provided by financing activities of $31.9 million was primarily a result of the receipt of $20.1 million in proceeds from the sale of our Series B convertible preferred stock in February 2008 combined with the receipt of $12.0 million in proceeds from our loan and security agreement in November 2008.

During the year ended December 31, 2007, cash provided by financing activities of $0.5 million was primarily a result of the receipt of $0.6 million from the issuance of long-term debt, partially offset by principal repayments on our long-term debt of $0.1 million.

Contractual Obligations

The following table summarizes our outstanding contractual obligations and commitments as of December 31, 2009:

	Payment by Period			
Contractual Obligations:	Total	2010	2011	2012 and Beyond
	(in thousands)			
Long-term debt obligations, including current portion [1][2]	$ 10,772	$ 5,307	$5,465	$ —
Operating lease agreements [3]	783	338	348	97
Total	$11,555	$5,645	$ 5,813	$ 97

(1) Long-term debt includes principal and accrued interest ($1.0 million) under the $12.0 million loan and security agreement entered into in September 2008. As of September 30, 2010, our outstanding obligations under the loan and security agreement have decreased to $6.4 million, of which $5.0 million is the current portion, due to regular loan repayments of $3.4 million during the nine months ended September 30, 2010.

(2) Long-term debt obligations as of December 31, 2009 do not reflect our obligations under the convertible note agreement entered into in September 2010, of which $8.0 million in proceeds were received. The principal and accrued interest under the convertible note agreement is repayable on September 14, 2011 unless certain conversion criteria have been achieved, including the completion of a qualified initial public offering, other qualified equity financing or liquidation event, which would result in the notes converting into certain equity securities depending on the event that triggers the conversion.

(3) Operating lease agreements represent our obligation to make payments under our non-cancelable lease agreement for office and laboratory facilities in Redwood City, California. During the nine months ended September 30, 2010, we made regular lease payments of $0.3 million under the operating lease agreements.

Off-Balance Sheet Arrangements

Through September 30, 2010, we had not entered into any off-balance sheet arrangements and do not have any holdings in variable interest entities.

Segment Information

We have one business activity, which is the development and commercialization of product candidates for the treatment of pain, and a single reporting and operating unit structure.

Quantitative and Qualitative Disclosures about Market Risk

We are exposed to market risks in the ordinary course of our business. These risks primarily include risk related to interest rate sensitivities.

Interest Rate Risk

Our exposure to market risk for changes in interest rates relates primarily to our investment portfolio and our outstanding debt obligations. Our cash, cash equivalents and investment accounts as of September 30, 2010 total $8.1 million and consist primarily of cash, money market funds and U.S. government obligations with maturities of less than one year from the date of purchase. Our primary exposure to market risk is interest income sensitivity, which is affected by changes in the general level of the interest rates in the United States. However, because of the short-term nature of the instruments in our portfolio, a sudden change in market interest rates would not be expected to have a material impact on our financial condition or our results of operation.

We have long-term debt of $14.4 million as of September 30, 2010 consisting of our outstanding obligations under a loan and security agreement and a convertible note agreement. Our obligations under these debt agreements carry interest rates that are fixed and are not subject to fluctuations. However, to the extent in the future we enter into other long-term debt arrangements, we would be subject to fluctuations in interest rates which could have a material impact on our future financial condition and results of operation.

Recent Accounting Pronouncements

In October 2009, the Financial Accounting Standards Board, or FASB, issued an accounting standards update that provides application guidance on whether multiple deliverables exist, how the deliverables should be separated and how the consideration should be allocated to one or more units of accounting. This update establishes a selling price hierarchy for determining the selling price of a deliverable. The selling price used for each deliverable will be based on vendor-specific objective evidence, if available, third-party evidence if vendor-specific objective evidence is not available, or estimated selling price if neither vendor-specific nor third-party evidence is available. We will be required to apply this guidance prospectively for revenue arrangements entered into or materially modified after January 1, 2011. We have not recognized any revenue since inception. Therefore, adoption of this guidance is not expected to have a material impact on our financial statements.

In January 2010, the FASB issued an amendment to an accounting standard which requires new disclosures for fair value measurements and provides clarification for existing fair value disclosure requirements. The amendment will require an entity to disclose separately the amounts of significant transfers in and out of Levels I and II fair value measurements and to describe the reasons for the transfers; and to disclose information about purchases, sales, issuances and settlements separately in the reconciliation for fair value measurements using significant unobservable inputs, or Level III inputs. This amendment clarifies existing disclosure requirements for the level of disaggregation used for classes of assets and liabilities measured at fair value and require disclosures about the valuation techniques and inputs used to measure fair value for both recurring and nonrecurring fair value measurements using Level II and Level III inputs. This guidance is effective for interim and annual reporting periods beginning after December 15, 2009, except for certain Level 3 activity disclosure requirements that will be effective for reporting periods beginning after December 15, 2010. Accordingly, we adopted this amendment on January 1, 2010, except for the additional Level 3 requirements which will be adopted in 2011.

In April 2010, the FASB issued an accounting standards update which provides guidance on the criteria to be followed in recognizing revenue under the milestone method. The milestone method of recognition allows a vendor who is involved with the provision of deliverables to recognize the full amount of a milestone payment upon achievement, if, at the inception of the revenue arrangement, the milestone is determined to be substantive as defined in the standard. The guidance is effective on a prospective basis for milestones achieved in fiscal years and interim periods within those fiscal years, beginning on or after June 15, 2010. We have not recognized any revenue since inception. Therefore, adoption of this guidance is not expected to have a material impact on our financial statements.

BUSINESS

Overview

We are a specialty pharmaceutical company focused on the development and commercialization of innovative therapies for the treatment of acute and breakthrough pain. We were founded to solve the problems associated with post-operative intravenous patient-controlled analgesia, or IV PCA. Although widely used, IV PCA has been shown to cause harm to patients following surgery because of the side effects of morphine, the invasive IV route of delivery and the inherent potential for programming and delivery errors associated with the complexity of infusion pumps. We are preparing to initiate Phase 3 clinical trials for our lead product candidate, the Sufentanil NanoTab PCA System, or ARX-01. The system is designed to address these problems by utilizing:

- sufentanil, a high therapeutic index opioid;
- NanoTabs, our proprietary, non-invasive sublingual dosage form; and
- our novel handheld PCA device that enables simple patient-controlled delivery of NanoTabs in the hospital setting and eliminates the risk of programming errors.

We have completed Phase 2 clinical development for two additional product candidates, the Sufentanil NanoTab BTP Management System, or ARX-02, for the treatment of cancer breakthrough pain, or BTP, and the Sufentanil/Triazolam NanoTab, or ARX-03, designed to provide mild sedation, anxiety reduction and pain relief for patients undergoing painful procedures in a physician's office.

The Market Opportunity for Our Product Candidates

ARX-01—Acute Post-Operative Pain

According to the 2010 Decision Resources Acute Pain report, the 2018 post-operative pain market is projected to be $6.5 billion for the United States, Europe and Japan. Opioids are the most efficacious analgesics available to control acute pain and are estimated to represent 74% of the overall post-operative pain market in the United States. Despite the broad array of pain products available, the need for adequate pain relief continues to be a significant issue. According to a report published in 2008 by Datamonitor, 75% of patients reported inadequate pain relief after surgery.

In the post-operative environment, the most common method for the treatment of acute pain is through IV PCA, in which patients self-dose by pushing a button to administer morphine via a programmable intravenous pump. Despite the common use of IV PCA, there are many deficiencies associated with this treatment that create a significant unmet medical need, including:

- *Drug-Related Side Effects*. Morphine, the most commonly used opioid for post-operative pain control, can produce many side effects, such as excessive somnolence, delirium, oxygen desaturation and respiratory depression. Morphine has active metabolites, the compounds that are produced when the body breaks down, or metabolizes, morphine, which amplify these side effects.
- *Complications Associated with IV Delivery*. IV PCA poses infection risk and creates opportunities for analgesic gaps due to dislodged catheters. Peripheral venous catheters have been associated with a 7% to 9% incidence of phlebitis and a 0.2% to 0.4% incidence of bacteremia. Catheter tubing tethering the patient to the PCA pump also hinders early post-operative mobility that can lead to increased post-operative complications.
- *Medication Delivery Errors*. The complexity associated with ordering, dispensing, preparing, programming and administering the IV PCA pump results in many analgesia related errors. Human factors, such as programming the PCA pump, or administering the

wrong dose, are among the most common and serious type of errors. According to published literature, the estimated annual error rate is 407 errors per 10,000 people treated with IV PCA in the United States. Published analysis of a national medication error-reporting program, or Medmarx, from 2000 to 2005 reveals that IV PCA errors represent a four-fold higher relative risk of harm compared to all other medication errors. The most recent published analysis of the FDA Manufacturer and User Facility Device Experience, or MAUDE, database reports that 5% of IV PCA operator errors reported during a two-year index period, from 2002 to 2003, resulted in patient deaths. Recently, the risks associated with the use of infusion pumps, such as those used in IV PCA, have been the subject of scrutiny by the FDA, resulting in a new initiative to address the safety problems associated with infusion pumps and the underreporting of errors. Approximately 56,000 adverse events were reported to the FDA between 2005 and 2009, prompting 70 Class II infusion pump recalls of devices that could cause temporary or reversible adverse effects and 14 Class I infusion pump recalls of devices that could cause serious injury or death.

ARX-01 is designed to avoid many of the limitations of IV PCA by delivering sufentanil, a high therapeutic index opioid, using our proprietary NanoTab sublingual tablet via non-invasive, pre-programmed, handheld PCA device. We have completed three Phase 2 studies with ARX-01 and had an End of Phase 2 meeting with the FDA which defined the required scope and scale for Phase 3 studies, certain formulation requirements, non-clinical and regulatory requirements. We believe ARX-01 has the opportunity to become the new standard of care for post-operative patient-controlled analgesia.

ARX-02—Cancer Breakthrough Pain

Breakthrough pain is a common component of chronic pain and is characterized by its rapid onset, intensity and relatively short duration, which breaks through the analgesic effect of chronic pain medication. According to data published in 2006, more than 700,000 cancer patients in the United States experienced breakthrough pain. Fentanyl-based products are the only medications indicated to treat cancer breakthrough pain and account for less than 20,000 prescriptions per month. We believe this demonstrates a need for additional and improved cancer breakthrough pain medications. Data from the 2010 Decision Resources Acute Pain report indicates that the worldwide breakthrough pain market will grow to $2.9 billion by 2018.

Currently available fentanyl-based cancer breakthrough pain products have limited ability to provide effective and focused pain relief because their average half-lives extend to 6 to 14 hours, which is significantly longer than the average 15 to 60 minute duration of a cancer breakthrough pain episode. Oral transmucosal fentanyl, unlike sufentanil, is extensively absorbed through the gastrointestinal, or GI, tract in addition to the oral mucosal tissue, leading to erratic and delayed timing to peak plasma levels, ranging from 20 to 240 minutes. This can result in a dangerous phenomenon, known as dose-stacking, which occurs when a repeat dose is administered before the peak effect of the previous dose, and can lead to significant side effects, such as respiratory depression.

In addition to the medical limitations of currently approved opioids, the abuse of opioid pain medications is a significant medical and social problem. According to the 2010 National Survey on Drug Use and Health, during 2009 approximately 5.2 million people in the United States used prescription pain relievers for nonmedical purposes, an increase from the estimated 4.7 million in 2005. We believe none of the currently approved cancer breakthrough pain products have effective abuse-deterrent features to address these problems.

ARX-02 is designed to avoid many of the limitations of currently available cancer breakthrough pain medications by combining the rapid onset and appropriate offset of sufentanil with abuse-deterrent packaging. We have completed a Phase 2 study with ARX-02 and had an End of Phase 2 meeting with the FDA that defined the required criteria for Phase 3 studies.

ARX-03—Mild Sedation and Pain Relief for Procedures in a Physician's Office

Each year in the United States, more than 100 million procedures take place in a physician's office. A substantial subset of these procedures are painful and anxiety inducing, including many interventional radiology procedures, diagnostic procedures such as breast and prostate biopsies, cosmetic procedures such as liposuction and dermal abrasions, and therapeutic procedures such as vasectomies. Ninety-six percent of men report moderate pain immediately after prostate biopsy, with only 4% of patients reporting no pain during the biopsy. In addition, women undergoing breast biopsies have pre-procedural scores averaging 60 to 70 out of 100 for visual analog scale measurements of nervousness, tension and fearfulness.

Intravenous sedation requires specialized monitoring, resuscitative equipment and appropriately trained staff for effective management of patients. As a result, many practitioners have stopped providing any sedation or analgesic medications to their patients prior to or during short duration procedures, and instead rely solely on local anesthetic injections, which are often insufficient in providing effective pain relief and anxiety reduction.

We are developing ARX-03 as a non-invasive method to produce sedation, anxiety reduction and pain relief in patients undergoing painful procedures in a physician's office. ARX-03 is designed to eliminate the need for specialized personnel and requires only minimal monitoring equipment. We have completed a Phase 2 study with ARX-03, and have preliminary guidance as to a clinical development path for this product as a result of completion of an End of Phase 2 meeting with the FDA.

Sufentanil NanoTabs

Sufentanil, a high therapeutic index opioid, which has no active metabolites, is 5 to 10 times more potent than fentanyl and is used intravenously as a primary anesthetic to produce balanced general anesthesia for surgery, and for epidural administration during labor and delivery. Sufentanil has many pharmacological advantages over other opioids. Published studies demonstrate that sufentanil produces significantly less respiratory depressive effects relative to its analgesic effects compared to other opioids, including morphine, alfentanil and fentanyl. These third party clinical results correlate well with preclinical studies demonstrating sufentanil's high therapeutic index, or the ratio of the toxic dose to the therapeutic dose of a drug, used as a measure of the relative safety of the drug for a particular treatment. Accordingly, we believe that despite its potency, sufentanil can be developed to provide an effective and relatively safe solution for the treatment of acute and breakthrough pain. The following table illustrates the difference between the therapeutic index of different opioids.

Opioid	Therapeutic Index
Meperidine	5
Methadone	12
Morphine	71
Hydromorphone	232
Fentanyl	277
Sufentanil	26,716

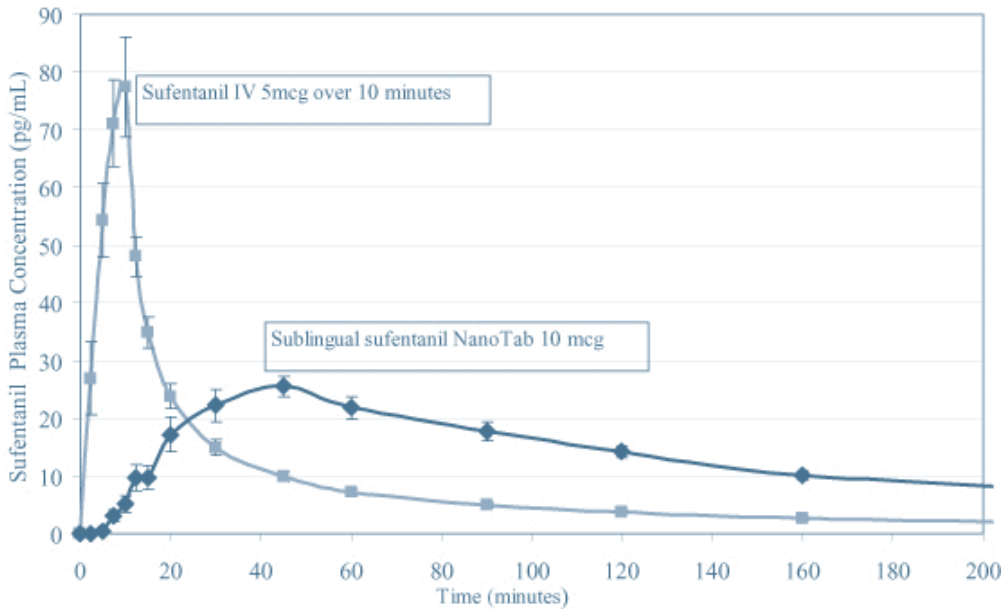
Although the analgesic efficacy of sufentanil has been well established, its use has been limited due to its short duration of action when delivered intravenously. The pharmaceutical attributes of sufentanil, including lipid solubility and ionization, result in rapid cell membrane penetration and onset of action, which we believe make sufentanil an optimal opioid for the treatment of both acute pain and breakthrough pain. In addition, its pharmacokinetic, or PK, profile when delivered sublingually avoids the high peak plasma levels and short duration of action of IV administration.

Sublingual Delivery of Sufentanil: Summary of Phase 1 Clinical Studies Results

We have completed four Phase 1 PK studies with our proprietary sublingual sufentanil NanoTabs to support our three products under development. These studies demonstrated desirable and consistent PK parameters, including:

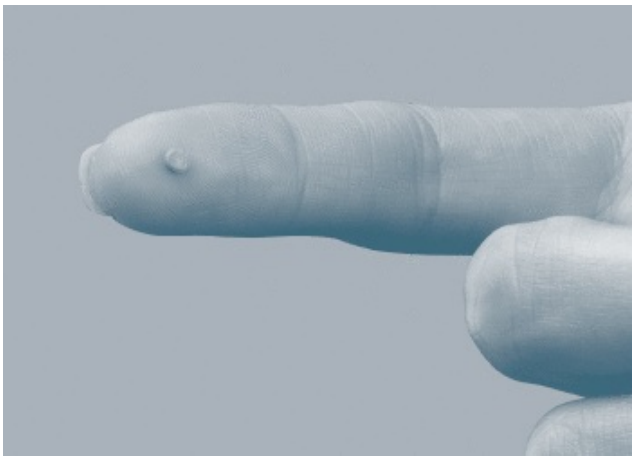
- relatively high bioavailability via the oral mucosa and very low GI bioavailability;
- prolonged plasma levels relative to IV delivery;
- PK parameters proportional to dose across a wide range of doses (2.5 mcg to 80 mcg);
- lower peak plasma concentration, or C_{max}, than IV delivery;
- time to maximum plasma concentrations, or T_{max}, range from 30 to 90 minutes;
- relatively low patient to patient variability in T_{max} and C_{max}; and
- repeat dosing PK that supports a 20 minute minimum re-dosing interval.

The chart below illustrates the PK profile of sublingual sufentanil NanoTab compared to IV delivery of sufentanil from one of our completed Phase 1 PK studies.



We have demonstrated that sublingual delivery of sufentanil avoids the high peak plasma levels and short duration of action of IV administration, enabling potential for broader use. Our proprietary NanoTab dosage form is a very small disc-shaped tablet with a bioadhesive excipient, or inactive ingredient, that enables the NanoTab to adhere to mucosal tissues. This allows sublingual delivery of sufentanil from the NanoTab by adherence to the sublingual mucosa, or tissues under the tongue. The NanoTab adheres within seconds after administration and full disintegration occurs within minutes. The small size of the NanoTab, pictured below, is designed to minimize the saliva response and amount of sufentanil swallowed, resulting in high oral transmucosal uptake, whereby a majority of the drug is absorbed via the oral tissues directly into the bloodstream, and consistent pharmacokinetics.

Our portfolio of product candidates leverages the inherent advantages of sufentanil that are underutilized in medical practice. We believe our non-invasive, proprietary NanoTab sublingual dosage form overcomes the limitations of the current treatment options available for both acute and breakthrough pain.



None of our product candidates have been approved by the FDA. We have not generated any revenue from the sale of any of our product candidates.

Our Product Candidates

The following table summarizes key information about our existing product candidates for which we currently hold worldwide commercialization rights.

Product Candidate	Description	Target Indication	Development Status
ARX-01	Sufentanil NanoTab PCA System	Acute post-operative pain	• Three Phase 2 clinical trials and End of Phase 2 meeting successfully completed • Two efficacy trials and one open label safety trial planned in Phase 3; the first efficacy trial is anticipated to begin in the second half of 2011
ARX-02	Sufentanil NanoTab BTP Management System	Cancer breakthrough pain	• Phase 2 clinical trial and End of Phase 2 meeting successfully completed • One efficacy trial and two open label safety trials planned in Phase 3
ARX-03	Sufentanil/Triazolam NanoTab	Mild sedation for painful procedures in a physician's office	• Phase 2 clinical trial and End of Phase 2 meeting successfully completed • Two efficacy trials planned in Phase 3

ARX-01—Sufentanil NanoTab PCA System

This product candidate has not been approved by the FDA. We have not generated any revenue from the sale of any of our product candidates.

The Market Opportunity for ARX-01

The post-operative pain market in the United States, Europe and Japan is growing steadily and is expected to reach $6.5 billion by 2018. Despite its size, this market remains underserved. Studies report that up to 75% of patients experience inadequate pain relief after surgery. Inadequate pain relief can lead to decreased mobility, which increases the risks of other medical complications, including deep vein thrombosis and partial lung collapse, and can result in extended hospital stays. The 2010 Decision Resources Acute Pain report projects that in 2013, 24.6 million in-patient procedures performed in the United States, Europe and Japan will require post operative treatment of pain, growing at a rate of approximately 1% per annum.

Market research among surgeons and anesthesiologists has identified a consistent positive response to the attributes of ARX-01 and indicates an interest in using ARX-01 in 85% of their eligible patients. Additionally, physicians expressed interest in using ARX-01 for patients who stay in the hospital for less than 24 hours and are not traditionally treated with IV PCA. Pharmacy and Therapeutics, or P&T, committees also indicate strong interest in ARX-01, with 91% of those interviewed indicating likely adoption to formulary.

How ARX-01 Addresses the Unmet Medical Need in Post-Operative Pain Management

There are many deficiencies associated with the current use of IV PCA, including:

- side effects associated with the most commonly used opioid, morphine, and its active metabolites;
- infection risk, analgesic gaps and decreased mobility associated with the invasive nature of IV delivery; and
- medication errors, which in some instances may be fatal, due to the complexity of IV PCA pumps, many of which arise from programming errors.

According to published literature, the estimated annual error rate is 407 errors per 10,000 people treated with IV PCA in the United States. Published analysis of Medmarx from 2000 to 2005 reveals that IV PCA errors represent a four-fold higher relative risk of harm compared to all other medication errors. The most recent published analysis of the FDA MAUDE database reports that 5% of IV PCA operator errors reported during a two-year index period, from 2002 to 2003, resulted in patient deaths. Approximately 56,000 adverse events were reported to the FDA between 2005 and 2009, prompting 70 Class II infusion pump recalls of devices that could cause temporary or reversible adverse effects and 14 Class I infusion pump recalls of devices that could cause serious injury or death. These issues with infusion pumps have resulted in the issuance of new draft guidance by the FDA, significantly increasing the data required to be submitted by manufacturers to address safety problems.

ARX-01 has the potential to address many of the key disadvantages of IV PCA, including:

- reducing the incidence of drug related side effects;
- eliminating the risk of IV PCA related infections, reducing analgesic gaps and enhancing mobility; and
- eliminating the risk of programming errors.

We believe that ARX-01 will provide a favorable safety, efficacy and tolerability profile, enabling ARX-01 to become the new standard of care for patient-controlled analgesia. Further, we believe use of ARX-01 will result in increased patient satisfaction and reduced overall healthcare costs.

ARX-01 Description

ARX-01 allows patients to self-administer sublingual sufentanil NanoTabs as needed to manage their post-operative pain in the hospital setting, and provides the record-keeping attributes of a conventional IV PCA pump while avoiding some of the key issues, such as programming errors associated with conventional IV PCA use.

Our Sufentanil NanoTab PCA System, ARX-01, consists of three components:

- sufentanil, a high therapeutic index opioid;
- NanoTabs, our proprietary, non-invasive sublingual dosage form; and
- our novel handheld PCA device that enables simple patient-controlled delivery of NanoTabs in the hospital setting and eliminates the risk of programming errors.

ARX-01 utilizes sufentanil, which has one of the highest therapeutic index of all commercially available opioids, making it an attractive candidate for the management of post-operative pain. Formulated in our proprietary sublingual NanoTab dosage form, sufentanil provides for relatively high bioavailability, with lower peak drug levels and a longer duration of action compared to IV delivery.

Our handheld PCA device consists of a stack of 40 sufentanil 10 mcg or 15 mcg NanoTabs (approximately a two-day supply) in a disposable radio frequency identification and bar-coded cartridge (see Figure 1); a disposable dispenser tip (see Figure 2); and a reusable, rechargeable handheld controller (see Figure 3).

Figure 1, Cartridge with NanoTab Tablets

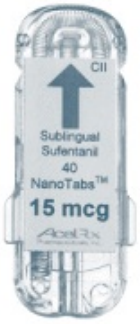


Figure 2, Dispenser Tip

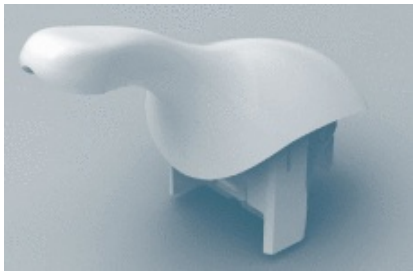


Figure 3, Controller

This product candidate has not been approved by the FDA. We have not generated any revenue from the sale of any of our product candidates.

Our novel handheld PCA device has the following safety features:

- a wireless system access key for the healthcare professional;
- a wireless, electronic, adhesive thumb tag that acts as a single-patient identification key;
- pre-programmed 20-minute lock-out to avoid overdosing;

- a security tether that is designed to prevent theft and misuse; and
- fully automated inventory record of NanoTabs usage.

To set up the handheld PCA device, the nurse or healthcare professional turns on the controller and follows simple step by step instructions described below.

- Retrieve the NanoTab cartridge from secure drug storage;
- lock the cartridge and dispenser into the controller; and
- set up the secure patient access system, which is comprised of a security tether and a wireless, electronic, adhesive thumb tag that acts as a single-patient identification key.

To use ARX-01, the patient would:

- confirm that the green indicator light is illuminated, meaning the device is available to dose;
- place dispenser tip under tongue and push the large button on the controller, which dispenses a single NanoTab;
- remove the device from mouth upon hearing a tone confirming delivery of the NanoTab; and
- see the blue indicator light illuminate, indicating no new dose can be dispensed for the next 20 minutes.

During our Phase 2 clinical study, 100% of patients reported that they could handle the system easily and that user instructions were clear.

Sufentanil NanoTab PCA System—ARX-01 Clinical Program

Summary

We have completed three successful Phase 2 clinical trials of sufentanil NanoTabs in the post-operative setting. These studies demonstrated analgesic efficacy, a low adverse event profile and excellent device functionality. We held an End of Phase 2 meeting with the FDA at the end of 2009. The FDA stated that the demonstration of efficacy versus placebo in two Phase 3 studies with a total safety database of at least 600 patients exposed to the active drug, should suffice to support an NDA. We are designing our Phase 3 trials based on the feedback from the FDA.

Planned Phase 3 Clinical Trials for ARX-01

We plan to conduct two Phase 3 trials to evaluate the efficacy of ARX-01. In addition, we plan to conduct one Phase 3 open-label active comparator study that will provide both incremental safety and marketing data. Manufacturing scale up activities and Phase 3 clinical trial planning are ongoing to enable initiation and patient enrollment in our first Phase 3 trial in the second half of 2011. We expect to receive the top-line data from this trial in the first half of 2012 and expect to complete all studies by the end of 2012, with a potential NDA submission in 2013 if the results from these studies are positive.

Our first Phase 3 clinical study on ARX-01 will be a placebo-controlled trial for a minimum of 48 hours and, as needed, up to 72 hours in adult patients undergoing open abdominal surgery. The objective is to compare the efficacy of ARX-01 to placebo for the management of acute post-operative pain. Approximately 220 patients will be randomly assigned to treatment with sufentanil or placebo. The primary endpoint will be the summed pain intensity difference over the first 48 hours of the study period, or SPID-48. This value is obtained for each patient by subtracting all pain intensity scores after drug dosing from the patient's baseline score prior to dosing, and then adding these pain intensity differences together to obtain that patient's SPID score.

Our second Phase 3 clinical study will be a placebo-controlled trial in patients who are undergoing a total hip or knee replacement under general or spinal anesthesia. The objective is to compare the efficacy of the Sufentanil NanoTab PCA System to placebo for the management of acute post-operative pain. Approximately 330 patients will be randomly assigned to treatment with sufentanil or placebo. The primary endpoint also will be the SPID-48.

In addition, we plan to conduct an open label study to complete the safety database. We plan to conduct this study as an active comparator study of ARX-01 versus morphine IV PCA in patients undergoing orthopedic or abdominal surgery. Approximately 660 patients will be randomly assigned to treatment with Sufentanil NanoTab PCA System or morphine IV PCA. The primary endpoint will be the demonstration of statistical non- inferiority between the two groups for global patient satisfaction over the course of the study by patient reporting on a 4-point rating scale of poor, fair, good and excellent. Important secondary endpoints for comparison to IV PCA morphine will be drop-out due to inadequate analgesia, level of sedation, ease of care for patients and nurses, reporting of analgesic gaps and interdosing intervals.

The ARX-01 Phase 3 device will be an upgraded version of the Phase 2 device, with enhanced features, including a color graphical user interface screen, security features to allow only the patient to use the device and prevent unauthorized access to the drug and improved industrial design for hospital use. The design of the Phase 3 device is at an advanced engineering prototype stage where several standalone prototypes have been built to conduct testing. Many of the subsystems within the device have not yet been integrated or tested to the specifications of the Phase 3 device design.

ARX-01: Sufentanil NanoTab PCA System Phase 2 Studies

We completed three Phase 2 studies in support of sufentanil NanoTabs. Across all studies, the average time interval between doses was approximately 80 minutes. This compares favorably to typical redosing intervals for IV PCA with average period between dosing of 20 to 40 minutes. No serious adverse events, or SAEs, were reported that were considered to be related to the study drug. Adverse events, or AEs, that were reported were similar to those reported for placebo-treated patients. These results demonstrate that sufentanil NanoTabs are effective and well tolerated by patients undergoing both major orthopedic and abdominal surgical procedures.

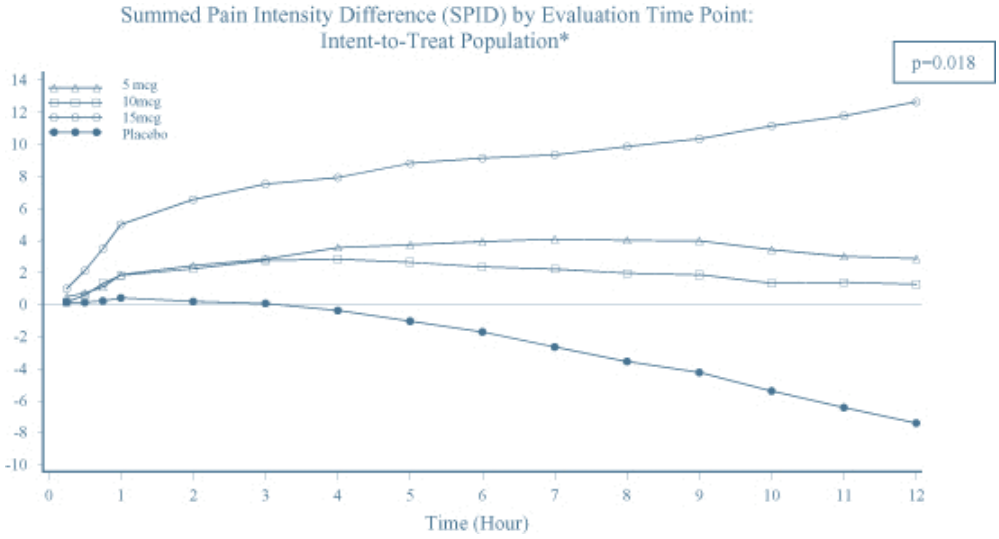
Phase 2 Clinical Results in Unilateral Knee Replacement (ARX-C-001)

In the first Phase 2 study, we conducted a randomized, double-blind, placebo-controlled, multicenter Phase 2 clinical study to evaluate the efficacy, safety and tolerability of sublingual sufentanil NanoTabs in patients undergoing elective unilateral knee replacement. The study enrolled 101 male and female patients 45 to 80 years of age who were undergoing elective knee replacement surgery. This procedure was chosen as it represents one of the most painful procedures patients undergo in the hospital setting. Patients were randomly assigned to treatment with sufentanil NanoTab 5 mcg, 10 mcg, 15 mcg, or placebo. Sufentanil NanoTabs were administered by study staff at the request of the patient with at least 20 minutes between doses. The primary endpoint was the sum of the pain intensity difference at each evaluation time point compared to baseline over the 12-hour study duration, or SPID-12.

The study results demonstrated that sufentanil NanoTab 15 mcg was effective, safe and well-tolerated for the treatment of acute post-operative pain in patients who had undergone unilateral knee replacement. The sufentanil NanoTab 15 mcg SPID-12 was higher than placebo ($p=0.018$) using the last observation carried forward, or LOCF, imputation method. A p value is a probability with a value ranging from 0 to 1, which indicates the likelihood that a clinical study is different between treatment and control groups. P-values below 0.05 are typically referred to as statistically significant. The sufentanil NanoTab 5 mcg or 10 mcg dosage strengths did not achieve a statistically significant separation from placebo overall. However, the 10 mcg dose was statistically significant as compared with

placebo for women ($p<0.05$). Throughout the study there were statistically significant differences in SPID scores between the sufentanil NanoTab 15 mcg dose group and the placebo group, even at the earliest time point of 15 minutes ($p=0.038$). There were no clinically significant changes in laboratory variables, vital signs, or oxygen saturation during the study. The five SAEs reported were all considered unrelated to study drug and occurred after the end of study drug dosing.

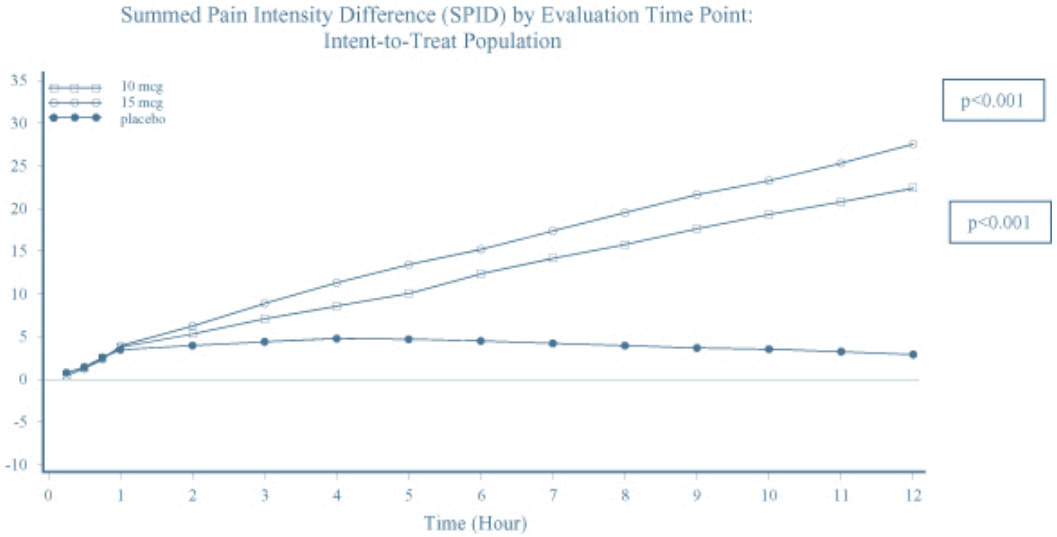
The following figure shows the Summed Pain Intensity Difference over the 12-Hour Study Period for the placebo, 5 mcg, 10 mcg and 15 mcg groups.



* Intent-to-Treat Population: The intent-to-treat, or ITT, population includes all randomized patients regardless of whether they received or adhered to the allocated treatment group. ITT analysis provides unbiased comparisons among the treatment groups and is the primary statistical analysis used by the FDA.

Phase 2 Clinical Results in Major Abdominal Surgery (ARX-C-005)

Our second Phase 2 study tested sufentanil NanoTabs 10 mcg, 15 mcg, or placebo in patients undergoing major abdominal surgery. In all other respects this study was similar in design to our first study. Both dosage strengths were significantly more effective than placebo for SPID-12 ($p<0.001$) as well as for all measures of pain intensity and pain relief. Significant differences between the sufentanil NanoTab treatment groups and the placebo group were observed within 2 hours after the first dose of study drug and continued until the end of the 12-hour treatment period. There were no clinically significant changes in laboratory variables, vital signs or oxygen saturation during the study. There were no SAEs reported during the study drug treatment period. The following figure shows the SPID-12 for the placebo, 10 mcg and 15 mcg groups.



Phase 2 Clinical Results for ARX-01 in Open-Label Device Functionality Study in Unilateral Knee Replacement (ARX-C-004)

We conducted an open-label functionality, safety and efficacy study of the ARX-01 NanoTab delivery system in patients undergoing elective unilateral knee replacement surgery. The study was a prospective, open-label, multicenter trial in 30 male and female patients 45 to 80 years of age with an average age of 66. All patients were treated with sufentanil NanoTab 15 mcg dosage strength. The primary endpoint was the percent of patients who completed the study without any Sufentanil NanoTab PCA System failures. The study also collected patient feedback on the design characteristics of the PCA System.

Patients self-administered sufentanil NanoTabs repeatedly over the 12-hour study using the ARX-01 Sufentanil NanoTab PCA System without any system failures or dosing errors for all 30 patients. Over 80% of the patients reported the two highest scores on the 5-point Likert scale of overall patient's satisfaction with the Sufentanil NanoTab PCA System 15 mcg. All 30 enrolled patients indicated that they could handle the Sufentanil NanoTab PCA System easily, that the user instructions were clear, that the dosing tone was loud enough, and that the time required for dosing was "just right." Ninety percent of the patients indicated that the size and the shape of the dosing tip was also "just right." The majority of patients indicated that the other system features (weight, size, shape, dose button function) were acceptable.

The mean pain intensity scores decreased from 5.5 at baseline to the lowest score of 3.0 at 2 hours. Dropout due to inadequate analgesia was 6.7%. There were no clinically significant changes in laboratory variables or vital signs and no SAEs reported during the study drug treatment period.

Summary of Phase 2 Adverse Events

Overall the AE profile for the three Phase 2 studies suggests that ARX-01 is well-tolerated compared to typical AE rates seen with post-operative opioids. Published data indicates a much higher rate of somnolence (approximately 50%) and oxygen desaturation (approximately 10%) during standard IV PCA use compared to results obtained in our Phase 2 studies. The high therapeutic index of sufentanil (26,716) in animal studies suggests that opioid-induced sedation and oxygen desaturation does not occur with sufentanil until doses much higher than required for analgesia are administered. We believe our Phase 2 AE data confirm the high safety index of sufentanil. The table below summarizes the investigator's rating of probably or possibly related AEs based on sufentanil NanoTab dosage strength.

Adverse Events	Placebo N=54	Sufentanil NanoTab (5 mcg) N=24	Sufentanil NanoTab (10 mcg) N=55	Sufentanil NanoTab (15 mcg) N=79
Nausea	17(31%)	7(29%)	22(40%)	23(29%)
Vomiting	3(6%)	2(8%)	6(11%)	9(11%)
Itching	0(0%)	1(4%)	4(8%)	6(8%)
Somnolence	1(2%)	1(4%)	0(0%)	2(3%)
Oxygen desaturation	0(0%)	0(0%)	1(2%)	1(1%)
Respiratory depression	1(2%)	0(0%)	2(4%)	0(0%)

ARX-02—Sufentanil NanoTab BTP Management System

This product candidate has not been approved by the FDA. We have not generated any revenue from the sale of any of our product candidates.

Market Opportunity for ARX-02

According to published data, in 2006 more than 700,000 cancer patients in the United States experienced breakthrough pain. We estimate the prescription volume for oral transmucosal products for the management of cancer breakthrough pain to be 220,000 prescriptions per year. This suggests that less than 10% of cancer patients with cancer breakthrough pain are treated with approved transmucosal breakthrough pain medications. In addition, many physicians use immediate release oral opioids to treat cancer breakthrough pain. We believe that this market is significantly larger than the transmucosal product market.

Market research among physicians managing cancer patients indicates that ARX-02 could capture approximately a quarter of the cancer breakthrough pain prescriptions. In this research, ARX-02 was predicted to take share equally from both the immediate release oral products and the transmucosal products. Given the positive reaction to the product profile and the potential benefits of ARX-02 compared to currently available products, we believe that ARX-02 represents a significant commercial opportunity.

How ARX-02 Addresses the Unmet Medical Need in Cancer Breakthrough Pain

All products approved for the treatment of cancer breakthrough pain available today are fentanyl-based and have a number of limitations, including:

- elimination half-lives of 6 to 14 hours to treat a cancer breakthrough pain event that typically lasts 15 to 60 minutes;

- inconsistent T_{max} that ranges from 20 to 240 minutes, and can result in erratic onset of action and the potential for dose-stacking;
- local adverse events, such as dental caries and oral mucosal irritation; and
- drug packaging that lacks effective deterrence against abuse and misuse.

We designed ARX-02 to address these problems by:

- providing sufentanil, a shorter duration of action opioid with an elimination half-life ranging from 2 to 4 hours, which more closely matches the duration of a cancer breakthrough pain event;
- utilizing sufentanil, which provides for a consistent T_{max} with a narrow range of 30 to 90 minutes, thereby reducing the risk of dose-stacking;
- avoiding irritation of the oral mucosa, as demonstrated in our clinical studies; and
- packaging technology that enhances patient safety by reducing the possibility of misuse or abuse, while providing healthcare professionals with usage data.

In addition, continual use of any given opioid by a patient creates a risk of tolerance specific to that molecule, reducing the effectiveness of the drug. We believe the availability of ARX-02, as a non-fentanyl based product, will allow physicians to rotate opioids prescribed for cancer breakthrough pain, thereby maintaining the effectiveness of treatment.

ARX-02 Description

ARX-02 is a product candidate for the treatment of cancer patients who suffer from breakthrough pain. ARX-02 consists of a magazine containing 30 single dose applicators, or SDAs, loaded into a multiple SDA dispenser, or MSD. Each single dose applicator includes a sufentanil NanoTab that a patient can self-administer to their sublingual space for oral transmucosal absorption. The MSD:

- protects and dispenses SDAs, one at a time;
- displays a recent dose indicator that is designed to mitigate overdosing;
- has child resistant, elderly friendly features; and
- provides electronic date and time stamping of each SDA removal event.

The date and time event log is designed to be retrieved from the MSD by a healthcare professional during an office visit to assist the prescriber in understanding the usage profile of the medication, including diversion or abuse. Overall, our goal is to improve the treatment of cancer breakthrough pain while adding a substantially heightened level of detection and deterrence around prescription opioid use, misuse and abuse. While the initial dispenser for outpatient use is designed for dispensing sufentanil NanoTabs for cancer breakthrough pain events, we believe this concept could be adapted into developing dispensers for other scheduled drugs in the future.

Sufentanil NanoTab BTP Management System—ARX-02 Clinical Program

Summary

We held an End of Phase 2 meeting with the FDA in July 2010. The FDA stated that the demonstration of efficacy versus placebo in a single Phase 3 study with a total safety database of 300 to 500 patients exposed to active drug, with at least 100 patients treated for a minimum of three months, may support an indication for the treatment of cancer breakthrough pain with underlying chronic pain.

Planned Phase 3 Clinical Trials for ARX-02

We plan to conduct one Phase 3 efficacy study for ARX-02 for the management of cancer breakthrough pain in adult patients, who are already taking opioids for their underlying persistent cancer pain. In addition, we plan to conduct two open-label studies to demonstrate long term safety, which will include the use of the MSD.

The first planned Phase 3 clinical study for ARX-02 is a multi-center, randomized, double-blind, placebo-controlled crossover study for the evaluation of the safety and efficacy of the Sufentanil NanoTab BTP Management System in the treatment of cancer breakthrough pain. We plan to screen 170 patients in order to titrate approximately 140 patients, of which 110 patients will be randomized, such that at least 100 patients will generate primary efficacy data for analysis. The planned study consists of a screening visit, an open-label titration phase of up to three weeks to establish a dose of sufentanil (20, 30, 40, 60, 80 or 100 mcg) at home or in a hospice setting, that provides adequate relief of cancer breakthrough pain with tolerable side effects. This will be followed by a randomized, double-blind treatment phase of up to three weeks. Patients will be randomized to one of six sequences, each including nine doses of which six are active and three are placebo. Patients will use an electronic diary to record primary and secondary efficacy outcomes including pain intensity, pain relief, and global evaluation of treatment. The primary endpoint is the time-weighted summed pain intensity difference over 30 minutes, SPID-30, following treatment.

Patients who complete our Phase 3 efficacy trial will be allowed to participate in an open-label extension study to continue evaluating the safety of ARX-02 for up to one year. During each month while participating in the study, patients will present to the clinical site for visits to assess their medical status and proper use of study medication. The primary objective is to determine the long-term safety of sufentanil NanoTabs in patients with cancer breakthrough pain.

The dispensing device that was used in the Phase 2 study for ARX-02 was a simple, mechanical single dose applicator, or SDA, designed for a single use. The design for Phase 3 device contains both mechanical and electronic components and is intended to be a multiple use device with a magazine containing smaller SDAs than those used in Phase 2. The magazine is loaded into a multiple SDA dispenser, or MSD, which will include software to electronically track removal of each SDA from the MSD. Several industrial models have been developed that depict the size and form factor of the smaller SDA and the MSD.

We also plan to conduct an additional open-label study to ensure there is adequate data for analysis of drug safety and device functionality. We plan to screen approximately 470 patients in order to titrate approximately 370 patients, such that at least 300 patients will enroll in this study. Patients will use the MSD that will contain a magazine holding 30 SDAs. Each SDA will contain a single sufentanil NanoTab. The MSD will electronically track removal of each SDA from the MSD in order to record dosing history in the outpatient setting. This study will be up to three-months in duration and will utilize the same titration scheme as in the Phase 3 efficacy study. After patients achieve an efficacious and tolerable dose, they will use the MSDs to dispense the SDAs throughout the 3-month study.

Phase 2 Clinical Results for ARX-02

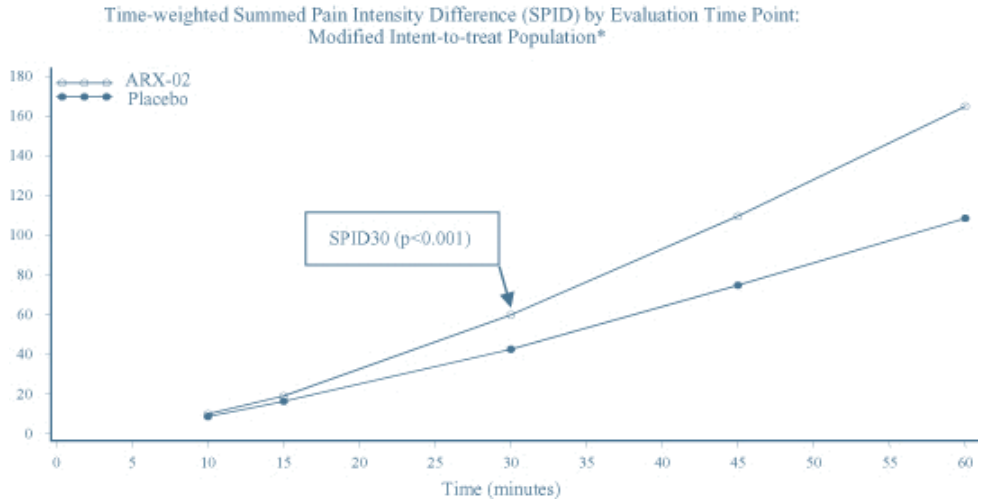
We have completed a Phase 2 study of the analgesic efficacy of the sufentanil NanoTab in adult cancer patients who are opioid tolerant and suffering from breakthrough pain events. This study was a prospective, multicenter, randomized, placebo-controlled multicenter, crossover study for the evaluation of the safety, efficacy and tolerability of the Sufentanil NanoTab BTP Management System in the treatment of cancer breakthrough pain.

Patients were screened and, if qualified for the study, would titrate to an effective dose of sufenanil that provided adequate relief of cancer breakthrough pain without producing intolerable side effects. Patients

self-administered a single sufentanil NanoTab using a single-dose applicator, starting with a 20 mcg dose, followed by titration with 30, 40, 60 and 80 mcg sufentanil NanoTabs. The primary objective during the titration phase was to assess the safety and efficacy of ARX-02. The primary endpoint during the randomized, double-blind phase was to assess the efficacy of ARX-02 compared to placebo in the management of cancer breakthrough pain as determined by SPID-30.

Once a dosage strength that alleviated pain without producing intolerable side effects was identified, the patient was randomized to that dosage strength in the double-blind phase of the study. Patients were randomized to receive 10 doses, of which seven were active and three were placebo. Efficacy was assessed by patient data recorded and scored in an electronic diary, including pain intensity, pain relief, and global medication performance assessment just prior to and after taking each of the ten doses of study drug in the double-blind phase of the study. Forty-two patients were enrolled and received titration study medication. Eighty-four percent of patients with a mean age of 53.5 years (range 25 to 73 years) were randomized to the double-blind treatment period. Thirty-three patients completed the study.

The primary endpoint of time-weighted SPID-30 for sufentanil NanoTab-treated episodes was greater than placebo-treated episodes ($p<0.001$) as shown in the figure below.



* Modified Intent-to-Treat Population: The modified intent-to-treat population is a subset of the ITT population and included all randomized patients who took at least one active dose and one placebo dose, and had pre-treatment and at least one post-treatment pain intensity score for each of these episodes.

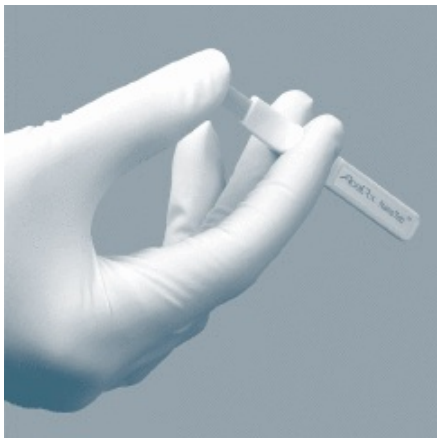
Pain intensity and pain relief were included as secondary endpoints. Lower scores for pain intensity were reported at each evaluation time point for sufentanil-treated episodes compared to placebo-treated episodes ($p=0.027$ at 15 minutes and $p<0.001$ at all other time points). Time reported time-weighted total pain relief, or TOTPAR, was greater at all time points for sufentanil-treated episodes compared to placebo-treated episodes ($p=0.049$ and $p=0.009$ for the 10 and 15 minute time points, respectively, and $p=<0.001$ for the remaining time points).

Patient Global Medication Performance Assessment, or GMPA, at 60 minutes after each dose of study medication showed 59 (27.4%) and 37 (17.2%) of the sufentanil-treated episodes were rated as very good or excellent on the GMPA, respectively, compared with seven (7.5%) and nine (9.7%) in the placebo-treated episodes. There was a statistically significant difference for GMPA measurements between the sufentanil-treated episodes and the placebo-treated episodes ($p<0.001$).

Three patients reported an SAE; however, all SAEs were considered unrelated to study drug. The most common AEs were nervous system disorders, general disorders, and gastrointestinal disorders. The most common nervous system disorder was dysgeusia, or altered sense of taste (four patients, 9.5%). The most common gastrointestinal disorder was dry mouth (three patients, 7.1%). The most common AEs were nervous system disorders, general disorders, and gastrointestinal disorders. The most common nervous system disorder was headache (two patients, 5.9%). The most common gastrointestinal disorder was nausea (three patients, 8.8%). There was no statistical difference between sufentanil and placebo treatments for any AE.

There were a few statistically significant mean changes and no clinically significant changes from baseline in hematology and chemistry variables. During the safety monitoring period at the site, there were no statistically significant changes from baseline in heart rate or respiratory rate, and no clinically significant changes in oxygen saturation.

ARX-03—Sufentanil/Triazolam NanoTabs



This product candidate has not been approved by the FDA. We have not generated any revenue from the sale of any of our product candidates.

The Market Opportunity for ARX-03

Each year in the United States, more than 100 million procedures take place in a physician's office that are known to be anxiety-inducing and painful. These procedures include diagnostic procedures such as breast and prostate biopsies, cosmetic procedures such as liposuction and dermal abrasions, interventional radiology procedures, and therapeutic procedures such as vasectomies and endometrial ablation procedures. IV sedative medications are typically not offered to these patients because of the high cost of the specialized personnel and monitoring equipment. Despite the high potential for pain and anxiety, most patients currently undergo these procedures with only a local anesthetic, causing unnecessary discomfort. We believe there is significant opportunity for a fast-acting, effective and safe product that can provide mild levels of sedation, anxiety reduction and analgesia for painful procedures conducted in a physician's office without the need for specialized personnel to monitor the patient.

How ARX-03 Addresses the Unmet Medical Need for Painful Procedures in a Physician's Office

The Joint Commission on the Accreditation of Healthcare Organizations, or JCAHO, mandates that IV sedation requires specialized monitoring, resuscitative equipment and appropriately trained staff. As a result, many practitioners do not provide any IV sedation to their patients prior to or during painful procedures that take place in a physician's office, and instead rely only on the analgesic benefit of local anesthetics.

The anxiety and pain that an individual experiences during painful procedures in a physician's office without sedation has been studied and reported in peer-reviewed journals. Ninety-six percent of men report moderate pain immediately after prostate biopsy, with only 4% of patients reporting no pain during the biopsy. Similarly, women undergoing breast biopsies have pre-procedural scores averaging 60 to 70 out of 100 for visual analog scale measurements of nervousness, tension and fearfulness. This data highlights the need for a mild sedative with analgesic and anxiety-reducing properties in addition to a local anesthetic for painful procedures in a physician's office.

We believe that ARX-03 can provide physicians with a non-invasive, rapid-acting product for mild sedation, anxiety reduction and pain relief during painful diagnostic and therapeutic procedures in a physician's office. We believe the availability of ARX-03 may increase the number of diagnostic and therapeutic procedures performed in a physician's office, resulting in cost savings because specialized personnel and equipment would not be necessary.

ARX-03 Description

ARX-03 Sufentanil/Triazolam NanoTab is a single, fixed-dose sublingual product candidate designed to be administered by a healthcare professional prior to a painful procedure in a physician's office. An important advantage of sufentanil and triazolam over other drugs in their classes is their rapid uptake from the sublingual mucosa. Our Phase 2 clinical data showed that administering ARX-03 via sublingual route prior to a procedure results in a rapid onset of mild sedation and reduction in anxiety in 15 to 30 minutes. Sufentanil and triazolam have short half-lives compared to many other agents in the same class of compounds, enabling patients treated with ARX-03 to be discharged immediately following

completion of the procedure. The sublingual route of administration avoids the high plasma concentrations associated with IV delivery, thereby obviating the need for specialized personnel and extensive monitoring.

Sufentanil/Triazolam NanoTab—ARX-03 Clinical Program

Summary

We have completed a successful Phase 2 clinical trial of ARX-03 demonstrating rapid onset of mild sedation and anxiety reduction, with a low adverse event profile during an abdominal liposuction procedure. We held End of Phase 2 meeting with the FDA in May 2010 to discuss the Phase 3 clinical program and requirements for NDA filing. Two four-arm factorial Phase 3 studies will be required with a minimum of 700 patients exposed to active drug.

Planned Phase 3 Clinical Trials for ARX-03

We plan to conduct two Phase 3 efficacy studies in a range of painful procedures, such as prostate biopsy, breast biopsy, vasectomy and low-volume abdominal liposuction. In each study, approximately 720 patients will be randomized to treatment with one of the following: sufentanil/triazolam 15 mcg/200 mcg NanoTab, sufentanil 15 mcg NanoTab, triazolam 200 mcg NanoTab, or placebo NanoTab. We intend to evaluate the time-weighted summed Richmond Agitation-Sedation Scale, or RASS, score over the 4-hour study period, or SRS-4, compared to placebo as the primary efficacy endpoint. RASS is a ten-point scale to evaluate agitated behavior where unarousable is graded as "-5" and combative is graded as a "+4" and a score of "0"is alert and calm. Secondary endpoints are intended to include comparisons of SRS-4 among active comparator arms, patient report of procedural anxiety and pain intensity using an 11-point Numerical Rating Scale, or NRS, patient and physician global assessments of satisfaction with study drug, and time to a modified Aldrete score of 8 (readiness for discharge measurement).

There was no dispensing device used in the ARX-03 Phase 2 studies. Tablets were placed in the patients' sublingual space through the use of forceps. The design for Phase 3 device for ARX-03 consists of a simple mechanical dispenser or SDA. We have produced several working prototypes.

Phase 1 and Phase 2 Clinical Results for ARX-03

We completed an initial dose finding study for three different strengths of sublingual Sufentanil/Triazolam NanoTabs (10 mcg/100 mcg, 10 mcg/200 mcg and 15 mcg/200 mcg) in 24 subjects. The onset of sedation was approximately 40% faster with the sufentanil 15 mcg/triazolam 200 mcg NanoTab treatment compared to the sufentanil 10 mcg/triazolam 200 mcg NanoTab treatment in younger subjects. There were minimal differences between treatments for time to maximum sedation and for total duration of sedation, leading us to select the sufentanil 15 mcg/triazolam 200 mcg NanoTab dosage strength to study further in a Phase 2 trial.

We completed a Phase 2 study of analgesic and anxiety reducing efficacy of the sufentanil/triazolam NanoTab in patients undergoing an elective abdominal liposuction procedure. The study was a prospective, randomized, double-blind, placebo-controlled single center study in adult patients. Patients were randomly assigned to treatment with the sufentanil 15 mcg/triazolam 200 mcg NanoTab or placebo. Forty-one patients were randomized and 40 patients received study drug and underwent the procedure and completed the 4-hour study period. The mean age for all randomized patients was 36.7 years (range 19 to 55 years). The primary endpoint was the SRS-4 and the sufentanil/triazolam NanoTab demonstrated superiority over placebo ($p<0.001$). The sufentanil/triazolam NanoTab was more effective than placebo in reducing anxiety as measured by the secondary endpoint, the NRS anxiety scale. A significant difference ($p<0.05$) in anxiety score between the sufentanil/triazolam NanoTab and placebo was seen at 15 minutes, the first time point measured after study drug dosing.

The sufentanil/triazolam NanoTab did not show a statistical difference from placebo in providing analgesia as measured by the NRS pain intensity scale (p=0.311). The summed pain intensity score was lower for the sufentanil/triazolam NanoTab compared to placebo for all time points; however, the difference was not significant with the small number of patients.

There was a statistically significant difference between the sufentanil/triazolam NanoTab treatment group and placebo (p<0.001) in the proportion of patients for which the physician rated the treatment very good or excellent on the global assessment of effectiveness and tolerability. There was also a statistically significant difference between the sufentanil/triazolam NanoTab treatment group and placebo (p=0.028) for the proportion of patients who rated the treatment very good or excellent on the global assessment of effectiveness and tolerability. All patients in both the sufentanil/triazolam NanoTab treatment group and the placebo group were ready for discharge immediately following the procedure.

There were no SAEs reported during treatment or 12 hours after dosing. The most frequent AE was nervous system disorders, which were observed in two patients (9.5%) in the sufentanil/triazolam NanoTab treatment group and in two patients (10.5%) in the placebo group. Dizziness was also reported by two patients (9.5%) in the sufentanil/triazolam NanoTab treatment group and one patient (5.3%) in the placebo group. There were no significant differences between the treatment groups for any AEs. All events were mild or moderate in severity. There were no clinically significant changes in vital signs or oxygen saturation during the study.

Other potential applications for our NanoTab technology

We believe that as a platform technology, the NanoTab, either as a stand alone dosage form or in conjunction with various forms of dispensing mechanisms, has the potential to enable other product candidates utilizing sufentanil or a number of additional compounds to be delivered sublingually to the oral mucosa. There are numerous compounds used for the treatment of pain as well as other therapeutic indications which are dosed in microgram quantities and possess characteristics that we believe make them potential candidates for sublingual delivery via the NanoTab. We believe our pending patent filings and issued European patent will broadly protect NanoTab compositions and their use in oral transmucosal delivery of compounds other than sufentanil.

One such opportunity is in the treatment of acute pain in medically supervised settings. According to the American Hospital Association, there were 127 million emergency room, or ER, visits and 17 million hospital-based outpatient surgeries in the United States in 2009. In addition, according to the Ambulatory Surgery Center Association, over 22 million procedures were conducted in ambulatory surgery centers in the United States in 2008. Typically, patients requiring pain relief in these settings have most commonly been treated with either opioids or anti-inflammatory agents in either injectable or oral form. Injectable medications require invasive IV or intramuscular, or IM, administration. In many cases, patients do not have readily available IV access, such as upon admission to the ER, ambulatory care environments or in the field during civilian and military patient transport. IM injections are painful and present an increased risk of infection. The oral route does not offer a rapid or consistent onset of action, which limits the ability to provide effective pain relief.

We believe there is significant opportunity for a single-dose, rapid-acting, non-invasive analgesic to treat acute pain in these medically supervised settings. We believe that providing non-invasive, sublingual delivery of higher doses (20-30 mcg) of the high therapeutic index opioid sufentanil, utilizing our proprietary NanoTab technology, delivered with a SDA by a health care professional could address this need. If we are able to secure additional financial resources beyond this offering, we plan to commence clinical development of this product concept for the treatment of moderate-to-severe acute pain in a medically supervised setting.

Our Strategy

Our strategy is to develop and commercialize a portfolio of sufentanil NanoTab-based products in specialty markets. We have designed and are developing product candidates which have clearly defined clinical development programs, target large commercial market opportunities and require modest commercial organizations in the United States. We selectively utilize third party contractors in order to maximize the capital efficiency of our development and commercialization efforts. We plan to enter into partnerships to market our product candidates outside the United States.

Our lead program, ARX-01, is focused on the management of post-operative pain in the hospital setting. Our second program, ARX-02, is focused on the management of cancer breakthrough pain. Both of these product candidates have completed Phase 2 development. We plan to advance ARX-01 into Phase 3 trials, submit an NDA and, if approved, to commercialize ARX-01 ourselves in the United States. Based on the availability of financial resources, we plan to advance ARX-02 into Phase 3 trials, submit an NDA and, if approved, commercialize ARX-02 ourselves or with a partner in the United States. Further development of ARX-03 will depend on the identification of a partner to support this effort.

Our specific strategy with respect to ARX-01 is to:

- complete our Phase 3 development program and seek regulatory approval in the United States and other countries;
- establish at least one commercial relationship in North America for the manufacturing of the components of the Sufentanil NanoTab PCA system;
- build a targeted hospital-directed sales force in the United States; and
- partner with third parties for commercialization outside of the United States.

Sales and Marketing

We anticipate developing a distribution capability and commercial organization in the United States to market and sell our product candidates alone or with partners, while out-licensing commercialization rights outside of the United States. In executing our strategy, our goal is to have significant control over the development process and commercial execution for our product candidates, while retaining meaningful economics.

We plan to progressively build commercial capability to support introduction of ARX-01 to the United States market as we move towards NDA submission and approval. We foresee two stages of commercial execution to support successful introduction of ARX-01 in the United States:

In parallel with our Phase 3 clinical studies, we plan to:

- highlight the clinical and health economic data identifying the limitations of IV PCA in use today;
- increase awareness of the development of ARX-01 through publication of our clinical data;
- create and deploy a focused scientific support team to gather a detailed understanding of individual hospital needs in order to be prepared to present ARX-01 effectively at the time of commercial launch;
- establish advisory boards with anesthesiologists, surgeons and nurses to provide us with input on appropriate commercial positioning for ARX-01 for each of these key audiences; and
- design a post-approval clinical development program, including potential head-to-head superiority studies with IV PCA.

Following FDA approval, we plan to:

- create and deploy a high-quality, customer focused and experienced commercial organization dedicated to bringing innovative, highly-valued healthcare solutions to patients, payors, and healthcare providers, including building a targeted hospital-directed sales force in the United States;
- establish ARX-01 on hospital formularies through deployment of an experienced team to describe the clinical and pharmacoeconomic benefits of ARX-01 in comparison to IV PCA;
- conduct post-approval clinical program for ARX-01;
- establish ARX-01 as the product of choice for traditional post-operative PCA; and
- expand the market through deployment of ARX-01 for 24 hour stay patients, where IV PCA is not used today.

Intellectual Property

We seek patent protection in the United States and internationally for our product candidates. Our policy is to pursue, maintain and defend patent rights developed internally and to protect the technology, inventions and improvements that are commercially important to the development of our business. We cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents granted to us in the future will be commercially useful in protecting our technology. We also rely on trade secrets to protect our product candidates. Our commercial success also depends in part on our non-infringement of the patents or proprietary rights of third parties. For a more comprehensive discussion of the risks related to our intellectual property, please see "Risk Factors—Risks Related to Our Intellectual Property."

Our success will depend significantly on our ability to:

- obtain and maintain patent and other proprietary protection for our product candidates;
- defend our patents;
- preserve the confidentiality of our trade secrets; and
- operate our business without infringing the patents and proprietary rights of third parties.

We have established and continue to build proprietary positions for our product candidates and related technology in the United States and abroad. As of December 31, 2010, we held 15 pending United States utility patent applications, and 41 foreign national or regional counterpart patent applications covering various aspects of our product candidates. We also hold a European Patent, EP2114383, granted on July 21, 2010, validated and translated in Switzerland, Germany, Denmark, Spain, France, the United Kingdom, Italy, the Netherlands, Portugal and Sweden, with an expiration date of December 28, 2027, excluding any additional term for patent term adjustments. We also hold three pending Patent Cooperation Treaty applications that have not yet been nationally filed.

We seek patent protection for both compositions of matter, as well as methods of treatment related to our ARX-01, ARX-02 and ARX-03 product candidates. We are pursuing composition of matter claims for our ARX-01, ARX-02 and ARX-03 NanoTabs and formulations, our ARX-01 PCA devices, the combination of drugs and our ARX-01 PCA devices, our ARX-02 and ARX-03 SDAs, as well as to methods of treatment using such drug and device compositions.

Issued European Patent No. EP2114383 includes composition of matter claims directed to ARX-01, ARX-02 and ARX-03 NanoTabs for oral transmucosal delivery of sufentanil, alone and in combination with key features of the ARX-01 PCA device, the ARX-02 and ARX-03 SDAs, and use of the claimed compositions in the treatment of pain.

We have filed for patent coverage in the United States, Europe, Japan, China, India, Canada and Korea. If issued, and if the appropriate maintenance, renewal, annuity or other governmental fees are paid, we expect that these patents will expire between 2027 and 2030, excluding any additional term for patent term adjustments or patent term extensions in the United States. We note that the patent laws of foreign countries differ from those in United States, and the degree of protection afforded by foreign patents may be different from the protection offered by U.S. patents.

Further, we seek trademark protection in the United States and internationally where available and when appropriate. We have registered our ACELRX mark in Class 5, "Pharmaceutical preparations for treating pain; pharmaceutical preparations for treating anxiety," and Class 10, "Drug delivery systems; medical device, namely, a mechanical and electronic device used to administer medications, perform timed medication delivery, and to provide secure access to and delivery of medications." Our ACELRX mark has also been registered in the European Community and Canada, and is pending in India. We have filed for trademark protection in the United States for the NanoTab mark, which we use in connection with our pharmaceutical product candidates, and the "ACCELERATE, INNOVATE, ALLEVIATE" tagline.

Competition

Our industry is highly competitive and subject to rapid and significant technological change. Our potential competitors include large pharmaceutical and biotechnology companies, specialty pharmaceutical and generic drug companies, and medical technology companies. We believe the key competitive factors that will affect the development and commercial success of our product candidates are the safety, efficacy and tolerability profile, reliability, convenience of dosing, price and reimbursement.

Many of our potential competitors, including many of the organizations named below, have substantially greater financial, technical and human resources than we do and significantly greater experience in the development of product candidates, obtaining FDA and other regulatory approvals of products and the commercialization of those products. Accordingly, our competitors may be more successful than we may be in obtaining FDA approval for drugs and achieving widespread market acceptance. Our competitors' drugs may be more effective, or may be more effectively marketed and sold, than any drug we may commercialize, which may render our product candidates obsolete or non-competitive before we can recover our losses. We anticipate that we will face intense and increasing competition as new drugs enter the market and advanced technologies become available.

Potential Competition for ARX-01

We are developing ARX-01, the Sufentanil NanoTab PCA System, for the management of acute post-operative pain in adult patients during hospitalization. We believe that ARX-01 would compete with a number of opioid-based treatment options that are currently available. The market for opioids for post- operative pain is large and competitive. The primary competition is the IV PCA pump, which is widely used in the post-operative setting. Leading manufacturers of IV PCA pumps include Hospira Inc., CareFusion Corporation, Baxter International Inc., Curlin Medical, Inc. and Smiths Medical. The most common opioids used to treat post-operative pain are morphine, hydromorphone and fentanyl, all of which are available as generics.

Also available on the market is the Avancen Medication on Demand, or MOD, Oral PCA Device developed by Avancen MOD Corporation. MOD is a unit that is locked onto an IV pole within the patient's reach and allows patients to access their oral pain medication. Other products under development for the treatment of post-operative pain that we are aware of include:

- Fentanyl iontophoretic transdermal system, IONSYS, originally developed by ALZA Corporation and Ortho-McNeil Pharmaceutical, Inc., both Johnson & Johnson subsidiaries.

IONSYS received NDA approval in May 2006 in the United States; however, the product was never launched. IONSYS was approved in Europe but the Marketing Authorization was suspended by the EMA in November 2008. IONSYS is currently under development by Incline Therapeutics, Inc.

- Rylomine, an intranasal morphine product developed by Javelin Pharmaceuticals, Inc., and currently in Phase 3 trials in the United States and in Phase 2 in Europe.

There are a number of non-opioid drugs in development that are delivered either systemically or locally for the treatment of acute post-operative pain. These drugs are usually evaluated for their ability to treat milder types of pain (for example, the day following laparoscopic surgery) or to decrease, but not replace, the need for post-operative opioids. Therefore, we do not believe that these product candidates will compete with ARX-01 because they will not be utilized commercially as the sole method of treating acute post-operative pain immediately following surgery, which is the role of ARX-01.

Potential Competition for ARX-02

We are developing ARX-02, the Sufentanil NanoTab BTP Management System, for the treatment of breakthrough pain in opioid tolerant patients, with an initial indication in cancer patients. The market for opioids for treatment of cancer breakthrough pain is large and competitive; however, currently there are no sufentanil products approved by the FDA for this indication. We expect that ARX-02, if approved, may compete with these commercial products listed in the table below.

Product Name	Company	Formulation	Commercial Market
ACTIQ	Cephalon, Inc.	Oral fentanyl transmucosal lozenge	United States
FENTORA/ EFFENTORA	Cephalon, Inc.	Fentanyl buccal tablet	United States and European Union
Onsolis	Meda Pharmaceuticals Inc. / BioDelivery Sciences International, Inc.	Fentanyl buccal soluble film	United States
Abstral	ProStrakan Group plc	Sublingual fentanyl tablet	European Union (NDA submitted in the United States)
Instanyl	Nycomed International Management GmbH	Fentanyl nasal spray	European Union
PecFent	Archimedes Pharma Limited	Fentanyl nasal spray	European Union
Fentanyl Citrate (Oral Transmucosal)	Teva Pharmaceuticals USA	Oral fentanyl transmucosal lozenge	United States

Additionally, we are aware of the following products in late stage development for cancer breakthrough pain:

- Fentanyl TAIFUN, an inhaled fentanyl product developed by Akela Pharma, Inc., and currently in Phase 3 clinical trials.
- Fentanyl SL Spray, a fentanyl sublingual spray developed by Insys Therapeutics, Inc., and currently in Phase 3 clinical trials.

If approved, these product candidates could compete directly with ARX-02.

Potential Competition for ARX-03

We are developing ARX-03, the Sufentanil/Triazolam NanoTab, for use in diagnostic or therapeutic painful procedures of short duration in a physician's office. For these procedures, many practitioners rely primarily on local anesthetics injected to the procedural area to reduce the pain of the procedure, and do not use IV sedatives to manage the anxiety of patients because of the cost of having additional trained staff to monitor the patients. Currently, we are not aware of any products on the market which combine an opioid with a benzodiazepine in a single dosage form to manage the anxiety and pain of procedures in a physician's office.

Pharmaceutical Manufacturing and Supply

We currently rely on contract manufacturers to produce sufentanil and sufentanil/triazolam NanoTabs for our clinical studies under cGMP with oversight by our internal managers. Equipment specific to the pharmaceutical manufacturing process was purchased and customized by us and is currently owned by us. We plan to continue to rely on contract manufacturers and, potentially, collaboration partners to manufacture commercial quantities of our product candidates if and when approved for marketing by the FDA. We currently rely on a single manufacturer for the preclinical and clinical supplies of our drug product for each of our product candidates and do not currently have agreements in place for redundant supply or a second source for any of our product candidates. We have identified other drug product manufacturers that could satisfy our clinical study requirements but this would require a significant delay in setting up the facility and moving equipment. Additionally, should a supplier or a manufacturer on whom we rely to produce a product candidate provide us with a faulty product or such product is later recalled, we would likely experience significant delays and material additional costs.

Device Manufacturing and Supply

The ARX-01 handheld PCA device is manufactured by contract manufacturers, component fabricators and secondary service providers. Suppliers of components, subassemblies and other materials are located in Korea, Japan, Germany, China, Taiwan, Canada and the United States. All contract manufacturers and component suppliers have been selected for their specific competencies in the manufacturing processes and materials that make up the ARX-01 system. FDA regulations require that materials be produced under cGMPs or QSR. We outsource injection molding of all the plastic parts for the cartridge and device and product sub-assemblies; NanoTab cartridge filling and packaging; assembly, packaging and labeling of the dispenser and controller.

ARX-02 is manufactured by contract manufacturers, component fabricators and secondary service providers. Suppliers of components, subassemblies and other materials are located in Korea, Japan, China, Taiwan, Canada and the United States. All contract manufacturers and component suppliers have been selected for their specific competencies in the manufacturing processes and materials that make up the ARX-02 system. FDA regulations require that materials be produced under cGMPs or QSR, as required for the respective unit operation within the manufacturing process. We outsource injection molding of all the plastic parts for the SDA and MSD and product sub-assemblies; filling, packaging and labeling of SDAs.

Government Regulation And Product Approval

Government authorities in the United States at the federal, state and local level, and other countries, extensively regulate, among other things, the research, development, testing, manufacture, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, marketing, export and import of products such as those we are developing. Our product candidates must be approved by the FDA through the new drug application, or NDA, process before they may legally be marketed in the United States.

United States Drug Development Process

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act, or FDCA, and regulations. The process of obtaining regulatory approvals and compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process, or after approval, may subject an applicant to administrative or judicial sanctions. These sanctions could include the FDA's refusal to approve pending applications, withdrawal of an approval, a clinical hold, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties. The process required by the FDA before a drug product may be marketed in the United States generally involves the following:

- completion of non-clinical laboratory tests, animal studies and formulation studies according to Good Laboratory Practices regulations;
- submission to the FDA of an IND which must become effective before human clinical studies may begin;
- performance of adequate and well-controlled human clinical studies according to Good Clinical Practices, or GCP, to establish the clinical safety and efficacy of the proposed drug product for its intended use;
- submission to the FDA of an NDA for a new drug product;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the drug product and the drug substance(s) are produced to assess compliance with cGMP; and
- FDA review and approval of the NDA; and
- payment of user and facility fees.

The testing and approval process requires substantial time, effort and financial resources and we cannot be certain that any approvals for our product candidates will be granted on a timely basis, if at all.

Once a pharmaceutical product candidate is identified for development, it enters the preclinical testing stage. Preclinical tests include laboratory evaluations of product chemistry, toxicity, formulation and stability, as well as animal studies to assess its potential safety and efficacy. An IND sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data and any available clinical data or literature, to the FDA as part of the IND. The sponsor will also include a protocol detailing, among other things, the objectives of the initial clinical study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated if the initial clinical study lends itself to an efficacy evaluation. Some preclinical testing may continue even after the IND is submitted. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA places the clinical study on a clinical hold within that 30-day time period. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical study can begin. Clinical holds also may be imposed by the FDA at any time before or during studies due to safety concerns or non-compliance.

All clinical studies must be conducted under the supervision of one or more qualified investigators in accordance with protection of human subjects at 21 CFR Part 50 and GCP guidances. These regulations include the requirement that all research subjects provide informed consent. Further, an institutional review board, or IRB, must review and approve the plan for any clinical study before it commences at an institution. An IRB considers, among other things, whether the risks to individuals participating in the studies are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the information regarding the clinical study and the consent form that must be provided to each clinical study subject or his or her legal representative and must monitor the clinical study until completed.

Each new clinical protocol and any amendments to the protocol must be submitted to the IND for FDA review, and to the IRBs for approval. Protocols detail, among other things, the objectives of the clinical study, dosing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety.

Human clinical studies are typically conducted in three sequential phases that may overlap or be combined:

- *Phase 1.* The product is initially introduced into healthy human subjects and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion. In the case of some products for severe or life-threatening diseases, especially when the product may be too inherently toxic to ethically administer to healthy volunteers, the initial human testing is often conducted in patients.
- *Phase 2.* Involves studies in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product for specific targeted conditions and to determine dosage tolerance and optimal dosage and schedule.
- *Phase 3.* Clinical studies are undertaken to further evaluate dosage, clinical safety and efficacy in an expanded patient population at geographically dispersed clinical study sites. These studies are intended to establish the overall risk/benefit ratio of the product and provide an adequate basis for product labeling.

Progress reports detailing the results of the clinical studies must be submitted at least annually to the FDA and safety reports must be submitted to the FDA and the investigators for serious and unexpected adverse events. Phase 1, Phase 2 and Phase 3 testing of our product candidates may not be completed successfully within any specified period, if at all. The FDA or the sponsor may suspend or terminate a clinical study at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical study at its institution if the clinical study is not being conducted in accordance with the IRB's requirements or if the drug or biological product has been associated with unexpected serious harm to patients.

Concurrent with clinical studies, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the product and finalize a process for manufacturing the product in commercial quantities in accordance with cGMP and QSR for medical devices requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, the manufacturer must develop methods for testing the identity, strength, quality and purity of the final product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

Our product candidates ARX-01, ARX-02 and ARX-03 are regulated under IND's and in the case of ARX-01, all device related information is filed under the Chemistry, Manufacturing and Controls Section, or CMC, of an IND.

United States Review and Approval Processes

The results of product development, preclinical studies and clinical studies, along with descriptions of the manufacturing process, analytical tests conducted on our drug products, proposed labeling and other relevant information, will be submitted to the FDA as part of an NDA for a new drug product, requesting approval to market the product in the United States. The submission of an NDA is subject to the payment of a substantial user fee; a waiver of such fee may be obtained under certain limited circumstances.

In addition, under the Pediatric Research Equity Act of 2003, or PREA, which was reauthorized under the Food and Drug Administration Amendments Act of 2007, an NDA or supplement to an NDA must contain data to assess the safety and effectiveness of the drug product for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDA may grant deferrals for submission of data or full or partial waivers.

The FDA reviews all NDAs submitted to ensure that they are sufficiently complete for substantive review before it accepts them for filing. The FDA may request additional information rather than accept an NDA for filing. In this event, an NDA must be re-submitted with the additional information. The re-submitted application also is subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA reviews an NDA to determine, among other things, whether a product is safe and effective for its intended use and whether its manufacturing is cGMP-compliant to assure and preserve the product's identity, strength, quality and purity. Before approving an NDA the FDA will inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. The FDA may refer the NDA to an advisory committee for review, evaluation and recommendation as to whether the application should be approved and under what conditions.

The approval process is lengthy and difficult and the FDA may refuse to approve an NDA if the applicable regulatory criteria are not satisfied or may require additional clinical data or other data and information. Even if such data and information is submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval. Data obtained from clinical studies are not always conclusive and the FDA may interpret data differently than we interpret the same data. The FDA will issue a complete response letter if the agency decides not to approve the NDA in its present form. The complete response letter usually describes all of the specific deficiencies in the NDA identified by the FDA. The deficiencies identified may be minor, for example, requiring labeling changes, or major, for example, requiring additional preclinical or clinical studies. Additionally, the complete response letter may include recommended actions that the applicant might take to place the application in a condition for approval. If a complete response letter is issued, we may either resubmit the NDA addressing all of the deficiencies identified in the letter, or withdraw the application.

If one or more of our product candidates receive regulatory approval, the approval may be limited to specific conditions and dosages or the indications for use may otherwise be limited, which could restrict the commercial value of the product. Our product candidates, if approved, will also require Risk Evaluations and Mitigation Strategies, or REMS, that can include a medication guide, patient package insert, a communication plan, elements to assure safe use and implementation system, and must include a timetable for assessment of the REMS. Further, the FDA may require that certain contraindications, warnings or precautions be included in the product labeling and may require testing and surveillance programs to monitor the safety of approved products that have been commercialized. In addition, the FDA may require post-approval testing which involves clinical studies designed to further assess a drug product's safety and effectiveness after the NDA.

Marketing Exclusivity

Market exclusivity provisions under the FDCA can delay the submission or the approval of certain competing applications containing the same active ingredient as our products, if approved. The FDCA provides three years of marketing exclusivity for an NDA, 505(b)(2) NDA or supplement to an existing NDA if new clinical investigations, other than bioavailability studies were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example new

indications, dosages or strengths of an existing drug such as for our product candidates. This three-year exclusivity covers only the conditions associated with the new clinical investigations and does not prohibit the FDA from approving ANDAs for drugs containing the original active agent. Three-year exclusivity will not delay the submission or approval of a full NDA.

Pediatric exclusivity is another type of exclusivity in the United States. Pediatric exclusivity, under the Best Pharmaceutical for Children Act, if applied for and granted, provides an additional six months to an existing exclusivity or statutory delay in approval resulting from a patent certification. This six-month exclusivity, which runs from the end of other exclusivity protection or patent delay, may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued "Written Request." The current pediatric exclusivity provision was reauthorized in September 2007. At present, we do not plan to apply for pediatric exclusivity.

We intend to submit 505(b)(2) NDA applications for each of our product candidates and if approved, we would be granted three years of marketing exclusivity. We expect that our patents, if issued and not successfully challenged, will expire between 2027 and 2030.

Post-Approval Requirements

Any drug products for which we receive FDA approvals are subject to continuing regulation by the FDA, including, among other things, record-keeping requirements, reporting of adverse experiences with the product, providing the FDA with updated clinical safety and efficacy information, product sampling and distribution requirements, complying with certain electronic records and signature requirements and complying with FDA promotion and advertising requirements. The FDA strictly regulates labeling, advertising, promotion and other types of information on products that are placed on the market. Drug products may be promoted only for the approved indications and in accordance with the provisions of the approved label. Further, manufacturers of drug products must continue to comply with cGMP requirements, which are extensive and require considerable time, resources and ongoing investment to ensure compliance. In addition, changes to the manufacturing process generally require prior FDA approval before being implemented and other types of changes to the approved product, such as adding new indications and additional labeling claims, are also subject to further FDA review and approval.

Drug product manufacturers and other entities involved in the manufacturing and distribution of approved drug products are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP and other laws. The cGMP requirements apply to all stages of the manufacturing process, including the production, processing, packaging, labeling, storage and shipment of the drug product. Manufacturers must establish validated systems to ensure that products meet specifications and regulatory standards, and test each product batch or lot prior to its release. In the case of ARX-01 the device component must comply with 21 CFR 820.

We rely, and expect to continue to rely, on third parties for the production of clinical and commercial quantities of our products. Future FDA and state inspections may identify compliance issues at the facilities of our contract manufacturers that may disrupt production or distribution or may require substantial resources to correct.

The FDA may withdraw a product approval if compliance with regulatory standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product may result in restrictions on the product or even complete withdrawal of the product from the market. Further, the failure to maintain compliance with regulatory requirements may result in administrative or judicial actions, such as fines, warning letters, holds on clinical studies, product recalls or seizures, product detention or refusal to permit the import or export of products,

refusal to approve pending applications or supplements, restrictions on marketing or manufacturing, injunctions or civil or criminal penalties.

In addition, from time to time, legislation is drafted, introduced and passed in Congress that could significantly change the statutory provisions governing the approval, manufacturing and marketing of products regulated by the FDA. For example, in September 2007, the Food and Drug Administration Amendments Act of 2007 was enacted, giving the FDA enhanced post-market authority, including the authority to require post-market studies and clinical studies, labeling changes based on new safety information and compliance with REMS, approved by the FDA. In determining whether a REMS is necessary, the FDA must consider the size of the population likely to use the drug or biological product, the seriousness of the disease or condition to be treated, the expected benefit of the product, the duration of treatment, the seriousness of known or potential adverse events for the product and whether the product is a new molecular entity.

All three of our products in clinical development contain sufentanil, an opioid that is designated Schedule II by the DEA. As a result, all three products will be subjected to a REMS. In the case of ARX-02 for cancer breakthrough pain which will be outpatient use, this is likely to be the most comprehensive REMS. The FDA may require that a REMS include some or all of the following elements, such as medication guide, communication plan, elements to assure safe use, implementation system and timetable for submission and assessments or other measures.

In addition to new legislation that may be enacted, the FDA regulations and policies are often revised or reinterpreted by the agency in ways that may significantly affect our business and our product candidates. It is impossible to predict whether further legislative or FDA regulation or policy changes will be enacted or implemented and what the impact of such changes, if any, may be.

Foreign Regulation

In addition to regulations in the United States, we will be subject to a variety of foreign regulations governing clinical studies and commercial sales and distribution of our products to the extent we choose to sell any products outside of the United States. Whether or not we obtain FDA approval for a product, we must obtain approval of a product by the comparable regulatory authorities of foreign countries before we can commence clinical studies or marketing of the product in those countries. The approval process varies from country to country and the time may be longer or shorter than that required for FDA approval. The requirements governing the conduct of clinical studies, product licensing, pricing and reimbursement vary greatly from country to country.

In the European Union, our product candidates are subject to extensive regulatory requirements, which provide, among other things, that no medicinal product may be placed on the market of a European Union member state unless a marketing authorization has been issued by the European Medicines Agency or a national competent authority. European Union member states require both regulatory clearance by the national competent authority and a favorable ethics committee opinion prior to the commencement of a clinical study.

Controlled Substances Regulations

Sufentanil, a Schedule II controlled substance, is the active pharmaceutical ingredient in the ARX-01, ARX-02 and ARX-03 NanoTab product candidates. Triazolam, a Schedule IV controlled substance, is also an active pharmaceutical ingredient in ARX-03. Controlled substances are governed by the Drug Enforcement Administration of the U.S. Department of Justice. The handling of controlled substances and/or drug product by us, our contract manufacturers, analytical laboratories, packagers and distributors, are regulated by the Controlled Substances Act and Title 21 CFR, Part 1300-1399. Our current supply chain is also subject to the regulations of Health Canada’s Drug Strategy and Controlled Substances Programme, and specifically, the Office of Controlled Substances.

Unforeseen delays to the drug substance and drug product manufacture and supply chain may occur due to delays, errors or other unforeseen problems with the permitting process. Also, any one of our suppliers, contract manufacturers, laboratories, packagers and/or distributors could be the subject of DEA violations and enforcement could lead to delays or even loss of DEA license by the contractors.

Pharmaceutical Pricing and Reimbursement

Sales of pharmaceutical products depend significantly on the availability of third party reimbursement. Third-party payors include government health administrative authorities, managed care providers, private health insurers and other organizations. We anticipate third-party payors will provide reimbursement for our products. However, these third party payors are increasingly challenging the price and examining the cost-effectiveness of medical products and services. In addition, significant uncertainty exists as to the reimbursement status of newly approved healthcare products. We may need to conduct expensive pharmacoeconomic studies in order to demonstrate the cost-effectiveness of our products. The product candidates that we develop may not be considered cost-effective. It is time consuming and expensive for us to seek reimbursement from third party payors. Reimbursement may not be available or sufficient to allow us to sell our products on a competitive and profitable basis.

Health Law Compliance

In addition to FDA laws and regulations, we must comply with a variety of federal and state laws governing, among other things, the privacy of healthcare information, our relationships with healthcare providers and the reimbursement of prescription drug products. Although the federal health care program anti-kickback statute has a number of statutory exemptions and regulatory safe harbors protecting certain common activities from prosecution, the exemptions and safe harbors are drawn narrowly, and practices that involve remuneration intended to induce prescribing, purchases, or recommendations may be subject to scrutiny if they do not qualify for an exemption or safe harbor. Our practices may not in all cases meet all of the criteria for safe harbor protection from anti-kickback liability. Federal false claims laws prohibit any person from knowingly presenting, or causing to be presented, a false claim for payment to the federal government, or knowingly making, or causing to be made, a false statement to get a false claim paid. Recently, several pharmaceutical and other health care companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the company's marketing of the product for unapproved, and thus non-reimbursable, uses. The majority of states also have statutes or regulations similar to the federal anti-kickback law and false claims laws, which apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payer. Sanctions under these federal and state laws may include civil monetary penalties, exclusion of a manufacturer's products from reimbursement under government programs, criminal fines, and imprisonment. Because of the breadth of these laws and the narrowness of the safe harbors, it is possible that some of our business activities could be subject to challenge under one or more of such laws. Such a challenge could have a material adverse effect on our business, financial condition and results of operations.

In March 2010 the Patient Protection and Affordable Health Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively the PPACA, was enacted, which includes measures to significantly change the way health care is financed by both governmental and private insurers. Among the provisions of the PPACA of greatest importance to the pharmaceutical industry are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs, beginning in 2011;

- new requirements to report certain financial arrangements with physicians and others, including reporting any "transfer of value" made or distributed to prescribers and other healthcare providers and reporting any investment interests held by physicians and their immediate family members during each calendar year beginning in 2012, with reporting starting in 2013;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- creation of the Independent Payment Advisory Board which, beginning in 2014, will have authority to recommend certain changes to the Medicare program that could result in reduced payments for prescription drugs and those recommendations could have the effect of law even if Congress does not act on the recommendations; and
- establishment of a Center for Medicare Innovation at the Centers for Medicare & Medicaid Services to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending beginning by January 1, 2011.

Many of the details regarding the implementation of the PPACA are yet to be determined, and at this time, it remains unclear the full effect that the PPACA would have on our business.

Research and Development

Conducting research and development is central to our business model. We have invested and expect to continue to invest significant time and capital in our research and development operations. Our research and development expenses were $8.2 million, $18.3 million and $15.5 million in 2007, 2008 and 2009, and $6.4 million for the nine months ended September 30, 2010. We plan to increase our research and development expenses for the foreseeable future as we seek to complete the development of ARX-01 and subsequently advance the development of ARX-02 and ARX-03.

Employees

As of December 31, 2010, we employed 19 full-time employees. Eleven of our employees were engaged in research and development activities and eight were engaged in support administration, including business development, finance, information systems, facilities and human resources. None of our employees is subject to a collective bargaining agreement. We consider our relationship with our employees to be good.

Facilities

We lease approximately 11,305 square feet of space for our headquarters in Redwood City, California under an agreement that expires on April 8, 2012. We believe that our existing facilities are adequate to meet our current needs.

Legal Proceedings

We are not currently a party to any legal proceedings.

MANAGEMENT

Directors, Executive Officers and Key Employees

The following table sets forth information regarding our directors, executive officers and key employees as of December 31, 2010:

Name	Age	Position
Directors and Executive Officers		
Thomas A. Schreck[1]	53	Chairman and Co-Founder
Richard A. King	46	Director, President and Chief Executive Officer
Pamela P. Palmer, M.D., Ph.D.	47	Director, Chief Medical Officer and Co-Founder
Stephen J. Hoffman, Ph.D., M.D.[1]	56	Director
Guy P. Nohra[2][3]	50	Director
Howard B. Rosen[2][3]	52	Director
Mark Wan[1][3]	45	Director
James H. Welch	53	Chief Financial Officer
Lawrence G. Hamel	59	Chief Development Officer
Badri Dasu	47	Chief Engineering Officer
Key Employees		
Carter J. King	39	Vice President, Finance
Nigel Ray	49	Vice President, Business Development

[1] Member of nominating and corporate governance committee.
[2] Member of audit committee.
[3] Member of compensation committee.

The following includes a brief biography for each of our directors, executive officers and key employees, with each director biography including information regarding the experiences, qualifications, attributes or skills that caused our board of directors to determine that each member of our board of directors should serve as a director as of the date of this prospectus. There are no family relationships among any of our directors or executive officers.

Directors and Executive Officers

Thomas A. Schreck. Mr. Schreck has served as our Chairman since he co-founded AcelRx in July 2005, and as our President and Chief Executive Officer from July 2005 until April 2010. Since June 2010, Mr. Schreck has been co-founder and Chief Executive Officer of Sinusys Corporation, a medical device company. Prior to July 2005, he served as a founding President, and then Chief Financial Officer and a director of DURECT Corporation, an emerging specialty pharmaceutical company he co-founded in June 1998. Prior to 1998, Mr. Schreck held various investment banking positions in the San Francisco Bay Area and London, including Montgomery Securities and Manufacturers Hanover Limited. Mr. Schreck holds a B.A. in American Studies from Williams College. Mr. Schreck's historical knowledge of our company, his financial background and experience and his experience in the pharmaceutical industry provide him with the qualifications and skills to serve as a director.

Richard A. King. Mr. King has served as our director and President and Chief Executive Officer since May 2010. From April 2009 until May 2010, Mr. King acted as an independent consultant to a number of private and public biotechnology and venture capital companies. From October 2008 to April 2009, Mr. King served as President and General Manager of Tercica, Inc., a biotechnology company that was acquired by Ipsen, SA in 2008, and from February 2008 to October 2008, Mr. King served as President and Chief Operating Officer of Tercica, Inc., and from February 2007 until February 2008, served as Chief Operating Officer of Tercica, Inc. From January 2002 to October 2006, Mr. King served as

Executive Vice President of Commercial Operations of Kos Pharmaceuticals, Inc., a pharmaceutical company that was acquired by Abbott Laboratories, a global, broad-based health care company, in 2006. From January 2000 to January 2002, Mr. King served as Senior Vice President of Commercial Operations at Solvay Pharmaceuticals, a pharmaceutical company that was acquired by Abbott Laboratories in 2009. From April 1992 to January 2000, Mr. King held various marketing positions at SmithKline Beecham Pharmaceuticals, now known as GlaxoSmithKline, a global pharmaceutical company. Mr. King holds a B.Sc. in Chemical Engineering from University of Surrey and an M.B.A. from Manchester Business School. Mr. King's extensive experience as an executive officer in public pharmaceutical companies and his knowledge of the day-to-day operations of our company provide him with the qualifications and skills to serve as a director.

Pamela P. Palmer, M.D., Ph.D. Dr. Palmer has served as our director and Chief Medical Officer since she co-founded the company in July 2005. Dr. Palmer has been on faculty at the University of California, San Francisco since 1996 and is currently a Clinical Professor of Anesthesia and Perioperative Care. Dr. Palmer was Director of UCSF PainCARE-Center for Advanced Research and Education from 2005 to 2009, and was Medical Director of the UCSF Pain Management Center from 1999 to 2005. Dr. Palmer has been a consultant of Omeros Corporation, a biopharmaceutical company, since she co-founded that company in 1994. Dr. Palmer holds an M.D. from Stanford University and a Ph.D. from the Stanford Department of Neuroscience. Dr. Palmer's extensive clinical and scientific experience in the treatment of acute and chronic pain as well as historical knowledge of our company provide her with the qualifications and skills to serve as a director.

Stephen J. Hoffman, Ph.D., M.D. Dr. Hoffman has served as our director since February 2010. Dr. Hoffman has served as a managing director at Skyline Ventures, a venture capital firm, since May 2007. From January 2003 to March 2007, Dr. Hoffman was a general partner at TVM Capital, a venture capital firm. Prior to that, he served as President, Chief Executive Officer and a director of Allos Therapeutics, a biopharmaceutical company from 1994 to 2002, where he remains Chairman of the board. From 1990 to 1994, Dr. Hoffman completed a fellowship in clinical oncology and a residency/fellowship in dermatology, both at the University of Colorado. Dr. Hoffman was the scientific founder of Somatogen Inc., a biotechnology company that was acquired by Baxter International, Inc., a global medical products and services company, in 1998, where he held the position of Vice President of Science and Technology from 1987 until 1990. He serves on the board of directors of Allos Therapeutics, Inc., a biopharmaceutical company, Concert Pharmaceuticals, Inc., a biotechnology company, Kai Pharmaceuticals, Inc., a biopharmaceutical company, Dicerna Pharmaceuticals, Inc., a biopharmaceutical company and Tolerx, Inc., a biotechnology company. Previously, Dr. Hoffman served on the board of directors of Sirtris Pharmaceuticals, Inc., a pharmaceutical company that was acquired by GlaxoSmithKline in 2008. Dr. Hoffman holds a Ph.D. in bio-organic chemistry from Northwestern University and an M.D. from the University of Colorado School of Medicine. Dr. Hoffman's scientific, financial and business expertise, including his diversified background as an executive officer and investor in public pharmaceutical companies, provides him with the qualifications and skills to serve as a director.

Guy P. Nohra. Mr. Nohra has served as our director since August 2006. Mr. Nohra co-founded Alta Partners, a venture capital firm investing in life science companies in 1996, and has served as Managing Director of Alta Partners since 1996. Mr. Nohra was also a partner at Burr, Egan, Deleage & Co., a venture capital firm, which he joined in 1989. From January 1984 until June 1987, Mr. Nohra was Product Manager of Medical Products with Security Pacific Trading Corporation, a consumer and commercial bank. Currently, Mr. Nohra serves on the board of directors of numerous private companies, including Carbylan Biosurgery, Inc., Coapt Systems, PneumRx, Inc. and Vertiflex, Inc., and is the Chairman of the Board of USGI Medical, Inc. In addition, Mr. Nohra previously served on the board of directors of ATS Medical, Inc., a company focused on the manufacture of cardiac surgery products, that was acquired by Medtronic, Inc., a medical device company, in 2010 and Cutera, Inc., a global medical

device company. Mr. Nohra also serves on the board of directors of the Medical Device Manufacturing Association, a national trade organization that advocates for entrepreneurial medical technology companies. Mr. Nohra holds a B.A. in History from Stanford University and an M.B.A. from the University of Chicago. Mr. Nohra's medical technology and venture capital industry experience provides him with the qualifications and skills to serve as a director.

Howard B. Rosen. Mr. Rosen has served as our director since 2008. Mr. Rosen has served as interim President and Chief Executive Officer of Pearl Therapeutics, Inc. since June 2010. From 2004 to 2008, Mr. Rosen was Vice President of Commercial Strategy at Gilead Sciences, Inc., a biopharmaceutical company. Mr. Rosen was President of ALZA Corporation, a pharmaceutical and medical systems company that merged with Johnson & Johnson in 2001, from 2003 until 2004 and Vice President, Product Development from 2002 until 2003. Prior to that, from 1994 until 2002, Mr. Rosen held various positions at ALZA Corporation. From 1993 to 1994, Mr. Rosen managed the west coast practice of Integral, Inc., a consulting firm. From 1989 until 1993, Mr. Rosen was Director of Corporate Development at GenPharm International, Inc., a company focusing on transgenic animal technology that was acquired by Medarex, Inc., in 1997 and later acquired by Bristol-Myers Squibb Company, a global biopharmaceutical company, in 2009. Mr. Rosen is also a member of the board of directors of PavVax, Inc., a biotechnology company, CNS Therapeutics, Inc., a pharmaceutical company and Pearl Therapeutics, Inc., a company focused on developing combination therapies for the treatment of highly prevalent chronic respiratory diseases. Previously, Mr. Rosen served on the board of directors of Pharsight Corporation, a company focused on providing software products and consulting services to pharmaceutical and biotechnology companies that was acquired by Tripos International, a company focused on drug discovery informatics products and services in 2008. Mr. Rosen also served on the board of directors of CoTherix, Inc., a biopharmaceutical company that was acquired by Actelion Pharmaceuticals Ltd, a biopharmaceutical company in 2007. Mr. Rosen holds a B.S. in Chemical Engineering from Stanford University, an M.S. in Chemical Engineering from the Massachusetts Institute of Technology and an M.B.A. from the Stanford Graduate School of Business. Mr. Rosen's experience in the biopharmaceutical industry, including his specific experience with commercialization of pharmaceutical products, provides him with the qualifications and skills to serve as a director.

Mark Wan. Mr. Wan has served as our director since August 2006. Mr. Wan is a founding general partner of Three Arch Partners, a venture capital firm. Prior to co-founding Three Arch Partners in 1993, Mr. Wan was a general partner at Brentwood Associates, a private equity firm from 1987 until 1993. Since 1999, Mr. Wan has served on the board of directors of Epocrates, Inc., a company focused on providing mobile drug reference tools. Mr. Wan also serves as a director of Biosensors International Group, Ltd. a company focused on the development, manufacture and marketing of medical devices for interventional cardiology and critical care procedures. Mr. Wan also serves on the board of directors of numerous private companies, including Ascend Health Corporation, Eleme Medical, Inc., Ingenuity Systems, Inc., TriReme Medical, Inc. and Quattro Vascular Pte Ltd. Mr. Wan holds a B.S. in Engineering and a B.A. in Economics from Yale University and an M.B.A. from the Stanford Graduate School of Business. Mr. Wan's financial experience and extensive knowledge of our company provides him with the qualifications and skills to serve as a director.

James H. Welch. Mr. Welch has served as our Chief Financial Officer since October 1, 2010. From June 2006 until September 2010 Mr. Welch served as Chief Financial Officer and Corporate Secretary for Cerimon Pharmaceuticals, a biopharmaceutical company. Mr. Welch served as Vice President, Chief Financial Officer and Corporate Secretary for Rigel Pharmaceuticals, Inc., a drug development company from October 2000 until May 2006, and as Vice President, Finance and Administration from May 1999 until October 2000. From June 1998 until May 1999, Mr. Welch served as an independent consultant at various companies. Mr. Welch served as Chief Financial Officer of Biocircuits Corporation, a company focused on developing immunodiagnostic testing systems from February 1997 until June 1998, and from

June 1992 until February 1997, he served as Corporate Controller. Mr. Welch holds a B.A. in Business Administration from Whitworth College and an M.B.A. from Washington State University.

Lawrence G. Hamel. Mr. Hamel has served as our Chief Development Officer since September 2006. From 1986 until September 2006, Mr. Hamel served as Product Development Manager, Director Project Management, Executive Director Oral Product Development, and Vice President Oral Products Development at ALZA Corporation. From 1977 until 1985, Mr. Hamel held a number of positions at ALZA Corporation, including Senior Chemist, Research Scientist, and Senior Research Fellow. Mr. Hamel holds a B.S. in Biology from the University of Michigan.

Badri Dasu. Mr. Dasu has served as our Chief Engineering Office since September 2007. From December 2005 until September 2007, Mr. Dasu served as Vice President of Medical Device Engineering at Anesiva, a biopharmaceutical company. From March 2002 until December 2005, Mr. Dasu served as Vice President for Manufacturing and Device Development at AlgoRx Pharmaceuticals, Inc., an emerging pain management company, which merged with Corgentech Inc. in December 2005. From January 2000 until March 2002, Mr. Dasu served as Vice President of Manufacturing and Process Development at PowderJect Pharmaceuticals, a vaccine, drug and diagnostics delivery company that was acquired by Chiron Corporation in 2003 and later acquired by Novartis AG, a global healthcare and pharmaceutical company in 2006. Previously, Mr. Dasu served in various capacities in process development at Metrika, Inc., a company focused on the manufacture and marketing of disposable diabetes monitoring products that was acquired by Bayer HealthCare, LLC in 2006 and at Cygnus, Inc., a drug delivery and specialty pharmaceuticals company. Mr. Dasu holds a B.E. in Chemical Engineering from the University of Mangalore, India and M.S. in Chemical Engineering from the University of Tulsa.

Key Employees

Carter J. King. Mr. King has served as our Vice President, Finance since July 2006. From September 2002 to June 2006, Mr. King served as Associate Director, Corporate Planning at ALZA Corporation. From September 1998 to June 2002, Mr. King held a number of positions at Coulter Pharmaceutical/Corixa Corporation, a developer of immunotherapeutics, including Director of Finance. Prior to 1998, Mr. King spent four years in various finance roles at OnCare Inc., an oncology focused healthcare services firm, and at GATX Capital, a provider of leasing and related services to customers operating rail, marine and other targeted assets. Mr. King holds a B.A. in Business Economics from the University of California Santa Barbara and an M.B.A. from the Haas School of Business at the University of California, Berkeley.

Nigel Ray. Mr. Ray has served as our Vice President of Business Development since October 2009. From January 2009 until September 2009, Mr. Ray served as Vice President of Business Development at Limerick BioPharma, a biopharmaceutical company. From 1999 until 2009, Mr. Ray served in a variety of business development roles at DURECT Corporation, most recently as Executive Director of Business Development. Previously, Mr. Ray served in a variety of marketing and business roles for ALZA Corporation. Mr. Ray holds a B.A. in Human Biology from Stanford University and an M.B.A. from the University of California Los Angeles Anderson School of Business.

Director Independence

Upon the completion of this offering, our common stock is expected to be listed on the NASDAQ Global Market. Under the rules of the NASDAQ Stock Market, LLC, or NASDAQ, “independent” directors must comprise a majority of a listed company’s board of directors within a specified period following that company’s listing date in conjunction with its initial public offering. In addition, applicable NASDAQ rules require that, subject to specified exceptions, each member of a listed company’s audit, compensation and nominating committees be independent within the meaning of applicable NASDAQ rules. Audit committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Securities Exchange Act of 1934, as amended, or the Exchange Act.

In November 2010, our board of directors undertook a review of the independence of each director and considered whether any director has a material relationship with us that could compromise his ability to exercise independent judgment in carrying out his responsibilities. As a result of this review, our board of directors determined that all of our directors, other than Messrs. King and Schreck and Dr. Palmer, qualify as "independent" directors within the meaning of the NASDAQ rules. Accordingly, a majority of our directors are independent, as required under applicable NASDAQ rules. In making this determination, our board considered Mr. Nohra's affiliation with Alta Partners, one of our stockholders, Dr. Hoffman's affiliation with Skyline Ventures, one of our stockholders and Mr. Wan's affiliation with Three Arch Partners, one of our stockholders. As required under applicable NASDAQ rules, we anticipate that our independent directors will meet in regularly scheduled executive sessions at which only independent directors are present.

Voting Agreement

We are party to a voting agreement under which holders of our preferred stock, including our principal stockholders with which certain of our directors are affiliated, have agreed to vote in a certain way on certain matters, including with respect to the election of directors. Pursuant to the voting agreement, holders of our preferred stock have agreed to vote such that one director be a designee of Three Arch Partners IV, L.P. or its affiliates, who is currently Mark Wan; one director be a designee of ACP IV, L.P. or its affiliates, who is currently Guy Nohra; and one director be a designee of Skyline Venture Partners Qualified Purchaser Fund IV, L.P. or its affiliates, who is currently Stephen Hoffman. Upon the closing of this offering, the voting agreement will terminate in its entirety and none of our stockholders will have any special rights regarding the election or designation of members of our board of directors.

Board Composition

Our board of directors may establish from time to time by resolution the authorized number of directors. Currently, seven directors are authorized. In accordance with our amended and restated certificate of incorporation to be in effect immediately prior to the closing of this offering, our board of directors will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. After the completion of this offering, our directors will be divided among the three classes as follows:

- the Class I directors will be Messrs. Schreck and Nohra, and their terms will expire at the annual meeting of stockholders to be held in 2011;
- the Class II directors will be Mr. King and Drs. Hoffman and Palmer, and their terms will expire at the annual meeting of stockholders to be held in 2012; and
- the Class III directors will be Messrs. Rosen and Wan, and their terms will expire at the annual meeting of stockholders to be held in 2013.

Our amended and restated certificate of incorporation will provide that the authorized number of directors may be changed only by resolution of the board of directors.

Board Committees

Our board of directors has an audit committee, a compensation committee and a nominating and corporate governance committee. The composition and responsibilities of each committee are described below. Members serve on these committees until their resignation or until otherwise determined by our board.

Audit Committee

Our audit committee consists of Messrs. Rosen and Nohra, each of whom is a non-employee member of our board of directors. We expect to add one additional member to the audit committee prior to the completion of this offering. Mr. Rosen serves as the chair of our audit committee. Our board of directors has determined that each of the directors serving on our audit committee meets the requirements for financial literacy under applicable rules and regulations of the SEC and NASDAQ. We are currently seeking an audit committee member who will be a financial expert as defined under the applicable rules and regulations of the SEC and who has the requisite financial sophistication as defined under the applicable rules and regulations of NASDAQ. The audit committee will be comprised of independent directors, subject to the phase-in periods available to companies listing on NASDAQ in connection with an initial public offering. Each member of the audit committee will be financially literate at the time such member is appointed. The composition of the audit committee will satisfy the independence and other requirements of NASDAQ and the SEC. The audit committee operates under a written charter that satisfies the applicable standards of the SEC and NASDAQ and which will be available on our website prior to the completion of this offering at www.acelrx.com.

The functions of our audit committee include, among other things:

- evaluating the performance, independence and qualifications of our independent registered public accounting firm and determining whether to retain our existing independent registered public accounting firm or engage new independent registered public accounting firm;
- reviewing and approving the engagement of our independent registered public accounting firm to perform audit services and any permissible non-audit services;
- monitoring the rotation of partners of our independent registered public accounting firm on our engagement team as required by law;
- reviewing our annual and quarterly financial statements and reports and discussing the statements and reports with our independent registered public accounting firm and management;
- reviewing with our independent registered public accounting firm and management significant issues that arise regarding accounting principles and financial statement presentation, and matters concerning the scope, adequacy and effectiveness of our internal control over financial reporting;
- reviewing with management and our registered public accounting firm any earnings announcements and other public announcements regarding material developments;
- establishing procedures for the receipt, retention and treatment of complaints received by us regarding financial controls, accounting or auditing matters and other matters;
- preparing the audit committee report that the SEC requires in our annual proxy statement;
- reviewing and providing oversight with respect to any related party transactions and monitoring compliance with our code of ethics; and
- reviewing and evaluating, at least annually, the performance of the audit committee, including compliance of the audit committee with its charter.

Compensation Committee

Our compensation committee consists of Messrs. Nohra, Rosen and Wan. Mr. Nohra serves as the chair of our compensation committee. All members of our compensation committee satisfy the independence requirements under applicable NASDAQ rules and regulations. The compensation committee operates

under a written charter that satisfies the applicable standards of NASDAQ and which will be available on our website prior to the completion of this offering at www.acelrx.com.

The functions of our compensation committee include, among other things:

- approving or recommending for approval to our board of directors the compensation and other terms of employment of our executive officers;
- approving or recommending to our board of directors performance goals and objectives relevant to the compensation of our executive officers and assessing their performance against these goals and objectives;
- evaluating and approving the equity incentive plans, compensation plans and similar programs, as well as modification or termination of existing plans and programs;
- evaluating and recommending to our board of directors the type and amount of compensation to be paid or awarded to board members;
- administering our equity incentive plans;
- establishing policies with respect to equity compensation arrangements;
- reviewing the competitiveness of our executive compensation programs and evaluating the effectiveness of our compensation policy and strategy in achieving expected benefits to us;
- approving or recommending to our board of directors the terms of any employment agreements, severance arrangements, change in control protections and any other compensatory arrangements for our executive officers;
- reviewing with management our disclosures under the caption "Compensation Discussion and Analysis" and recommending to the full board its inclusion in our reports to be filed with the SEC;
- preparing the compensation committee report that the SEC requires in our annual proxy statement;
- reviewing the adequacy of our compensation committee charter on a periodic basis; and
- reviewing and evaluating, at least annually, the performance of the compensation committee.

Nominating and Corporate Governance Committee

Our nominating and corporate governance committee consists of Messrs. Wan, Hoffman and Schreck. Mr. Wan serves as the chair of our nominating and corporate governance committee. Currently, our board of directors has determined that Messrs. Wan and Hoffman satisfy the NASDAQ independence requirements for service on the Nominating and Corporate Governance Committee, and we expect that membership of this committee will be changed to comply with these requirements prior to the end of the phase-in period permitted by NASDAQ. The nominating and corporate governance committee operates under a written charter that satisfies the applicable standards of NASDAQ and which will be available on our website prior to the completion of this offering at www.acelrx.com.

The functions of our nominating and corporate governance committee include, among other things:

- identifying, reviewing and evaluating candidates to serve on our board of directors;
- determining the minimum qualifications for service on our board of directors;
- evaluating director performance on the board and applicable committees of the board;
- interviewing, evaluating, nominating and recommending individuals for membership on our board of directors;

- considering nominations by stockholders of candidates for election to our board;
- considering and assessing the independence of members of our board of directors;
- developing, as appropriate, a set of corporate governance principles, and reviewing and recommending to our board of directors any changes to such principles;
- periodically reviewing our policy statements to determine their adherence to our code of business conduct and ethics and considering any request by our directors or executive officers for a waiver from such code;
- reviewing the adequacy of its charter on an annual basis; and
- evaluating, at least annually, the performance of the nominating and corporate governance committee.

Compensation Committee Interlocks and Insider Participation

The current members of our compensation committee are Messrs. Wan, Nohra and Rosen. None of the members of our compensation committee has at any time during the past three years been one of our officers or employees. None of our executive officers currently serves or in the prior three years has served as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on our board or compensation committee. For information regarding certain transactions with entities that members of our compensation committee are affiliated with, see the section entitled "Certain Relationships and Related Party Transactions" appearing elsewhere in this prospectus.

Board Leadership Structure and Role in Risk Oversight

Our board has a Chairman, Mr. Schreck, who has authority, among other things, to preside over board meetings, including meetings of the independent directors. Accordingly, the Chairman has substantial ability to shape the work of our board. We currently believe that separation of the roles of Chairman and Chief Executive Officer reinforces the independence of our board in its oversight of the business and affairs of our company. However, no single leadership model is right for all companies and at all times. The board recognizes that depending on the circumstances, other leadership models, such as combining the role of Chairman with the role of Chief Executive Officer, might be appropriate. Accordingly, the board may periodically review its leadership structure.

Our board is generally responsible for the oversight of corporate risk in its review and deliberations relating to our activities and has determined that our principal source of risk falls into two categories, financial and product development. The audit committee oversees management of financial risks; our board regularly reviews information regarding our cash position, liquidity and operations, as well as the risks associated with each. The board regularly reviews plans, results and potential risks related to our lead therapeutic development programs and other preclinical programs as well as financial and strategic risk related to our operations.

In addition, our nominating and corporate governance committee monitors the effectiveness of our corporate governance guidelines and policies and manages risks associated with the independence of the board and potential conflicts of interest. Our compensation committee oversees risk management as it relates to our compensation plans, policies and practices for all employees including executives particularly whether our compensation programs may create incentives for our employees to take excessive or inappropriate risks which could have a material adverse effect on the Company. While each committee is responsible for evaluating certain risks and overseeing the management of such risks, the entire board is regularly informed through committee reports about such risks.

Code of Business Conduct and Ethics

We adopted a code of business conduct and ethics that applies to all of our employees, officers and directors including those officers responsible for financial reporting. Upon the completion of this offering, the code of business conduct and ethics will be available on our website at www.acelrx.com. We intend to disclose future amendments to the code, or any waivers of its requirements on our website to the extent permitted by the applicable rules and exchange requirements. The inclusion of our website address in this prospectus does not include or incorporate by reference the information on our website into this prospectus.

EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

Overview

This Compensation Discussion and Analysis explains our compensation philosophy, policies and practices for the following executives, our named executive officers:

Richard A. King	President and Chief Executive Officer
James H. Welch	Chief Financial Officer
Thomas A. Schreck	Former Chief Executive Officer and Former Principal Financial Officer
Pamela P. Palmer, M.D., Ph.D.	Chief Medical Officer
Lawrence G. Hamel	Chief Development Officer
Badri Dasu	Chief Engineering Officer

Compensation Philosophy and Objectives

We believe in providing a total compensation package to our executive management team through a combination of base salary, discretionary annual bonuses, grants under our long-term equity incentive compensation plan, and severance and change of control benefits, as well as broad-based health and welfare benefits programs that are available to all salaried employees. Our executive compensation programs are designed to achieve the following objectives:

- attract and retain talented and experienced executives, whose knowledge, skills and performance are critical to our success;
- motivate executives to achieve our business objectives;
- create a meaningful link between pay and performance;
- promote teamwork while also recognizing the role each executive plays in our success; and
- align the interests of our executive officers and stockholders.

We believe that our executive compensation programs should include short-term and long-term components, including cash and equity-based compensation, and should reward performance that consistently meets or exceeds expectations, including by increasing base salary levels, awarding cash bonuses and granting additional equity awards.

When setting executive compensation in any given year, we may consider a number of factors, including the following:

- corporate and/or individual performance, including specific business challenges for a given year, as we believe this encourages our executive officers to focus on achieving our business objectives;
- the experiences and individual knowledge of the members of our board of directors regarding compensation programs at other companies, as we believe this approach helps us to compete in hiring and retaining the best possible talent while at the same time maintaining a reasonable and responsible cost structure;
- compensation paid by other companies, as publicly reported by such companies or as reported in third party surveys, although in any given year, and with respect to any specific compensation element, we may or may not benchmark to any specified level of compensation;

- internal pay equity of the compensation paid to one executive officer as compared to another—that is, that the compensation paid to each executive should reflect the importance of his or her role to the company as compared to the roles of the other executives;
- the potential dilutive effect on our stockholders of equity awards granted to executive officers, as well as the potentially dilutive effect on our employees of financings undertaken prior to this offering;
- broader economic conditions, in order to ensure that our pay strategies are effective yet responsible, particularly in the face of any unanticipated consequences of the broader economy on our business; and
- individual negotiations with executives, particularly in connection with their initial compensation package, as these executives may be leaving meaningful compensation opportunities at their prior employer in order to work for us, as well as negotiations upon their departures, as we recognize the benefit to our stockholders of smooth transitions.

Our historical practice and our intent going forward is to perform at least an annual review of our executive officers' overall compensation packages to determine whether they meet our compensation objectives.

Role of Our Board and Our Compensation Committee in Setting Executive Compensation

Prior to this offering, our compensation committee had the primary responsibility for approving the cash compensation packages for our executive officers and making recommendations to the board with regard to setting equity compensation. Certain elements of our compensation program, such as granting equity incentive awards and approving severance and change of control benefits, were determined by the board in consultation with the compensation committee. As part of its responsibility, the compensation committee has considered both the aggregate level of compensation offered (without necessarily benchmarking to a specific level of total target compensation, although with a view toward providing total cash compensation at or around the 50 th to 75th percentile of survey data, as described in more detail below) and the mix of individual compensation elements (without necessarily trying to achieve a specific weighting as between the elements). As further described under the specific elements of compensation below, the compensation committee considered the recommendations of management with respect to the various elements of compensation and then either made a recommendation to the board or, with respect to cash compensation, made the final determination of base salary levels or bonus amounts. Following this offering, our compensation committee will generally be responsible for reviewing, modifying, approving and otherwise overseeing the compensation policies and practices applicable to our employees (including our executive officers), including the administration of our equity and cash incentive plans.

As part of its deliberations in any given year, the board and the compensation committee may review and consider factors such as the achievement of predefined milestones, the company's financial condition, operational data, tax and accounting consequences, the total compensation that may become payable to executives in various hypothetical scenarios, executive stock ownership information, company stock performance, analyses of historical executive compensation levels and current company-wide compensation levels, and the recommendations of our Chief Executive Officer.

Role of Our Management

Our Chief Executive Officer evaluates the performance of the other executive officers and employees on an annual basis and makes recommendations to the compensation committee with respect to salary adjustments, bonuses and stock option grants. Our Chief Executive Officer also makes recommendations on new hire compensation packages. Our board and our compensation committee review the

performance of our Chief Executive Officer. Our Chief Executive Officer also makes recommendations regarding the design of compensation programs applicable to our executive officers and other senior executives, changes to existing compensation programs, and financial and other performance targets to be achieved under those programs. Our finance department works with our Chief Executive Officer to gather compensation data that he reviews in making his recommendations.

No executive officer participated directly in the final determinations or deliberations of our compensation committee (or our board of directors, as applicable) regarding the amount of any component of his or her own compensation package. From time to time members of our finance team attend meetings (or portions of meetings) of the board and the compensation committee in order to present survey and financial data and answer questions.

Limited Role of Compensation Consultants

Prior to this offering, neither our board nor our compensation committee had retained its own independent compensation consultant. In October 2010, in connection with preparations for this offering, the company retained Kara Halvorson Consulting LLC to assist management in reviewing human resources and compensation matters. The consultant has been working directly with the company's management team to review employment agreements and our compensation practices in connection with preparations for this offering. This consultant is paid by the company and has not been present at the deliberations of the board or the compensation committee. Following this offering, the compensation committee will consider retaining its own independent compensation consultant.

Benchmarking

We have not established a peer group of companies. As is the case with many private companies, our compensation committee and our board have discussed compensation levels in the context of the experiences and individual knowledge of each board member. This approach called for our board members to use their reasonable business judgment in determining compensation levels that would allow us to compete in hiring and retaining the best possible employees, without the cost of engaging a compensation consultant. In making its determinations with respect to 2009 and 2010 compensation, our board members reviewed compensation data as compiled by our finance department from the following surveys:

- 2008 Thelander Pre-IPO Survey: a survey of 193 pre-IPO companies, predominantly in life sciences, located primarily on the west coast, with an average stage of financing of less than $50 million;
- 2008 E&Y Life Sciences Survey: a survey of 189 pre-IPO and post-IPO life science companies located across the country, with an average stage of financing of less than three venture rounds; and
- 2007 BEDC Compensation Survey: a survey of 87 public and private life science companies, many of whom had fewer than 50 employees, located in the greater San Diego area.

In setting compensation for 2009, the finance department provided our compensation committee with the data points from only the Thelander Survey for total cash compensation and percentage stock ownership for each executive officer position, at the 50 th and 75th percentiles. In setting compensation for 2010, the finance department provided our compensation committee with an average of all three of the surveys above, as adjusted by 4.5% to reflect cost of living increases since the dates of the surveys, at each of the 50 th and 75th percentiles, for total cash compensation and percentage stock ownership for each executive.

Our compensation committee has used the survey data to check their own assumptions and expectations about compensation levels. The board and the compensation committee may, but do not always, aim to set a specific element of compensation at or around the 50 th to 75th percentiles as reflected by this survey data. We believe this approach helps us hire and retain the best possible talent while at the same time maintaining a reasonable and responsible cost structure. The board has not selected a peer group or benchmarking level to be used following this offering. Information about whether a given element of compensation was benchmarked in a given year is provided below under the discussion of each element.

Elements of Executive Compensation

The compensation program for our executive officers consists principally of base salary and long-term compensation in the form of stock options, with discretionary cash bonuses paid from time to time. We also offer limited severance protection through the terms of our stock options and certain employment agreements with our executive officers, with the benefits generally in the form of accelerated vesting of stock options in the case of termination of employment following a change of control. We believe that this mix of compensation elements appropriately retains executives, provides longer term incentives and rewards, and allows us to conserve our cash for use in the development of the our products. We do not affirmatively set out in any given year to apportion compensation in any specific ratio between cash and equity. Rather, in any given year, total compensation may skew more heavily toward either element, as a result of cash constraints, company performance, the value of our common stock and other factors described in the following table and narrative.

Compensation element	Material factors considered in 2009 and 2010	Objective
Base salary	•Board members' experience and knowledge •Historical salary levels •Achievement of corporate objectives •Lack of a formal cash bonus plan •Expected future cash flows •Internal pay equity •Survey data •Individual negotiations	•Attract and retain experienced executives •Reward executives for achievement of company objectives
Cash bonuses	•Board members' experience and knowledge •Achievement of corporate objectives •Subjective review of each executive's overall individual performance •Internal pay equity •Expected future cash flows •Survey data •Individual negotiations	•Attract and retain experienced executives •Reward executives for achievement of company objectives •Link performance with compensation paid

Compensation element	Material factors considered in 2009 and 2010	Objective
Long-term equity incentive awards	•Board members' experience and knowledge •Achievement of corporate objectives •Subjective review of an executive's overall individual performance •Internal pay equity •Survey data •The potential dilutive effect on our stockholders •The potential dilutive effect of our financings on our employees' equity awards •Individual negotiations	•Attract and retain experienced executives •Motivate and reward executives for achievement of company objectives •Link performance with compensation paid •Provide incentives to promote our growth and create stockholder value •Align the financial interests of our executive officers with those of our stockholders
Severance benefits	•Board members' experience and knowledge •Internal pay equity •Individual negotiations	•Attract and retain experienced executives •Motivate executives to achieve company objectives •Align the financial interests of the executive officers with those of our stockholders
Employee benefits	•Board members' experience and knowledge •Internal pay equity	•Attract and retain experienced executives

Base Salary

We provide base salary as a fixed source of compensation for our executives, allowing them a degree of certainty in the face of working for a privately held biotechnology company and having a meaningful portion of their compensation "at risk" in the form of options to purchase shares of such private company. The compensation committee recognizes the importance of base salaries as an element of compensation that helps to attract and retain our executives.

Base salaries for our executives are established based in part on individual negotiations with the executives when they join the company, and reflect the scope of their anticipated responsibilities, the individual experience they bring to the company, the committee members' experiences and knowledge in compensating similarly situated individuals at other companies, the company's annual budget for salary increases, internal pay equity among executives, reference to survey data, and performance (company and/or individual) in the prior year. Historically, base salaries have been reviewed, and, if necessary, adjusted annually, typically in connection with our annual performance review process. The compensation committee does not apply specific formulas to determine increases. While the compensation committee members consider existing salaries plus any discretionary bonuses awarded as compared to the 50 th and 75th percentiles of total cash compensation paid to similarly situated executives using the survey data described above, such reference points are not solely determinative.

In the first quarter of 2009, our compensation committee reviewed the base salaries of our executive officers, as well as Dr. Palmer's then current rate of consulting fees, taking into account the factors described above. In particular, our compensation committee considered the achievement in 2008 of a number of significant company milestones, including successful preparation for Phase 2 studies, efficient completion of the first Phase 2 study and the first positive Phase 2 data for the ARX-01 program, the limited financial budget that the board had allocated for salary increases on a company-wide basis in

2009, and attention to internal pay equity as among officers. Specifically, given our limited budget for salary increases due to our expected cash flow constraints, more of the salary increase budget was allocated to our Chief Executive Officer and Dr. Palmer (that is, an increase in her consulting fees), reflecting the compensation committee deference to internal pay equity (that is, their greater level of duties and responsibilities in running the company as compared to our other executives) and so that their total cash compensation would be closer to the 50 th to 75th percentile of total cash compensation (given that we do not have a formal cash bonus program) as reflected in the survey data. The compensation committee determined that since the majority of the base salary compensation increases were awarded to Mr. Schreck and Dr. Palmer, only limited salary increases were made to Messrs. Hamel and Dasu. Therefore, the compensation committee awarded cash bonuses in respect of 2008 performance in the first quarter of 2009 to Messrs. Hamel and Dasu (and not Mr. Schreck or Dr. Palmer given their salary increases), in recognition of the significant roles Messrs. Hamel and Dasu played in 2008 in achieving the first positive Phase 2 data for the ARX-01 program and advancing the Company's engineering efforts and so that their total cash compensation would be closer to the 50th to 75th percentile of total cash compensation as reflected in the survey data. Based on these factors, our compensation committee decided to adjust base salaries, retroactive to January 1, 2009, as set forth in the table below.

In July 2009, Dr. Palmer transitioned from her role as a consultant to a full time executive officer and employee. In connection with this transition, the compensation committee set her base salary for 2009 at $375,000 on an annual basis, representing, on an annual basis, an increase from her consulting fee rates of $350,000 per year (that is, from the level determined in the first quarter of 2009). The compensation committee set her base salary at this level based on her prior consulting rates, her individual negotiations and through assessment of internal pay equity (that is, the committee believed that as a founder and an executive officer, and given the scope of her responsibility, Dr. Palmer's salary should be closer to that of Mr. Schreck than the other executives).

In the first quarter of 2010, our compensation committee reviewed base salaries for our executive officers. The compensation committee considered the expected transition of Mr. Schreck from CEO and Dr. Palmer's recent hiring (and therefore the adequacy of her salary given her recent transition to full time employment) and did not make any adjustments to their salaries. However, the compensation committee wished to increase the base salary levels for Messrs. Hamel and Dasu to a level more reflective of their responsibilities and the importance of their role to the company's successful development of its products. The adjustments set forth in the table below were made so that their base salaries would be closer to the 50 th percentile of total cash compensation (given that we do not have a formal cash bonus program) as reflected in the survey data. Based on these factors, our compensation committee decided to adjust base salaries, retroactive to January 1, 2010, as set forth in the table below.

In the spring of 2010, the company hired Mr. King and in October 2010, hired Mr. Welch. In connection with these new hires, the compensation committee set their base salaries on an annual basis as set forth in the table below. These decisions were based on individual negotiations (which reflect, in part, base salaries that these executives were being paid by their prior employers), internal pay equity (that is, Mr. King's salary should be greater than the other executive officers) and the scope of their expected responsibilities, particularly in connection with the company's preparations for this offering.

Executive Officer	First quarter 2009 increase in base salary for 2009	New 2009 base salary	Percentile against Survey Data(1)	Increase in base salary for 2010	New 2010 base salary	Percentile against Survey Data(1)
Richard A. King	N/A	N/A	N/A	N/A	$ 400,000	>75th(2)
James H. Welch	N/A	N/A	N/A	N/A	$ 290,000	>75th(2)
Thomas A. Schreck	$ 50,000	$ 375,000	<50th	—	$ 375,000	<50th
Pamela P. Palmer, M.D., Ph.D.	$ 50,000(3)	$ 375,000(4)	<50th	—	$ 375,000	50th – 75th
Lawrence G. Hamel	$ 17,500	$ 262,500	<50th	$ 12,500	$ 275,000	<50th
Badri Dasu	$ 12,500	$ 247,500	50th – 75th	$ 15,000	$ 262,500	50th

(1) Percentile of the executive's base salary, plus any bonus awarded to him or her for the applicable year (as set forth in the table below), as compared to total cash compensation reported in the surveys.
(2) Assumes achievement of target bonus.
(3) Increase in annual consulting fee level from $300,000 to $350,000 that occurred in the first quarter of 2009 prior to Dr. Palmer joining as an employee.
(4) Upon joining as an employee in July 2009.

Cash Bonuses

In addition to base salaries, from time to time we have paid discretionary cash bonuses to reward our executives for achieving our strategic objectives or to provide a one time additional cash payment in lieu of providing a salary increase in order to manage budgetary constraints. As part of our annual performance reviews, the compensation committee reviews the company's performance, as well as each executive's contributions to the company in the prior year and makes decisions regarding cash bonuses to be paid in respect of such performance. Prior to this offering, the company has not set in advance specific performance goals related to bonus amounts that may be earned by our executive officers. Rather, as with many private companies, our compensation committee has decided to use a discretionary cash bonus system that looked at performance at the conclusion of the applicable year, and awarded cash bonuses based on its evaluation of performance, budgetary constraints, internal pay equity, the board members' experiences and knowledge in compensating similarly situated individuals at other companies, and, from time to time, compiled survey data.

At the conclusion of 2009, the compensation committee considered the company's financial position, including a reduction in force in December 2009, partnering status, and achievement against financing milestones. As a result, no cash bonuses were earned or paid in respect of 2009 performance.

Historically, the company has not set target bonus amounts, expressed as a percentage of base salary or otherwise, for its executive officers. However, in 2010, in connection with hiring Messrs. King and Welch, the compensation committee approved annual cash bonus targets of 35% of base salary for Mr. King and 30% of base salary for Mr. Welch. The compensation committee approved these levels based on individual negotiations which reflect, in part, target bonus opportunities that these executives were foregoing from their prior employers, the board members' experiences, and internal pay equity. On December 17, 2010, upon recommendation of the compensation committee, the board, in its discretion, based on the company's progress toward an IPO and Mr. King's general performance, and without weighting any specific factors, approved Mr. King's bonus of $94,500. The compensation committee has not set any performance goals for Mr. Welch's annual cash bonus for 2010, and any such prorated bonus will be made in the board's discretion when the board makes that determination later in 2011. No other named executive officers are eligible for bonus payments in 2010 pursuant to their offer letters.

Long-Term Equity Incentive Awards

We utilize long-term equity incentive awards in the form of options to purchase our common stock that, prior to this offering, have been granted under our 2006 Stock Plan. We believe that by providing our executives the opportunity to increase their ownership of our stock, the best interests of stockholders and executives will be more aligned and our executives will be encouraged to focus on long-term performance. These stock options enable our executive officers to benefit like stockholders from any increases in the value of our shares, while also exposing them to the risk of loss from any decrease in the value of our shares. We also believe that equity compensation is an integral component of our efforts to attract exceptional executives, senior management and employees.

As noted above, we believe that properly structured equity compensation works to align the long-term interests of stockholders and employees by creating a strong, direct link between employee compensation and stock price appreciation. Specifically, because we grant stock options with an exercise price not less than the fair market value of our common stock on the date of grant (which in the past has been determined by our board of directors, as described below under "Equity granting policies"), these

options will have value to our executive officers only if the fair market value of our common stock increases after the date of grant and the date of vesting. Typically, stock options granted to our executive officers vest over 48 months, with 25% of the options vesting after 12 months, and the remainder vesting monthly over the next 36 months. This vesting schedule provides a retention incentive to our executive officers. Typically, the grants are made with a vesting commencement date of January 1 of the year of the grant to reflect that the grants are made with respect to prior year performance. In addition, we have agreed to the accelerated vesting of stock options held by our executive officers upon an involuntary termination of employment following certain material corporate transactions, subject to executing an effective release of claims. We believe these accelerated vesting provisions reflect current market practices, based on the collective knowledge and experiences of our board members (and without reference to any specific peer group data), and allow us to attract and retain highly qualified executives. In addition, these accelerated vesting provisions allow our executive officers to focus on closing a transaction that may be in the best interest of our stockholders even though the transaction may otherwise result in a termination of their employment and, absent such accelerated vesting, a forfeiture of their unvested equity awards. In addition, we believe the automatic accelerated vesting upon a change of control (regardless of a termination event) that was approved by the board in 2010 for Mr. Schreck is appropriate given his transition in 2010 from a member of the company's management team to Chairman of the board as the other board members have this vesting provision. Additional information regarding accelerated vesting prior to, upon or following a change in control is discussed below under "Executive Employment Agreements and Termination Benefits."

In early 2008, the board established a fiscal budget and set of corporate objectives against which company performance would generally be evaluated. However, the board did not prospectively establish a specific pool of shares or weighting of individual milestones that would result in equity awards to our executive officers. Major objectives for 2008 included the successful preparation for, initiation and completion of the ARX-01 Phase 2 knee replacement study, advancing ARX-02 towards initiation of a Phase 2 study, and the completion of the ARX-03 Phase 1 study. In mid-2008, the board approved the addition of a second ARX-01 Phase 2 study start in abdominal surgery as a company goal. In early 2009, the compensation committee reviewed achievement against these goals and the recommendations our Chief Executive Officer on grant size. The compensation committee considered the role each executive played in achieving these goals, internal pay equity (that is, more of the grants should be allocated to the Chief Executive Officer and Chief Medical Officer given their responsibilities for running the company), and the compensation committee's judgment based on its experience and knowledge. The board met in March 2009 and tentatively approved the compensation committee's recommendations, including an option grant to Mr. Schreck for 100,000 shares, with all of the option grants to be made at a future board meeting upon receipt of a third party valuation. In July 2009, the board met after considering a third party valuation and other factors, and formally approved the grants that were tentatively approved in March 2009. In addition, the board reflected on the fact that certain anticipated hires had not occurred in the interim, freeing up additional shares to be used for additional grants from the company's available share pool, and their evaluation of the need for an additional grant to Mr. Schreck to reward and motivate him, and granted an additional option award to him covering an additional 100,000 shares on the same date (for a total award on July 1, 2009 of 200,000 shares).

In early 2009, the board established a budget of 600,000 to 720,000 shares for equity grants to be made to all of our employees, including executive officers, in respect of performance in 2009 – that is, it was intended that annual equity grants for 2009 would be made from this pool of shares at the end of the year based on achievement of certain performance goals. The pool was set at a level that the board determined would provide adequate compensation for employees while limiting the dilutive impact on stockholders and prior to our preparations for the Series C preferred stock financing. The performance goals focused on milestones in the development of ARX-01, ARX-02 and ARX-03, including the completion of the ARX-01 Phase 2 abdominal surgery study, the completion of the ARX-01 device functionality study, completion of the ARX-01 End of Phase 2 meeting, initiation of the ARX-02 Phase 2

cancer breakthrough pain study, and completion of the ARX-03 Phase 2 study. These goals were proposed by management and approved by the compensation committee. Any award of options at the end of 2009 after achievement of these goals was to be made entirely in the discretion of the board without any reference to a formula or specific weighting.

In early 2010, the board determined achievement against these goals. However, notwithstanding our actual achievement against these goals, the board used its discretion and eliminated the original pool as a result of the dilution to employees caused by the closing of our Series C preferred stock financing that closed in November 2009. Instead, the board determined the number of shares each executive officer was eligible to receive (based on factors described below) once the fair market value of our common stock could be reasonably determined, but did not make the actual grants of the options, as it was awaiting a third party valuation of our common stock. After considering that valuation and other factors, the board met in June 2010 and made grants to our executive officers as set forth in the table below. The size of these grants reflected the board's subjective consideration of internal pay equity (including the belief that more of the grants should be allocated to the Chief Executive Officer and Chief Medical Officer given their founder status and responsibilities for running the company), the board's judgment based on its experiences and knowledge, and, most importantly the fact that the equity holdings of our employees, including our executive officers, were substantially diluted due to the closing of the Series C preferred stock financing. Prior to the closing of the Series C preferred stock financing, we had approximately 19 million shares outstanding; after the closing of the Series C preferred stock financing, we had approximately 46 million shares outstanding. Therefore, the grants made in 2010 as set forth in the table below reflect the decision to offset approximately 50% of the dilution the officers suffered as a result of the Series C financing. The grants that were specifically intended to address the impact of the Series C financing contained vesting provisions such that 25% of the stock option shares were vested on January 1, 2010 with the remaining 75% of the stock option shares vesting over three years. Management requested, and the board approved, this special vesting schedule to help ameliorate the impact of the dilution from the financing. The board also, at that time, made an additional merit grant to Mr. Dasu in light of the importance of his role as the engineering leader of the ARX-01 device functionality study that achieved positive Phase 2 results. This grant was made with our standard four year vesting schedule. These grants were priced at 100% of the fair market value of our common stock, as determined by our board based in part on an independent third party valuation as of December 31, 2009.

In early 2010, our board established a budget of 700,000 to 950,000 shares for equity grants to all of our then-current employees (that is, exclusive of Messrs. King and Welch) to be granted in 2011 based on the achievement of certain performance goals in 2010. The pool was set at a level that the board determined would provide adequate compensation for employees while limiting the dilutive impact on stockholders. These performance goals focused on milestones in the development of ARX-01, ARX-02 and ARX-03 as well as broader strategic objectives. These goals were proposed by management and approved by the compensation committee. Any award of options at the end of 2010 after achievement of these goals will be made entirely at the discretion of the board without any reference to a formula or specific weighting.

In the spring of 2010, the company hired Mr. King and in the fall of 2010, the company hired Mr. Welch. In connection with these new hires, the board granted stock options to these executives, in the amounts set forth below, based primarily on individual negotiations (which reflect, in part, equity awards that these executives were eligible for with their prior employers), and survey data providing for grants at the 50 th percentile to chief executive officers in an amount equal to 4.8% of the outstanding stock of such companies and chief financial officers in an amount equal to 1% of the outstanding stock of such companies. Mr. King negotiated a limited severance vesting provision for his initial option grant that expired in May 2010, and the board agreed to it as an inducement to have Mr. King join. The grants shown in the table below are equal to approximately 4% of the company for Mr. King and 1% of the company for Mr. Welch, on a fully diluted basis. In addition, Mr. King is eligible to be granted an option

to purchase 460,835 shares of common stock of the company upon achievement of one of the following corporate milestones prior to June 30, 2011: (i) completion by the company of a qualifying partnering transaction, (ii) completion of this offering, or (iii) completion of a private financing raising at least $15 million from new investors. Mr. Welch is eligible to be granted an option covering 100,000 shares if we complete this offering or a private financing raising at least $15 million from new investors prior to June 30, 2011. All of these new hire grants are separate and apart from the 2010 pool described above, which pool was not increased as a result of the hiring of these executives.

Executive officer	Number of options related to 2008 performance (granted 2009)	Number of options related to Series C dilution (granted in 2010)	Merit and special grants in 2010 (including new hire grants)
Richard A. King	N/A	N/A	1,826,440
James H. Welch	N/A	N/A	500,000
Thomas A. Schreck	200,000	875,000	N/A
Pamela P. Palmer, M.D., Ph.D.	150,000	1,000,000	N/A
Lawrence G. Hamel	50,000	250,000	N/A
Badri Dasu	25,000	120,000	100,000

In December 2010, our board of directors, out of an abundance of caution, allowed eligible optionees, including our named executive officers, to increase the exercise price of stock options granted to them on June 15, 2010 in light of the potential risk of adverse tax consequences under Code Section 409A. Under Section 409A, stock options with an exercise price that is less than the fair market value of the stock on the date of grant may be deemed deferred compensation subject to adverse taxation under Section 409A. When setting the exercise price for the June 15, 2010 stock option grants, the board determined the fair market value of our common stock to be $0.30 per share, which valuation was subsequently revisited for financial reporting purposes when our board of directors began to analyze the prospects of an IPO as described in more detail under “Management’s Discussion and Analysis of our Financial Condition and Results of Operations—Critical Accounting Policies and Estimates—Stock-Based Compensation”. As such, our board of directors subsequently determined a fair value of our common stock for financial reporting purposes to be $0.64 per share. We believe that the board’s determination of the fair market value of our common stock on June 15, 2010 in reliance upon all material facts available to the board on that date, was reasonable. However, given the potential adverse tax consequences to the optionees if the Internal Revenue Service determines that our original determination was grossly unreasonable, our board decided, out of an abundance of caution, to make the offer to amend. All of our eligible named executive officers accepted the offer, and their eligible options were amended on December 27, 2010 (as further set forth in the 2010 Grants of Plan-Based Awards Table below).

Equity Granting Policies

- We encourage our named executive officers to hold a significant equity interest in our company, but have not set specific ownership guidelines.
- While our board of directors has delegated authority to our compensation committee to make stock option grants to executive officers, all stock option grants previously awarded to our executive officers have been granted by our full board of directors.
- Prior to this offering, we did not have any program, plan or obligation that required us to grant equity compensation on specified dates and, because we have not been a public company, we have not made equity grants in connection with the release or withholding of material non-public information.
- In the absence of a public trading market for our common stock, our board of directors has historically determined the fair market value of our common stock in good faith based upon

consideration of a number of relevant factors including our financial condition, the likelihood of a liquidity event, the liquidation preference of our participating preferred stock, the price at which our preferred stock was sold, the enterprise values of comparable companies, our cash needs, operating losses, progress in the research and development of our product candidates, market conditions, material risks to our business and valuation reports obtained from independent valuation firms.

Severance and Change in Control Benefits

The employment of all of our executive officers is "at will." However, Messrs. King, Welch and Schreck and Dr. Palmer have been eligible to receive cash severance benefits upon certain involuntary terminations of employment under the terms of their respective offer letter agreements. In addition, our executive officers are eligible for accelerated vesting upon an involuntary termination following a change in control and Mr. Schreck, in his capacity as a board member, is now eligible for accelerated single trigger vesting upon a change of control, as described in more detail under "Long-term Equity Incentive Awards." The terms of these severance and change in control benefits are further described below under "—Employment Agreements and Arrangements—Executive Employment Agreements and Termination Benefits." These benefits reflect the negotiations of each of the applicable executive officers with the company, as well as a desire to reflect internal pay equity among our executive officers with respect to their potential severance benefits (for instance, only our Chief Executive Officer, Chief Financial Officer and Chief Medical Officer are currently offered cash severance benefits, and the severance benefits offered to our current Chief Executive Officer provide for a greater number of months of salary continuation than to our Chief Financial Officer or Chief Medical Officer, due to the breadth of his responsibilities within the company). We consider these severance benefits critical to attracting and retaining high caliber executives and our board believes the benefits are comparable to benefits provided to similarly situated executives at other private companies. In addition, we believe that change in control severance benefits, including accelerated vesting provisions, if structured appropriately, serve to minimize the distractions to an executive and reduce the risk that an executive officer terminates his employment with us before an acquisition is consummated. We believe that our existing arrangements allow our executive officers to focus on continuing normal business operations and, in the case of change in control benefits, on the success of a potential business combination, rather than being distracted by how business decisions that may be in the best interest of our stockholders will impact each executive officer's own financial security. Specifically, our board believes these existing arrangements help ensure stability among our executive officers, and will help enable our executive officers to maintain a balanced perspective in making overall business decisions during periods of uncertainty.

Other Employee Benefits

We provide the following benefits to the executive officers, on the same terms and conditions as provided to all other eligible employees:

- health, dental and vision insurance benefits;
- a limited life insurance benefit of $15,000 as part of our health insurance plan; and
- participation in a 401(k) plan, with non-discretionary 3% safe harbor profit sharing contribution.

We believe these benefits are important to attracting and retaining experienced executives. Like many private companies, the company does not currently provide perquisites to the executive officers, given our attention to the cost-benefit tradeoff of such benefits, and the boards' knowledge of the benefit offerings at other private companies.

Tax Deductibility of Compensation

Following the offering, Section 162(m) of the Code will limit our deduction for federal income tax purposes to not more than $1.0 million of compensation paid to certain executive officers in a calendar year. Compensation above $1.0 million may be deducted if it is "performance-based compensation." The compensation committee has not yet established a policy for determining which forms of incentive compensation awarded to our executive officers will be designed to qualify as "performance-based compensation." To maintain flexibility in compensating our executive officers in a manner designed to promote our objectives, the compensation committee has not adopted a policy that requires all compensation to be deductible. However, the compensation committee intends to evaluate the effects of the compensation deduction limits of Section 162(m) on any compensation it proposes to grant, and the compensation committee intends to provide future compensation in a manner consistent with the best interests of our stockholders.

Compensation Recovery Policies

The compensation committee has not determined whether it would attempt to recover bonuses from our executive officers if the performance objectives that led to the bonus determination were to be restated, or found not to have been met to the extent originally believed by the compensation committee. However, as a public company subject to the provisions of Section 304 of the Sarbanes-Oxley Act of 2002, if we are required as a result of misconduct to restate our financial results due to our material noncompliance with any financial reporting requirements under the federal securities laws, our chief executive officer and chief financial officer may be legally required to reimburse us for any bonus or other incentive-based or equity-based compensation they receive. In addition, the company will comply with the requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act and will adopt a compensation recovery policy once final regulations on the subject have been adopted.

Accounting Considerations

We account for equity compensation paid to our employees under ASC 718, which requires us to estimate and record an expense over the service period of the award. Our cash compensation is recorded as an expense at the time the obligation is accrued. The accounting impact of our compensation programs is one of many factors that are considered in determining the size and structure of our programs.

Summary Compensation Table

The following table sets forth certain summary information for the year indicated with respect to the compensation earned by our Chief Executive Officer, our Chief Financial Officer, our former President and Chief Executive Officer (and acting principal financial officer) who resigned effective April 30, 2010, and each of our three other most highly compensated executive officers as of December 31, 2010. We refer to these individuals as our "named executive officers" elsewhere in this prospectus.

2010 and 2009 Summary Compensation Table

Name and Principal Position	Year	Salary ($)	Bonus ($)	Option Awards ($)[1]	All Other Compensation ($)[2]	Total ($)[3]
Richard A. King[4]	2010	306,667	94,500	925,032	6,000	1,332,199
President and Chief Executive Officer	2009	—	—	—	—	—
James H. Welch[5]	2010	72,500	[6]	450,426	—	522,926
Chief Financial Officer	2009	—	—	—	—	—
Thomas A. Schreck[7]	2010	125,000	—	432,142	214,082[8]	771,224
Former President, Chief Executive Officer and Principal Financial Officer	2009	375,000	—	98,071	7,350	480,421
Lawrence G. Hamel	2010	275,000	—	123,469	7,350	405,819
Chief Development Officer	2009	262,500	—	24,518	7,350	294,368
Badri Dasu	2010	262,500	—	109,912	7,350	379,762
Chief Engineering Officer	2009	247,500	—	12,259	7,350	267,109
Pamela P. Palmer, M.D., Ph.D.	2010	375,000	—	493,876	7,350	876,226
Chief Medical Officer	2009	187,500	—	73,554	177,813[9]	438,867

[1] The dollar amounts in this column represent the aggregate grant date fair value of all option awards granted during the indicated year. These amounts have been calculated in accordance with FASB ASC Topic 718, or ASC 718, using the Black-Scholes option-pricing model and excluding the effect of estimated forfeitures. For a discussion of valuation assumptions, see Note 10 to our financial statements and the discussion under "Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Estimates—Stock-Based Compensation" included elsewhere in this prospectus. These amounts do not necessarily correspond to the actual value that may be recognized from the option awards by the named executive officers. The modification of stock option awards originally granted in June 2010 as described under "— Employment Agreements and Arrangements—Employee Benefit and Stock Plans—Option Exercise Price Increase" did not result in an increase in the fair value of such stock option awards under ASC 718.

[2] Except as otherwise noted, the dollar amounts in this column represent company profit sharing contributions under our 401(k) plan.

[3] For 2009, represents total compensation earned in 2009. For 2010, represents total compensation earned in 2010 other than with respect to Mr. Welch. For 2010 for Mr. Welch, represents total compensation earned in 2010, not including expected bonus compensation.

[4] Mr. King has served as our President and Chief Executive Officer since May 1, 2010 and did not receive any compensation from us in any capacity during the year ended December 31, 2009. Mr. King also served as our principal financial officer from May 1, 2010 until September 30, 2010.

[5] Mr. Welch has served as our Chief Financial Officer since October 1, 2010 and did not receive any compensation from us in any capacity during the year ended December 31, 2009.

[6] Mr. Welch is eligible to receive a prorated cash bonus for 2010 of up to $21,750, expected to be determined in the first quarter of 2011; however, no bonus determination has been made by the board as of the date of this prospectus.

[7] Mr. Schreck resigned as our President and Chief Executive Officer effective April 30, 2010 but continues to serve on our board of directors. Mr. Schreck also served as our principal financial officer until his resignation.

[8] Represents $7,350 in company profit sharing contributions under our 401(k) plan, $187,500 in base salary continuation and $19,232 in company-paid health coverage and benefits. For more information regarding Mr. Schreck's post-employment

compensatory arrangements, please see "— Employment Agreements and Arrangements—Executive Employment Agreements and Termination Benefits—Thomas Schreck Employment and Resignation Agreements".

(9) Represents $2,813 in company profit sharing contributions under our 401(k) plan and $175,000 in consulting fees.

Grants of Plan-Based Awards Table

The following table provides information regarding grants of plan-based awards to each of our named executive officers during the year ended December 31, 2010. During the year ended December 31, 2010, none of our named executive officers were awarded any equity incentive plan awards, non-equity incentive plan awards or stock awards.

2010 Grants of Plan-Based Awards Table

Name	Grant Date(1)	All Other Option Awards: Number of Securities Underlying Options (#)(2)	Exercise or Base Price of Option Awards ($/Sh)(3)	Grant Date Fair Value of Stock and Option Awards ($)(4)
Richard A. King	06/15/10	1,826,440(5)	0.30	925,032
	12/27/10	(6)	0.64	—
James H. Welch	11/04/10	500,000(7)	1.33	450,426
Thomas A. Schreck	06/15/10	875,000(8)	0.30	432,142
	12/27/10	(6)	0.64	—
Lawrence G. Hamel	06/15/10	250,000(8)	0.30	123,469
	12/27/10	(6)	0.64	—
Badri Dasu	06/15/10	120,000(8)	0.30	59,265
	12/27/10	(6)	0.64	—
	06/15/10	100,000(9)	0.30	50,647
	12/27/10	(6)	0.64	—
Pamela P. Palmer, M.D., Ph.D.	06/15/10	1,000,000(8)	0.30	493,876
	12/27/10	(6)	0.64	—

(1) Grant date of the option awards or, in the case of repriced option awards, the date of repricing.

(2) The stock options reflected in this column were granted under our 2006 Plan. For a description of the terms of stock options granted under our 2006 Plan, please see "— Employment Agreements and Arrangements —Employee Benefit and Stock Plans—2006 Stock Plan."

(3) Our common stock was not publicly traded during 2010, and the exercise price of the options was determined by our board of directors on the grant date based on its determination of the fair market value of our common stock on such grant date. For more information on our methodology for determining the exercise price of the options, see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Estimates—Stock-Based Compensation" appearing elsewhere in this prospectus.

(4) The dollar amounts in this column represent the grant date fair value of each option award calculated in accordance with ASC 718 using the Black-Scholes option-pricing model and excluding the effect of estimated forfeitures. For a discussion of valuation assumptions, see Note 10 to our financial statements and the discussion under "Management's Discussion and Analysis of Financial Condition and Results of Operations —Critical Accounting Policies and Estimates—Stock-Based Compensation" included elsewhere in this prospectus. These amounts do not necessarily correspond to the actual value that may be recognized by the named executive officers.

(5) 114,153 of the shares subject to the option award were vested as of the grant date, 342,457 of the shares subject to the option award will vest on March 3, 2011, and the remaining shares subject to the option award will vest on an equal monthly basis over the following 36 months.

(6) Shows the increase in the exercise price of the option award referenced in the line immediately above. As described under "—Employment Agreements and Arrangements—Employee Benefit and Stock Plans—Option Exercise Price Increase," certain of the option awards granted to our named executive officers in 2010 were amended to increase the exercise price of the option awards from $0.30 per share to $0.64 per share. The repricing did not result in an increase in the fair value of these option awards under ASC 718.

(7) The shares subject to this option award will vest as to 1/4 th of the shares subject to the option award on September 30, 2011 with the remaining shares subject to the option award vesting on an equal monthly basis over the following 36 months.
(8) The shares subject to this option award vested as to 1/2 of the shares subject to the option award on December 31, 2010 with the remaining shares subject to the option award vesting on an equal monthly basis over the following 24 months.
(9) The shares subject to this option award vested as to 1/4 th of the shares subject to the option award on December 31, 2010 with the remaining shares subject to the option award vesting on an equal monthly basis over the following 36 months.

Employment Agreements and Arrangements

Executive Employment Agreements and Termination Benefits

Thomas Schreck Employment and Resignation Agreements

In August 2006, we entered into an employment agreement with Mr. Schreck that provides for an initial base salary and discretionary bonus eligibility, as well as certain severance benefits. Under the employment agreement, in the event that Mr. Schreck's employment had terminated without cause or had terminated as a result of a voluntary termination by Mr. Schreck for certain stated reasons within 18 months after a change of control, as these terms are used in the employment agreement, Mr. Schreck would have been entitled to the following severance benefits, subject to Mr. Schreck executing a general release of claims in favor of us:

- a single lump-sum payment equal to six months of his base salary in effect as of the date of his termination;
- full vesting acceleration of all stock options and stock awards granted to Mr. Schreck under the 2006 Plan; and
- the same level of company-paid health coverage and benefits in effect for Mr. Schreck as of immediately prior to his termination date for a period of up to six months provided, among other things, that Mr. Schreck would have timely elected continuation under the Consolidated Omnibus Budget Reconciliation Act of 1985, or COBRA.

In addition, under the employment agreement, in the event that Mr. Schreck's employment had terminated without cause or had terminated as a result of a voluntary termination by Mr. Schreck for certain stated reasons before a change of control, as these terms are used in the employment agreement, Mr. Schreck would have been entitled to the same benefits described above except for the stock option and stock award vesting acceleration.

Effective April 30, 2010, Mr. Schreck resigned as our President and Chief Executive Officer, but continues to serve on our board of directors. In connection with his resignation, we entered into a resignation letter agreement with Mr. Schreck that provides for continuation of his base salary in effect as of the effective date of resignation ($375,000) for six months, commencing within 30 days after the effective date of his resignation, and the same level of company-paid health coverage and benefits in effect for Mr. Schreck as of the effective date of his termination for a period of six months (subject to his timely COBRA election). The resignation letter agreement also provides for continued vesting of his stock option awards and restricted stock for so long as he continues to serve on our board of directors or as a consultant to us, and provides for a general release of claims in favor of us. Please refer to "Stock Option Vesting Acceleration" below for description of Mr. Schreck's current stock option vesting acceleration.

Offer Letter Agreements

We have entered into offer letter agreements with each of our executive officers, other than Mr. Schreck, in connection with each named executive officer's commencement of employment with us. These offer letter agreements provide for the named executive officer's initial base salary, eligibility to participate in our standard benefit plans and in certain cases, the named executive officer's initial stock option grant along with vesting provisions with respect to that initial stock option grant. We amended and restated

these offer letter agreements in December 2010 to clarify certain terms for compliance with tax laws, to specify the terms of the option to be granted to Mr. King upon achievement of certain milestones and to provide additional change of control severance benefits to Mr. Welch and Dr. Palmer.

Under Mr. King's, Mr. Welch's and Dr. Palmer's respective offer letter agreements, in the event that such executive's employment is terminated by us without cause, or such executive resigns for good reason, or in a manner that constitutes an involuntary termination, in each case within one year following a change in control, as these terms are defined in the offer letters, each will be entitled to base salary and health benefits continuation for a period of twelve months in the case of Mr. King, and six months in the case of each of Mr. Welch and Dr. Palmer. Mr. King is also entitled to base salary and health benefits continuation for a period of twelve months in connection with a termination by us without cause that is not in connection with a change of control. Dr. Palmer's offer letter agreement also provides for a lump sum cash severance payment if she is terminated by us without cause (other than in connection with a change of control) during the first two years of her employment, which commenced on July 1, 2009, equal to four months of Dr. Palmer's base salary at the time of her termination plus two weeks of salary for every full year of regular, full time employment she has completed with us as of her termination. Please refer to "Stock Option Vesting Acceleration" below for description of the current stock option vesting acceleration for each of our executive officers. In order to receive severance benefits, each such executive must sign a waiver and release of claims.

Mr. King's and Mr. Welch's offer letters also provide for an opportunity to earn a target annual bonus of 35% and 30% of base salary, respectively, and Mr. King is entitled to an additional option grant covering 460,835 shares of our common stock upon achievement of one of the following corporate milestones prior to June 30, 2011: (i) completion by the company of a qualifying partnering transaction, (ii) completion of this offering, or (iii) completion of a private financing raising at least $15 million from new investors. Mr. Welch is entitled to an additional option grant covering 100,000 shares if we complete this offering or a private financing raising at least $15 million from new investors prior to June 30, 2011.

Each of our executive officers are employed "at-will," and each such executive officer's employment may be terminated at any time by us or the named executive officer.

Stock Option Vesting Acceleration

Each of our executive officers, other than Mr. Schreck, are entitled to full "double-trigger" stock option vesting acceleration benefits (for all currently outstanding stock options and any stock options that may be granted in the future) in the event their service with us is terminated by us without cause, or such executive resigns for good reason, or in a manner that constitutes an involuntary termination, in each case within 18 months following a change in control, subject to signing an effective release of claims. Mr. Schreck was entitled to double-trigger vesting acceleration benefits while he served as our President and Chief Executive Officer. In September 2010, we amended the terms of each of Mr. Schreck's stock options to provide for full stock option vesting acceleration on a "single-trigger" basis, meaning that he is entitled to full stock option vesting acceleration immediately upon such a change in control transaction.

Founder's Vesting Agreements

Each of Mr. Schreck and Dr. Palmer, our co-founders, entered into founder's vesting agreements with us in August 2006. Under these agreements, 500,000 of the 1,000,000 shares of our common stock held by each of Mr. Schreck and Dr. Palmer became restricted and made subject to vesting in equal monthly installments over a four year period commencing on September 15, 2006. As of August 15, 2010, all of these restricted shares had vested in full. Under the founder's vesting agreement with Dr. Palmer, in the event that Dr. Palmer's service with us as an employee or consultant had terminated without cause or

had terminated as a result of a voluntary termination by Dr. Palmer for certain stated reasons within 18 months after a change of control, as these terms are used in her founder's vesting agreement, and Dr. Palmer had signed a general release of claims in favor of us, any of her unvested restricted shares then held would have become fully vested as of the date of her termination.

Employee Benefit and Stock Plans

2006 Stock Plan

Our board of directors adopted, and our stockholders approved, the 2006 Stock Plan, or 2006 Plan, in August 2006. The 2006 Plan was subsequently amended by our board or directors and approved by our stockholders in each of February 2008 and November 2009. The 2006 Plan provides for the grant of incentive stock options, nonstatutory stock options and rights to acquire restricted stock. Upon the execution and delivery of the underwriting agreement for this offering, no additional stock options or other stock awards will be granted under the 2006 Plan. All outstanding stock options and other stock awards previously granted under the 2006 Plan will remain subject to the terms of the 2006 Plan.

Share reserve. There are 8,372,237 shares of common stock reserved for issuance under the 2006 Plan. As of September 30, 2010, 130,279 shares of common stock had been issued upon the exercise of stock options or pursuant to stock awards granted under the 2006 Plan, options to purchase 7,571,440 shares of common stock were outstanding at a weighted average exercise price at September 30, 2010 of $0.47 per share (or $0.69 per share assuming that the December 2010 stock option modification described under "Management's Discussion and Analysis of Financial Condition and Results of Operations —Critical Accounting Policies and Estimates—Stock-Based Compensation" had occurred as of September 30, 2010) and 670,518 shares remained available for future grant under the 2006 Plan.

Administration. Our board of directors administers our 2006 Plan. Our board of directors, referred to as the plan administrator, has the authority to interpret, amend, suspend and terminate the 2006 Plan, as well as to determine the terms of a stock award or amend the terms of a stock award. No amendment to the 2006 Plan or any award agreement thereunder may adversely affect the rights under any outstanding stock award unless the holder consents to that amendment. However, the plan administrator may unilaterally amend the 2006 Plan or the terms of an outstanding award agreement to conform the 2006 Plan or such stock award to any law, regulation or rule applicable to the 2006 Plan, including, but not limited to, Section 409A of the Code, as the plan administrator deems necessary or advisable.

Eligibility. The 2006 Plan provides for the grant of options and stock awards to our employees, directors and consultants. Incentive stock options may be granted only to employees. Nonstatutory stock options and stock awards may be granted to employees, directors and consultants.

Stock option provisions generally. In general, the exercise price of a stock option cannot be less than 100% of the fair market value of our common stock on the date of grant. However, an incentive stock option granted to a person who on the date of grant owns more than 10% of the combined voting power of all classes of our stock or any of our affiliates' stock must have an exercise price that is at least 110% of the fair market value on the date of grant.

Generally, an optionee may not transfer his or her stock option other than by will or by the laws of descent and distribution. Shares subject to options under the 2006 Plan generally vest and become exercisable in periodic installments. With the exception of stock options issued to an officer, a director or a consultant, shares subject to stock options under the 2006 Plan must vest and become exercisable at a rate not less than 20% per year over a period of five years from the date of grant of the option, subject to the optionee's continued service.

The aggregate fair market value, determined at the time of grant, of shares of our common stock with respect to which incentive stock options are exercisable for the first time by an optionee during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will be treated as nonstatutory stock options.

The plan administrator determines the term of stock options granted under the 2006 Plan, up to a maximum of 10 years, provided that incentive stock options granted to persons who own more than 10% of the combined voting power of all classes of our stock or any of our affiliates' stock may not have a term of more than five years. Unless the terms of an optionee's stock option agreement provide otherwise, if an optionee's service relationship with us, or any of our affiliates, ceases for any reason other than disability, death or cause, the optionee generally may exercise the vested portion of any stock options for a period of three months following the cessation of service. If an optionee's service relationship with us, or any of our affiliates, ceases due to disability or death, or an optionee dies within three months following cessation of service, the optionee or a beneficiary may generally exercise any vested options for a period of 12 months. The option term may be further extended in the event that exercise of the stock option following termination of the optionee's service is prohibited by applicable securities laws. In no event may an option be exercised beyond the expiration of its term. In the event of a termination for cause, options generally terminate immediately upon the termination of the optionee's service. Unless otherwise defined in an optionee's award agreement or in a written employment agreement or contract of service between an optionee and us, cause refers to an optionee's termination due to (1) the optionee's theft, dishonesty, willful misconduct, breach of fiduciary duty for personal profit, or falsification of any of our documents or records; (2) the optionee's material failure to abide by a code of conduct or other policies of ours (including, without limitation, policies relating to confidentiality and reasonable workplace conduct); (3) the optionee's unauthorized use, misappropriation, destruction or diversion of any tangible or intangible asset or corporate opportunity of ours (including, without limitation, the optionee's improper use or disclosure of our confidential or proprietary information); (4) any intentional act by the optionee which has a material detrimental effect on our reputation or business; (5) the optionee's repeated failure or inability to perform any reasonable assigned duties after written notice from us of, and a reasonable opportunity to cure, such failure or inability; (6) any material breach by the optionee of any employment or service agreement between the optionee and us, which breach is not cured pursuant to the terms of such agreement; or (7) the optionee's conviction (including any plea of guilty or nolo contendere) of any criminal act involving fraud, dishonesty, misappropriation or moral turpitude, or which impairs the optionee's ability to perform his or her duties with us.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (a) cash, check or cash equivalent, (b) the tender to us, or attestation to the ownership, of shares of our common stock previously owned by the optionee, (c) a broker-assisted cashless exercise, (d) other legal consideration approved by the plan administrator or (e) any combination of the foregoing.

Stock purchase rights generally. Rights to acquire restricted stock may be granted pursuant to restricted stock purchase agreements adopted under the 2006 Plan. The purchase price for restricted stock purchase rights cannot be less than 85% of the fair market value of our common stock on the date of grant or the date the purchase is consummated, provided that the purchase price for restricted stock purchase rights granted to a person who on the date of grant owns or is deemed to own more than 10% of the total combined voting power of all classes of our stock or any of our affiliates' stock must be at least 100% of the fair market value on the date of grant or the date the purchase is consummated. Payment of the purchase price for restricted stock purchase rights may be made using (1) cash, check or a cash equivalent, (2) past services provided to us or our affiliates, (3) other legal consideration permitted by the plan administrator or (4) any combination of the foregoing. Shares of common stock acquired under a restricted stock purchase right may, but need not, be subject to a share repurchase option in our

favor in accordance with a vesting schedule to be determined by the plan administrator, in which case, if a participant's service relationship with us terminates, we may repurchase any or all of the shares of common stock subject to the restricted stock purchase award that have not vested as of the date of termination. With the exception of shares acquired under a restricted stock purchase right award by an officer, a director or a consultant, our repurchase right with respect to shares subject to vesting in connection with a restricted stock purchase award must lapse at the rate of at least 20% of the shares per year over the period of five years from the date of grant of the restricted stock purchase right. A holder of a stock purchase right may not transfer his or her stock purchase right other than by will or by the laws of descent and distribution.

Changes to capital structure. In the event that there is a specified type of change in our capital structure, such as a stock split or recapitalization, appropriate adjustments will be made to the number of shares subject to the 2006 Plan and to the number of shares and price per share of all outstanding options and stock awards.

Change in control. In the event of certain change in control transactions involving us, such as our liquidation or dissolution or an event that results in a material change in the ownership of our company, the plan administrator has the discretion to take any of the following actions with respect to stock awards under the 2006 Plan:

- accelerate the vesting of a stock award;
- arrange for the assumption, continuation or substitution of a stock award by the surviving or acquiring entity or its parent company; or
- cancel or arrange for the cancellation of the stock award in exchange for a payment in (1) cash, (2) stock, or (3) other property, and in any such case in an amount equal to the fair market value of the consideration to be paid per share of stock in the change of control over the exercise price per share.

Stock awards that are neither assumed or continued by the surviving or acquiring entity or its parent company nor exercised as of the effective time of the change in control will terminate and cease to be outstanding as of the effective time of the change in control.

Option Exercise Price Increase

In December 2010, our board of directors, out of an abundance of caution, allowed eligible optionees, including our named executive officers, to increase the exercise price of stock options granted to them on June 15, 2010 in light of the potential risk of adverse tax consequences under Code Section 409A. Under Section 409A, stock options with an exercise price that is less than the fair market value of the stock on the date of grant may be deemed deferred compensation subject to adverse taxation under Section 409A. When setting the exercise price for the June 15, 2010 stock option grants, the board determined the fair market value of our common stock to be $0.30 per share, which valuation was subsequently revisited for financial reporting purposes when our board of directors began to analyze the prospects of an IPO as described in more detail under "Management's Discussion and Analysis of our Financial Condition and Results of Operations—Critical Accounting Policies and Estimates—Stock-Based Compensation". As such, our board of directors subsequently determined a fair value of our common stock for financial reporting purposes to be $0.64 per share. We believe that the board's determination of the fair market value of our common stock on June 15, 2010 in reliance upon all material facts available to the board on that date, was reasonable. However, given the potential adverse tax consequences to the optionees if the Internal Revenue Service determines that our original determination was grossly unreasonable, our board decided, out of an abundance of caution, to make the offer to amend. All of our eligible named executive officers accepted the offer, and their eligible options were amended on December 27, 2010 (as further set forth in the 2010 Grants of Plan-Based Awards Table above).

2011 Equity Incentive Plan

Our board of directors adopted the 2011 Equity Incentive Plan, or 2011 Incentive Plan, on January 5, 2011 as a successor to the 2006 Plan. Subject to stockholder approval, we expect the 2011 Incentive Plan will become effective immediately upon the execution and delivery of the underwriting agreement for this offering. The 2011 Incentive Plan will terminate on January 4, 2021, unless sooner terminated by our board of directors. Our board of directors may amend or suspend the 2011 Incentive Plan at any time, although no such action may impair the rights under any then-outstanding award without the holder's consent.

Stock awards. The 2011 Incentive Plan provides for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance-based stock awards, and other forms of equity compensation, or collectively, stock awards, all of which may be granted to employees, including officers, and to non-employee directors and consultants. Additionally, the 2011 Incentive Plan provides for the grant of performance cash awards. Incentive stock options may be granted only to employees. All other awards may be granted to employees, including officers, and to non-employee directors and consultants.

Share reserve. Initially, the aggregate number of shares of our common stock that may be issued pursuant to stock awards under the 2011 Incentive Plan after the 2011 Incentive Plan becomes effective is 7,500,000 shares. Then, the number of shares of our common stock reserved for issuance under the 2011 Incentive Plan will automatically increase on January 1st each year, starting on January 1, 2012 and continuing through January 1, 2020, by 4% of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year, or such lesser number of shares of common stock as determined by our board of directors. The maximum number of shares that may be issued pursuant to the exercise of incentive stock options under the 2011 Incentive Plan is 40,000,000 shares.

No person may be granted stock awards covering more than 4,000,000 shares of our common stock under our 2011 Incentive Plan during any calendar year pursuant to stock options, stock appreciation rights and other stock awards whose value is determined by reference to an increase over an exercise or strike price of at least 100% of the fair market value on the date the stock award is granted. Additionally, no person may be granted in a calendar year a performance stock award covering more than 3,000,000 shares or a performance cash award having a maximum value in excess of $1,000,000. Such limitations are designed to help assure that any deductions to which we would otherwise be entitled with respect to such awards will not be subject to the $1,000,000 limitation on the income tax deductibility of compensation paid to any covered executive officer imposed by Section 162(m) of the Code.

If a stock award granted under the 2011 Incentive Plan expires or otherwise terminates without being exercised in full, or is settled in cash, the expiration, termination or settlement shall not reduce (or otherwise offset) the number of shares of common stock that may be available for issuance under the 2011 Incentive Plan. In addition, the following types of shares under the 2011 Incentive Plan may become available for the grant of new stock awards under the 2011 Incentive Plan: (1) shares that are forfeited to or repurchased by us prior to becoming fully vested; (2) shares withheld to satisfy income or employment withholding taxes; or (3) shares used to pay the exercise price of an option. Shares issued under the 2011 Incentive Plan may be previously unissued shares or reacquired shares bought by us on the open market. As of the date hereof, no awards have been granted and no shares of our common stock have been issued under the 2011 Incentive Plan.

Administration. Our board of directors, or a duly authorized committee thereof, has the authority to administer the 2011 Incentive Plan. Our board of directors has delegated its authority to administer the 2011 Incentive Plan to our compensation committee under the terms of the compensation committee's

charter. Our board of directors may also delegate to one or more of our officers the authority to (1) designate employees (other than other officers) to be recipients of stock options or stock appreciation rights, and (2) determine the number of shares of common stock to be subject to such stock awards, provided that our board of directors must specify the total number of shares of common stock that may be subject to stock awards granted by such officer and that such officer may not grant a stock award to himself or herself. Subject to the terms of the 2011 Incentive Plan, our board of directors or the authorized committee or officer, referred to as the plan administrator, determines recipients, dates of grant, the numbers and types of stock awards to be granted and the terms and conditions of the stock awards, including the period of their exercisability and vesting schedule applicable to a stock award. Subject to the limitations set forth below, the plan administrator will also determine the exercise price, strike price or purchase price of awards granted and the types of consideration to be paid for the award.

The plan administrator has the authority to reduce the exercise price (or strike price) of any outstanding option or stock appreciation right, cancel and re-grant any outstanding option or stock appreciation right or take any other action that is treated as a repricing under U.S. generally accepted accounting principles, with the consent of any adversely affected participant.

Stock options. Incentive and nonstatutory stock options are granted pursuant to stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for a stock option, within the terms and conditions of the 2011 Incentive Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the 2011 Incentive Plan vest at the rate specified by the plan administrator.

The plan administrator determines the term of stock options granted under the 2011 Incentive Plan, up to a maximum of 10 years. Unless the terms of an optionee's stock option agreement provides otherwise, if an optionee's service relationship with us, or any of our affiliates, ceases for any reason other than disability, death or cause, the optionee may generally exercise any vested options for a period of three months following the cessation of service. The option term may be extended in the event that exercise of the option or sale of shares received upon exercise of the option following such a termination of service is prohibited by applicable securities laws or our insider trading policy. If an optionee's service relationship with us, or any of our affiliates, ceases due to disability or death, or an optionee dies within a certain period following cessation of service, the optionee or a beneficiary may generally exercise any vested options for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, options generally terminate immediately upon the occurrence of the event giving rise to the right to terminate the individual for cause. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (1) cash, check, bank draft or money order, (2) a broker-assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionee, (4) a net exercise of the option if it is a nonstatutory option, and (5) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will, the laws of descent and distribution, or pursuant to a domestic relations order. An optionee may designate a beneficiary, however, who may exercise the option following the optionee's death.

Tax limitations on incentive stock options. The aggregate fair market value, determined at the time of grant, of our common stock with respect to incentive stock options that are exercisable for the first time by an optionee during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will generally be treated as nonstatutory stock options. No

incentive stock option may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant, and (2) the term of the incentive stock option does not exceed five years from the date of grant.

Restricted stock awards. Restricted stock awards are granted pursuant to restricted stock award agreements adopted by the plan administrator. Restricted stock awards may be granted in consideration for (1) cash, check, bank draft or money order, (2) past services rendered to us or our affiliates, or (3) any other form of legal consideration. Common stock acquired under a restricted stock award may, but need not, be subject to a share repurchase option in our favor in accordance with a vesting schedule to be determined by the plan administrator. Rights to acquire shares under a restricted stock award may be transferred only upon such terms and conditions as set by the plan administrator.

Restricted stock unit awards. Restricted stock unit awards are granted pursuant to restricted stock unit award agreements adopted by the plan administrator. The plan administrator will determine the vesting terms of restricted stock unit awards. The plan administrator will determine the consideration to be paid, if any, by the participant upon delivery for each share subject to a restricted stock unit award, which may be paid in any form of legal consideration acceptable to the plan administrator. A restricted stock unit award may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the plan administrator, or in any other form of consideration set forth in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock units that have not vested will be forfeited upon the participant's cessation of continuous service for any reason.

Stock appreciation rights. Stock appreciation rights are granted pursuant to stock appreciation right grant agreements adopted by the plan administrator. The plan administrator determines the strike price for a stock appreciation right, which generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Upon the exercise of a stock appreciation right, we will pay the participant an amount equal to the product of (1) the excess of the per share fair market value of our common stock on the date of exercise over the strike price, multiplied by (2) the number of shares of common stock with respect to which the stock appreciation right is exercised. A stock appreciation right granted under the 2011 Incentive Plan vests at the rate specified in the stock appreciation right grant agreement as determined by the plan administrator.

The plan administrator determines the term of stock appreciation rights granted under the 2011 Incentive Plan, up to a maximum of ten years. Unless the terms of a participant's stock appreciation right grant agreement provides otherwise, if a participant's service relationship with us, or any of our affiliates, ceases for any reason other than cause, disability or death, the participant may generally exercise any vested stock appreciation right for a period of three months following the cessation of service. The stock appreciation right term may be further extended in the event that exercise of the stock appreciation right or the sale of shares received upon exercise of the stock appreciation right following such a termination of service is prohibited by applicable securities laws. If a participant's service relationship with us, or any of our affiliates, ceases due to disability or death, or a participant dies within a certain period following cessation of service, the participant or a beneficiary may generally exercise any vested stock appreciation right for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, stock appreciation rights generally terminate immediately upon the occurrence of the event giving rise to the right to terminate the individual for cause. In no event may a stock appreciation right be exercised beyond the expiration of its term.

Performance awards. The 2011 Incentive Plan permits the grant of performance-based stock and cash awards that may qualify as performance-based compensation not subject to the $1,000,000 limitation on

the income tax deductibility of compensation paid to a covered executive officer imposed by Section 162(m) of the Code. To help assure that the compensation attributable to performance-based awards will so qualify, our compensation committee can structure such awards so that stock or cash will be issued or paid pursuant to such award only after the achievement of certain pre-established performance goals during a designated performance period.

The performance goals that may be selected include one or more of the following: (1) earnings (including earnings per share and net earnings); (2) earnings before interest, taxes and depreciation; (3) earnings before interest, taxes, depreciation and amortization; (4) total stockholder return; (5) return on equity or average stockholders' equity; (6) return on assets, investment, or capital employed; (7) stock price; (8) margin (including gross margin); (9) income (before or after taxes); (10) operating income; (11) operating income after taxes; (12) pre-tax profit; (13) operating cash flow; (14) sales or revenue targets; (15) increases in revenue or product revenue; (16) expenses and cost reduction goals; (17) improvement in or attainment of working capital levels; (18) economic value added (or an equivalent metric); (19) market share; (20) cash flow; (21) cash flow per share; (22) share price performance; (23) debt reduction; (24) implementation or completion of projects or processes; (25) customer satisfaction; (26) stockholders' equity; (27) capital expenditures; (28) debt levels; (29) operating profit or net operating profit; (30) workforce diversity; (31) growth of net income or operating income; (32) billings; and (33) to the extent that an award is not intended to comply with Section 162(m) of the Code, other measures of performance selected by our board of directors.

The performance goals may be based on a company-wide basis, with respect to one or more business units, divisions, affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise (1) in the award agreement at the time the award is granted or (2) in such other document setting forth the performance goals at the time the goals are established, the plan administrator will appropriately make adjustments in the method of calculating the attainment of performance goals as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects, as applicable, for non-U.S. dollar denominated goals; (3) to exclude the effects of changes to U.S. generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of any "extraordinary items" as determined under U.S. generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any business divested by us achieved performance objectives at targeted levels during the balance of a performance period following such divestiture; (8) to exclude the effect of any change in the outstanding shares of our common stock by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (9) to exclude the effects of stock based compensation and/or the award of bonuses under our bonus plans; and (10) to exclude the effect of any other unusual, non-recurring gain or loss or other extraordinary item. In addition, the plan administrator retains the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of the goals and to define the manner of calculating the performance criteria it selects to use for a performance period. The performance goals may differ from participant to participant and from award to award.

Other stock awards. The plan administrator may grant other awards based in whole or in part by reference to our common stock. The plan administrator will set the number of shares under the stock award and all other terms and conditions of such awards.

Changes to capital structure. In the event that there is a specified type of change in our capital structure, such as a stock split or recapitalization, the plan administrator shall appropriately and proportionately adjust: (a) the class(es) and maximum number of shares reserved for issuance under the 2011 Incentive Plan and the class(es) and maximum number of shares by which the share reserve may

increase automatically each year, (b) the class(es) and maximum number of shares that may be issued upon the exercise of incentive stock options, (c) the class(es) and maximum number of shares subject to stock awards that can be granted in a calendar year (as established under the 2011 Incentive Plan pursuant to Section 162(m) of the Code) and (d) the class(es) and number of shares and price per share of stock subject to outstanding stock awards.

Corporate transactions. In the event of certain specified significant corporate transactions, unless otherwise provided in the instrument evidencing the stock award or any other written agreement between us or any affiliate and the holder of the stock award, the plan administrator has the discretion to take any of the following actions with respect to stock awards:

- arrange for the assumption, continuation or substitution of a stock award by a surviving or acquiring entity or parent company;
- arrange for the assignment of any reacquisition or repurchase rights held by us to the surviving or acquiring entity or parent company;
- accelerate the vesting of the stock award and provide for its termination prior to the effective time of the corporate transaction;
- arrange for the lapse of any reacquisition or repurchase right held by us;
- cancel or arrange for the cancellation of the stock award in exchange for such cash consideration, if any, as our board of directors may deem appropriate; or
- make a payment equal to the excess of (a) the value of the property the participant would have received upon exercise of the stock award over (b) the exercise price otherwise payable in connection with the stock award.

Our board of directors is not obligated to treat all stock awards, even those that are of the same type, in the same manner.

Change in control. The plan administrator may provide, in an individual award agreement or in any other written agreement between a participant and us, that the stock award will be subject to additional acceleration of vesting and exercisability in the event of a certain specified change in control. However, in the absence of such a provision, no such acceleration of the stock award will occur.

2011 Employee Stock Purchase Plan

Our board of directors adopted the 2011 Employee Stock Purchase Plan, or ESPP, on January 5, 2011. Subject to stockholder approval, we expect the ESPP will become effective immediately upon the execution and delivery of the underwriting agreement for this offering.

Share reserve. The ESPP initially authorizes the issuance of 1,000,000 shares of our common stock pursuant to purchase rights granted to our employees or to employees of any of our designated affiliates. The number of shares of our common stock reserved for issuance will automatically increase on January 1st each year, starting January 1, 2012 and continuing through January 1, 2020, in an amount equal to the lower of (1) 2% of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year, or (2) a number of shares of common stock as determined by our board of directors. If a purchase right granted under the ESPP terminates without having been exercised, the shares of our common stock not purchased under such purchase right will be available for issuance under the ESPP.

Administration. Our board of directors, or a duly authorized committee thereof, has the authority to administer the ESPP. Our board of directors has delegated its authority to administer the ESPP to our

compensation committee. Our board of directors or the authorized committee is referred to as the plan administrator.

Purchase rights. The ESPP is implemented through a series of offerings of purchase rights to eligible employees. Purchase rights are generally not transferable. Under the ESPP, we may specify offerings with a duration of not more than 27 months, and may specify one or more shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for the employees who are participating in the offering. An offering may be terminated early under certain circumstances such as a material change in control of AcelRx. The plan administrator has the discretion to structure an offering so that if the fair market value of the shares of our common stock on the first day of a new purchase period within such offering is less than or equal to the fair market value of the shares of our common stock on the first day of the offering, then (a) that offering shall terminate immediately, and (b) the participants in such terminated offering shall be automatically enrolled in a new offering beginning on the first day of such new purchase period.

Payroll deductions. Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the ESPP and may contribute, normally through payroll deductions, up to 15% of their earnings toward the purchase of our common stock under the ESPP. Unless otherwise determined by the plan administrator, common stock will be purchased for participating employees at a price per share equal to the lower of (a) 85% of the fair market value of a share of our common stock on the first date of an offering, or (b) 85% of the fair market value of a share of our common stock on the date of purchase.

Limitations. Employees may have to satisfy one or more of the following service requirements before participating in the ESPP, as determined by the plan administrator: (a) customary employment with us or one of our affiliates for more than 20 hours per week and more than five months per calendar year or (b) continuous employment with us or one of our affiliates for a minimum period of time prior to the first date of an offering, provided that such minimum period may not to exceed two years. No employee may purchase shares under the ESPP at a rate in excess of $25,000 worth of our common stock, based on the fair market value per share of our common stock at the beginning of an offering, for each calendar year in which such purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the ESPP if, immediately after such rights are granted, such employee owns our stock possessing five percent or more of the total combined voting power or value of all classes of our outstanding capital stock.

Changes to capital structure. In the event that there is a specified type of change in our capital structure such as a stock split or recapitalization, appropriate adjustments will be made to (a) the class(es) and maximum number of shares reserved under the ESPP, (b) the class(es) and maximum number of shares by which the share reserve may increase automatically each year, (c) the class(es) and number of shares subject to, and purchase price applicable to, all outstanding purchase rights, and (d) any limits on the class(es) and number of shares that may be purchased in an ongoing offering.

Corporate transactions. In the event of certain significant corporate transactions, such as an acquisition of the AcelRx that results in a material change in the ownership of AcelRx, any then-outstanding purchase rights under the ESPP may be assumed, continued or substituted for by any surviving or acquiring entity or its parent company, provided that the rights of any participant under any such assumption, continuation or substitution will not be impaired. If the surviving or acquiring entity or its parent company elects not to assume, continue or substitute for such purchase rights, then the participants' accumulated contributions will be used to purchase shares of our common stock within 10 business days prior to such corporate transaction, and such purchase rights will terminate immediately thereafter.

Plan amendments. The plan administrator has the authority to amend, suspend or terminate the ESPP, provided any such action will not be taken without the consent of an adversely affected participant except as necessary to comply with any laws, listing requirements or governmental regulations or to maintain favorable tax, listing or regulatory treatment. We will obtain stockholder approval of any amendment to our ESPP as required by applicable law.

401(k) Plan

We maintain a tax-qualified 401(k) retirement plan for all employees who satisfy certain eligibility requirements, including requirements relating to age and length of service. Under our 401(k) plan, employees may elect to defer a portion of their eligible compensation subject to applicable annual Internal Revenue Code limits. We provide a discretionary safe harbor profit sharing contribution equal to 3% of a participant's compensation to our eligible participants, which is 100% vested when made. We intend for the 401(k) plan to qualify under Section 401(a) and 501(a) of the Code so that contributions by employees to the 401(k) plan, and income earned on those contributions, are not taxable to employees until withdrawn from the 401(k) plan.

Pension Benefits

We do not maintain any pension or retirement plans.

Nonqualified Deferred Compensation

We do not maintain any nonqualified deferred compensation plans.

Outstanding Equity Awards at December 31, 2010

The following table presents information regarding outstanding equity awards held by our named executive officers as of December 31, 2010.

2010 Outstanding Equity Awards at Fiscal Year-End Table

	Option Awards			
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)[1]	Option Expiration Date
Richard A. King	114,153	1,712,287[2]	0.64	06/15/2020
James H. Welch	—	500,000[3]	1.33	11/04/2020
Thomas A. Schreck	437,500	437,500[4]	0.64	06/15/2020
	50,000	50,000[4]	1.38	07/01/2019
	50,000	50,000[4]	1.38	07/01/2019
	112,500	37,500[6]	1.00	08/14/2018
	75,000	— [7]	0.33	04/03/2017
Lawrence G. Hamel	125,000	125,000[4]	0.64	06/15/2020
	25,000	25,000[4]	1.38	07/01/2019
	56,250	18,750[8]	0.30	12/05/2017
	100,000	— [9]	0.30	04/03/2017
	50,000	— [7]	0.30	04/03/2017
Badri Dasu	60,000	60,000[4]	0.64	06/15/2020
	25,000	75,000[5]	0.64	06/15/2020
	12,500	12,500[4]	1.38	07/01/2019
	121,875	28,125[10]	0.30	10/25/2017
Pamela P. Palmer, M.D., Ph.D.	500,000	500,000[4]	0.64	06/15/2020
	75,000	75,000[4]	1.38	07/01/2019
	112,500	37,500[6]	1.00	08/14/2018
	100,000	— [7]	0.33	04/03/2017

[1] The dollar amounts in this column reflect the increase in the exercise price of the options we granted to our named executive officers on June 15, 2010 as described under "— Employment Agreements and Arrangements—Employee Benefit and Stock Plans—Option Exercise Price Increase."

[2] The shares subject to this stock option vested as to 114,153 of the shares subject to the option on May 1, 2010, with 342,457 of the shares subject to the stock option vesting on March 3, 2011 and the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months.

[3] The shares subject to this stock option will vest as to 1/4 th of the shares subject to the option on September 30, 2011, with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months.

[4] The shares subject to this stock option vested as to 1/2 of the shares subject to the option on December 31, 2010 with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 24 months.

[5] The shares subject to this stock option vested as to 1/4 th of the shares subject to the option on December 31, 2010 with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months.

[6] The shares subject to this stock option vested as to 1/4 th of the shares subject to the option on December 31, 2008, with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months.

[7] The shares subject to this stock option vested as to 1/4 th of the shares subject to the option on December 31, 2007, with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months.

[8] The shares subject to this stock option vested as to 1/4 th of the shares subject to the option on December 4, 2008, with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months.

[9] The shares subject to this stock option vested as to 1/4 th of the shares subject to the option on September 20, 2007, with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months.

(10) The shares subject to this stock option vested as to 1/4th of the shares subject to the option on September 25, 2008, with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months.

Option Exercises and Stock Vested

The following table shows information regarding the vesting of restricted stock held by our named executive officers during the year ended December 31, 2010. No stock options were exercised by our named executive officers during the year ended December 31, 2010.

2010 Option Exercises and Stock Vested Table

	Stock Awards	
Name	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting ($)(1)
Richard A. King	—	—
James H. Welch	—	—
Thomas A. Schreck	83,333	
Lawrence G. Hamel	—	—
Badri Dasu	—	—
Pamela P. Palmer, M.D., Ph.D.	83,333	

(1) The value realized on vesting has been calculated assuming a price per share of $, which is the mid-point of the price range set forth on the cover page of this prospectus, multiplied by the number of shares vested. More information about the restricted stock held by Mr. Schreck and Dr. Palmer can be found under "Employment Agreements and Arrangements—Executive Employment Agreements and Termination Benefits —Founder's Vesting Agreements."

Potential Payments Upon Termination or Change in Control

Please refer to the section entitled "— Employment Agreements and Arrangements—Executive Employment Agreements and Termination Benefits" above for a description of the compensation and benefits payable to each of our named executive officers in certain termination situations. The amount of compensation and benefits payable to each named executive officer, other than Mr. Schreck, in various termination situations has been estimated in the tables below, assuming the applicable termination event occurred on December 31, 2010. All of the potential compensation and benefits listed in the tables below are compensation or benefits that would have been made, pursuant to the terms of the offer letter agreements with our named executive officers and the terms of the 2006 Plan and the stock option agreements thereunder. For purposes of the tables below, we have assumed that none of the potential compensation and benefits would be subject to the excise tax imposed pursuant Section 4999 of the Code and therefore reduced in accordance with the terms of the applicable agreements.

We entered into a resignation letter agreement with Mr. Schreck in connection with his resignation as our President and Chief Executive Officer as described under "— Employment Agreements and Arrangements—Executive Employment Agreements and Termination Benefits." Pursuant to the resignation letter agreement with Mr. Schreck, we continued to pay his base salary that was in effect as of the effective date of his resignation for a six month period following his resignation, or a total of $187,500 in base salary continuation payments, and provided Mr. Schreck with six months of continued company-paid health coverage and benefits at a cost to us of $19,232 in the aggregate. The resignation letter agreement also provides for continued vesting of his stock option awards and restricted stock for so long as he continues to serve on our board of directors or as a consultant to us, and provides for a general release of claims in favor of us.

Richard A. King

Compensation and Benefits	Termination Without Cause Not in Connection With a Change in Control ($)	Change in Control and Termination Without Cause or For Good Reason ($)
Base continuation[1]	400,000	400,000
Continued health coverage[2]	19,320	19,320
Stock option vesting acceleration[3]	—	

[1] Represents twelve months of base salary continuation payments.
[2] Represents twelve months of continued company-paid health coverage.
[3] The value of vesting acceleration is calculated assuming a price per share of $, which is the mid-point of the price range set forth on the cover page of this prospectus, with respect to unvested option shares subject to acceleration minus the exercise price of these unvested option shares.

James H. Welch

Compensation and Benefits	Change in Control and Termination Without Cause or Eligible Voluntary Termination ($)
Base continuation[1]	145,000
Continued health coverage[2]	11,197
Stock option vesting acceleration[3]	

[1] Represents six months of base salary continuation payments.
[2] Represents six months of continued company-paid health coverage.
[3] The value of vesting acceleration is calculated assuming a price per share of $, which is the mid-point of the price range set forth on the cover page of this prospectus, with respect to unvested option shares subject to acceleration minus the exercise price of these unvested option shares.

Pamela P. Palmer, M.D., Ph.D.

Compensation and Benefits	Upon Termination Prior to Employment Anniversary Not in Connection With a Change in Control ($)[1]	Change in Control and Termination Without Cause or Eligible Voluntary Termination ($)
Severance payment	140,625	—
Base continuation[2]	—	187,500
Continued health coverage[3]	—	5,742
Stock option vesting acceleration[4]	—	

[1] Dr. Palmer is entitled to severance in the event her employment is terminated during the first two years of her employment, which commenced on July 1, 2009. The amount listed in this column represents a severance payment equal to four months of Dr. Palmer's base salary plus two weeks of salary for the full year of regular, full time employment Dr. Palmer had completed with us as of December 31, 2010.
[2] Represents six months of base salary continuation payments.
[3] Represents six months of continued company-paid health coverage.
[4] The value of stock option vesting acceleration is calculated assuming a price per share of $, which is the mid-point of the price range set forth on the cover page of this prospectus, with respect to unvested option shares subject to acceleration minus the exercise price of these unvested option shares.

Other Named Executive Officers

Name	Change in Control and Termination Without Cause or Eligible Voluntary Termination Stock Option Vesting Acceleration ($)[1]
Lawrence G. Hamel	
Badri Dasu	

(1) The value of vesting acceleration is calculated assuming a price per share of $, which is the mid-point of the price range set forth on the cover page of this prospectus, with respect to unvested option shares subject to acceleration minus the exercise price of these unvested option shares.

Non-Employee Director Compensation

Cash Compensation Arrangements

Other than respect to Mr. Rosen, our non-employee directors do not currently receive any cash compensation for their services as members of our board of directors or any committee of our board of directors. Mr. Rosen currently receives an annual retainer of $30,000 per year. Our non-employee directors are reimbursed for travel, lodging and other reasonable expenses incurred in connection with their attendance at board of director or committee meetings.

In January, 2011, our board of directors adopted a non-employee director compensation policy, which will be effective for all of our non-employee directors effective upon the execution and delivery of the underwriting agreement for this offering. Pursuant to the non-employee director compensation policy, each member of our board of directors who is not our employee will receive an annual retainer of $30,000 plus $2,000 as a meeting fee for each board meeting attended by the non-employee director in person. In addition, our non-employee directors will receive the following cash compensation for board services, as applicable:

- the board chair will receive an additional annual retainer of $25,000;
- the audit committee chair will receive an additional annual retainer of $10,000;
- the compensation committee chair will receive an additional annual retainer of $5,000;
- the nominating and corporate governance committee chair will receive an additional annual retainer of $5,000; and
- each committee member will receive $1,000 as a meeting fee for each committee meeting attended by the non-employee director in person.

All board and committee retainers accrue and are payable on a quarterly basis at the end of each calendar quarter of service. After this offering, we will continue to reimburse our non-employee directors for their travel and other reasonable expenses incurred in attending board of director or committee meetings.

Equity Compensation Arrangements

Our non-employee directors are currently eligible to receive stock awards under our 2006 Stock Plan, as amended, or the 2006 Plan. To date, Mr. Rosen is our only non-employee director who has received any stock awards under the 2006 Plan while serving in such capacity. In August 2008, we granted a stock option to purchase 90,000 shares of common stock at an exercise price of $1.00 per share to Mr. Rosen under the 2006 Plan. This option has a four year vesting schedule, with 1/4th of the shares vesting one day prior to the one year anniversary of the vesting commencement date and the remaining shares vesting on an equal monthly basis over the following 36 months. We also granted a stock option to Mr. Rosen to purchase 65,000 shares of common stock at an exercise price of $0.30 per share under the 2006 Plan in June 2010. This option was subsequently amended in December 2010 to increase the exercise price to $0.64 per share as described in more detail under "— Employment Agreements and Arrangements—Employee Benefit and Stock Plans—Option Exercise Price Increase." This option has a three year vesting schedule, with 1/4 th of the shares vested on the vesting commencement date and the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months. In the event of a change in control transactions involving us, such as our liquidation or dissolution of or an event that results in a material change in the ownership of our company, the vesting of all shares subject to each option granted to Mr. Rosen will accelerate in full and be fully exercisable. Upon the execution and

delivery of the underwriting agreement for this offering, no additional stock options or other stock awards will be granted under the 2006 Plan. For a description of the terms of the 2006 Plan, see "Executive Compensation—Employment Agreements and Arrangements—Employee Benefit and Stock Plans—2006 Stock Plan."

Our non-employee director compensation policy, which will be effective for all of our non-employee directors effective upon the execution and delivery of the underwriting agreement for this offering, provides for automatic grants of stock options to our non-employee directors under our 2011 Incentive Plan following this offering. Upon election or appointment to our board, each non-employee director will receive an initial grant of a stock option to purchase 60,000 shares of our common stock, which will vest as to 1/36th of the shares subject to the option on an equal monthly basis over a three-year period. Additionally, on the date of each annual meeting of stockholders, each non-employee director who is then serving as a director or who is elected to the board on the date of such annual meeting will receive a grant of a stock option to purchase 50,000 shares of our common stock, which will vest as to 1/24th of the shares subject to the option on an equal monthly basis over a two-year period. All these options will be granted with an exercise price equal to the fair market value of our common stock on the date of the grant, and shall be entitled to full vesting acceleration as of immediately prior to the effective date of certain change in control transactions involving us, such as our liquidation or a dissolution of or an event that results in a material change in the ownership of our company. For a description of the terms of the 2011 Incentive Plan, see "Executive Compensation—Employment Agreements and Arrangements—Employee Benefit and Stock Plans—2011 Equity Incentive Plan."

Director Compensation Table

The following table sets forth certain summary information for the year ended December 31, 2010 with respect to the compensation of our non-employee directors. Neither Mr. King (who has served as our President and Chief Executive Officer since May 1, 2010) nor Dr. Palmer, each of whom are executive officers, received or receives any additional compensation for serving on our board of directors or its committees. In addition, Mr. Schreck, who served as our President and Chief Executive Officer until April 30, 2010, did not receive any additional compensation for serving on our board of directors or its committees during the year ended December 31, 2010, and all of his compensation for 2010 is summarized under "— Summary Compensation Table" above.

2010 Director Compensation Table

Name	Fees Earned or Paid in Cash ($)	Option Awards ($)[1]	Total ($)
Howard B. Rosen	30,000	32,102	62,102
Stephen J. Hoffman Ph.D., M.D.	—	—	—
Guy P. Nohra	—	—	—
Mark Wan	—	—	—

[1] The dollar amount in this column for Mr. Rosen represents the grant date fair value of the stock option award granted to Mr. Rosen on June 15, 2010. This amount has been calculated in accordance with ASC 718 using the Black-Scholes option-pricing model and excluding the effect of estimated forfeitures. For a discussion of valuation assumptions, see Note 10 to our financial statements and the discussion under "Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Estimates—Stock-Based Compensation" included elsewhere in this prospectus. These amounts do not necessarily correspond to the actual value that may be recognized from the option award by Mr. Rosen. The modification of Mr. Rosen's stock option award originally granted on June 15, 2010 as described under "— Employment Agreements and Arrangements—Employee Benefit and Stock Plans—Option Exercise Price Increase" did not result in an increase in the fair value of the stock option award under ASC 718. As of December 31, 2010, Mr. Rosen held stock options exercisable for 90,000 shares of our common stock. A description of the terms of these options can be found under the heading "Equity Compensation Arrangements" above. None of the other non-employee directors listed in the table above were granted any option awards during 2010 nor did they hold any outstanding stock options at December 31, 2010.

Limitation on Liability and Indemnification Matters

Our amended and restated certificate of incorporation and amended and restated bylaws, each to be effective upon the completion of this offering, will provide that we will indemnify our directors and officers, and may indemnify our employees and other agents, to the fullest extent permitted by the Delaware General Corporation Law. However, Delaware law prohibits our amended and restated certificate of incorporation from limiting the liability of our directors for the following:

- any breach of the director's duty of loyalty to us or to our stockholders;
- acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or unlawful stock repurchases or redemptions; and
- any transaction from which the director derived an improper personal benefit.

If Delaware law is amended to authorize corporate action further eliminating or limiting the personal liability of a director, then the liability of our directors will be eliminated or limited to the fullest extent permitted by Delaware law, as so amended. Our amended and restated certificate of incorporation does not eliminate a director's duty of care and, in appropriate circumstances, equitable remedies, such as injunctive or other forms of non-monetary relief, remain available under Delaware law. This provision also does not affect a director's responsibilities under any other laws, such as the federal securities laws or other state or federal laws. Under our amended and restated bylaws, we will also be empowered to enter into indemnification agreements with our directors, officers, employees and other agents and to purchase insurance on behalf of any person whom we are required or permitted to indemnify.

In addition to the indemnification required in our amended and restated certificate of incorporation and amended and restated bylaws, we have entered into indemnification agreements with each of our current directors, officers and some employees before the completion of this offering. These agreements provide for the indemnification of such persons for all reasonable expenses and liabilities incurred in connection with any action or proceeding brought against them by reason of the fact that they are or were serving in such capacity. We believe that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors, officers and employees. Furthermore, we have obtained director and officer liability insurance to cover liabilities our directors and officers may incur in connection with their services to us and expect to increase the level upon completion of this offering.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. A stockholder's investment may be harmed to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable. There is no pending litigation or proceeding naming any of our directors or officers as to which indemnification is being sought, nor are we aware of any pending or threatened litigation that may result in claims for indemnification by any director or officer.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following is a summary of transactions since January 1, 2007 to which we have been a party in which the amount involved exceeded $120,000 and in which any of our executive officers, directors or holders of more than 5% of our capital stock, or any member of the immediate family of any of the foregoing persons, had or will have a direct or indirect material interest, other than compensation arrangements which are described under the section of this prospectus entitled "Executive Compensation."

Private Placement Financings

Preferred Stock Financings

The following table summarizes purchases of our Series B preferred stock and Series C preferred stock since January 1, 2007 by holders of more than 5% of our capital stock and their affiliated entities.

Name	Series B Preferred Stock	Aggregate Purchase Price of Series B Preferred Stock	Series C Preferred Stock	Aggregate Purchase Price of Series C Preferred Stock
Funds affiliated with Three Arch Partners (1)	2,625,000	$ 10,500,000	7,009,351	$ 6,909,117
Funds affiliated with Skyline Venture Partners(2)	1,250,000	5,000,000	3,663,194	3,610,810
Funds affiliated with Alta Partners (3)	875,000	3,500,000	3,240,517	3,194,178
Funds affiliated with Kaiser Foundation Hospitals (4)	250,000	1,000,000	1,115,959	1,100,001
Approximate price per share	$4.00		$0.99	
Dates of purchase	2/4/08-2/15/08		11/23/09	

(1) Includes 66,964 shares of Series B preferred stock held by Three Arch Associates III, L.P., 28,354 shares of Series B preferred stock held by Three Arch Associates IV, L.P., 1,245,536 shares of Series B preferred stock held by Three Arch Partners III, L.P. and 1,284,146 shares of Series B preferred stock held by Three Arch Partners IV, L.P. Includes 178,810 shares of Series C preferred stock held by Three Arch Associates III, L.P., 75,712 shares of Series C preferred stock held by Three Arch Associates IV, L.P., 3,325,865 shares of Series C preferred stock held by Three Arch Partners III, L.P. and 3,428,964 shares of Series C preferred stock held by Three Arch Partners IV, L.P. Mark Wan, one of our directors, is managing partner of Three Arch Management III, L.L.C. and Three Arch Management IV, L.L.C., and in such capacities he may be deemed to beneficially own the shares owned by the funds affiliated with Three Arch Partners. Mr. Wan disclaims beneficial ownership of these shares.

(2) These shares are held by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. Stephen Hoffman, one of our directors, is a Managing Director of Skyline Ventures and as such may be deemed to share voting and dispositive power with respect to all shares of stock held by Skyline Venture Partners Qualified Purchasers Fund IV, L.P. Dr. Hoffman disclaims beneficial ownership of these shares.

(3) These shares are held by ACP IV, L.P. Guy Nohra is one of our directors and is a director of ACMP IV, LLC, the general partner of ACP IV, L.P., and shares voting and investment power with respect to such shares. Mr. Nohra disclaims beneficial ownership of these shares.

(4) Includes 125,000 shares of Series B preferred stock held by Kaiser Foundation Hospitals and 125,000 shares of Series B preferred stock held by The Permanente Federation LLC – Series G. Includes 557,979 shares of Series C preferred stock held by Kaiser Foundation Hospitals and 557,980 shares of Series C preferred stock held by The Permanente Federation LLC – Series I.

2010 Bridge Loan Financing

On September 14, 2010, we sold convertible promissory notes, or the 2010 notes, and warrants, or the 2010 warrants, to purchase shares of our equity securities to certain of our existing investors for an aggregate purchase price of $8.0 million. Upon the election of the holders of a majority of the aggregate principal amount payable under the 2010 notes outstanding, we will sell an additional $4.0 million of 2010 notes and corresponding 2010 warrants.

The 2010 notes accrue interest at a rate of 4.0% per annum. No payment of principal or interest has been paid on the 2010 notes since their issuance and the aggregate amount of principal outstanding is $8.0 million as of September 30, 2010. In connection with this offering, the outstanding principal and interest of the 2010 notes will automatically convert into common stock at a conversion price equal to eighty percent of the initial public offering price.

The 2010 warrants are not currently exercisable but will become exercisable by their terms for an aggregate of 2,029,011 shares of Series C preferred stock at an exercise price of approximately $0.99 immediately prior to this offering. The 2010 warrants terminate if they are not exercised prior to the closing of this offering. Each 2010 warrant contains a customary net issuance feature, which allows the warrant holder to pay the exercise price of the warrant by forfeiting a portion of the exercised warrant shares with a value equal to the aggregate exercise price. All of the holders of the 2010 warrants have elected to exercise the 2010 warrants on a net issuance basis contingent upon and effective immediately prior to the completion of this offering.

The following table summarizes the participation in the 2010 bridge financing by holders of more than 5% of our capital stock and their affiliated entities:

Name	Aggregate Loan Amount	Aggregate Shares of Series C Preferred Stock Issuable Upon Exercise of 2010 Warrants Prior to this Offering[1]
Funds affiliated with Three Arch Partners[2]	$ 3,793,273	962,074
Funds affiliated with Skyline Venture Partners[3]	1,977,503	501,547
Funds affiliated with Alta Partners[4]	1,742,044	441,829
Funds affiliated with Kaiser Foundation Hospitals[5]	487,180	123,561

[1] The above table and footnotes do not give effect to the exercise, on a net issuance basis, of the 2010 warrants, which exercise is contingent upon and effective immediately prior to the completion of this offering.

[2] Includes a note held by Three Arch Associates III, L.P. with a principal amount of $96,767, a note held by Three Arch Associates IV, L.P. with a principal amount of $40,973, a note held by Three Arch Partners III, L.P. with a principal amount of $1,799,869 and a note held by Three Arch Partners IV, L.P. with a principal amount of $1,855,663. Includes a warrant held by Three Arch Associates III, L.P., exercisable into 24,542 shares of Series C preferred stock, a warrant held by Three Arch Associates IV, L.P., exercisable into 10,391 shares of Series C preferred stock, a warrant held by Three Arch Partners III, L.P., exercisable into 456,495 shares of Series C preferred stock and a warrant held by Three Arch Partners IV, L.P., exercisable into 470,646 shares of Series C preferred stock. Mark Wan, one of our directors, is managing partner of Three Arch Management II, L.L.C. and Three Arch Management IV, L.L.C., and in such capacities he may be deemed to beneficially own the securities owned by the funds affiliated with Three Arch Partners. Mr. Wan disclaims beneficial ownership of these securities.

[3] This note and warrant are held by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. Stephen Hoffman, one of our directors, is a Managing Director of Skyline Ventures and as such may be deemed to share voting and dispositive power with respect to all securities held by Skyline Venture Partners Qualified Purchasers Fund IV, L.P. Dr. Hoffman disclaims beneficial ownership of these securities.

[4] This note and warrant are held by ACP IV, L.P. Guy Nohra is one of our directors and is a director of ACMP IV, LLC, the general partner of ACP IV, L.P., and shares voting and investment power with respect to such securities. Mr. Nohra disclaims beneficial ownership of these securities.

[5] Includes a note held by Kaiser Foundation Hospitals with a principal amount of $243,590 and a note held by The Permanente Federation LLC – Series I with a principal amount of $243,590. Includes a warrant held by Kaiser Foundation Hospitals, exercisable into 61,780 shares of Series C preferred stock and a warrant held by The Permanente Federation LLC – Series I, exercisable into 61,781 shares of Series C preferred stock.

Investors' Rights Agreement

We entered into an investors' rights agreement with certain purchasers of our preferred stock and warrants to purchase our preferred stock, including our principal stockholders with which certain of our directors are affiliated. Pursuant to the investor's rights agreement, these holders are entitled to rights with respect to the registration of their shares under the Securities Act. For a description of these registration rights, please see the section entitled "Description of Capital Stock—Registration Rights."

Voting Agreement

We are party to a voting agreement under which holders of our preferred stock, including our principal stockholders with which certain of our directors are affiliated, have agreed to vote in a certain way on certain matters, including with respect to the election of directors. Pursuant to the voting agreement, holders of our preferred stock have agreed to vote such that one director be a designee of Three Arch Partners IV, L.P. or its affiliates, who is currently Mark Wan; one director be a designee of ACP IV, L.P. or its affiliates, who is currently Guy Nohra; and one director be a designee of Skyline Venture Partners Qualified Purchaser Fund IV, L.P. or its affiliates, who is currently Stephen Hoffman. Upon the closing of this offering, the voting agreement will terminate in its entirety and none of our stockholders will have any special rights regarding the election or designation of members of our board of directors.

Other Transactions

We have entered into various employment related agreements and compensatory arrangements with our directors and executive officers that, among other things, provide for compensatory and certain severance and change in control benefits. For a description of these agreements and arrangements, see the sections entitled "Executive Compensation—Employment Agreements and Arrangements" and "Executive Compensation—Non-Employee Director Compensation."

We have entered into indemnification agreements with each of our current directors and officers. See "Executive Compensation—Limitation on Liability and Indemnification Matters."

Policies and Procedures for Related Party Transactions

In January 2011, our board of directors adopted an audit committee charter that will be in effect prior to the closing of this offering that provides that the audit committee will review and approve all related party transactions. Accordingly, following this offering, all future related party transactions will be reviewed and approved by our audit committee. This review will cover any material transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which we were or are to be a participant, and a related party had or will have a direct or indirect material interest, including, purchases of goods or services by or from the related party or entities in which the related party has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related party. All of the transactions described above were entered into prior to the adoption of this audit committee charter and were approved by our board of directors.

PRINCIPAL STOCKHOLDERS

The following table sets forth information known to us about the beneficial ownership of our common stock at December 31, 2010, as adjusted to reflect the sale of the shares of common stock in this offering, by:

- each named executive officer;
- each of our directors;
- each person known to us to be the beneficial owner of more than 5% of our common stock; and
- all of our executive officers and directors as a group.

Unless otherwise noted below, the address of each beneficial owner listed on the table is c/o AcelRx Pharmaceuticals, Inc., 575 Chesapeake Drive, Redwood City, CA 94063. We have determined beneficial ownership in accordance with the rules of the SEC. Except as indicated by the footnotes below, we believe, based on the information furnished to us, that the persons and entities named in the tables below have sole voting and investment power with respect to all shares of common stock that they beneficially own, subject to applicable community property laws.

In computing the number of shares of common stock beneficially owned by a person and the percentage ownership of that person, we deemed outstanding shares of common stock subject to options held by that person that are currently exercisable or exercisable within 60 days of December 31, 2010. We did not deem these shares outstanding, however, for the purpose of computing the percentage ownership of any other person.

We have based our calculation of beneficial ownership prior to the offering on 36,914,923 shares of common stock outstanding on December 31, 2010, which assumes the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 34,217,503 shares of common stock. We have based our calculation of beneficial ownership after the offering on shares of our common stock outstanding immediately after the completion of this offering, which gives effect to the issuance of shares of common stock in this offering and the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 34,217,503 shares of common stock and assumes:

- the exercise, on a net issuance basis, of warrants outstanding as of September 30, 2010 that we issued in connection with a bridge loan financing in September 2010, or the 2010 warrants, which will be exercisable for shares of our Series C convertible preferred stock immediately prior to this offering, and the concomitant conversion of the shares of Series C convertible preferred stock acquired upon exercise into shares of common stock upon completion of this offering, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus; and
- the automatic conversion of the principal and accrued interest outstanding under our $8.0 million in aggregate principal amount of convertible promissory notes, or the 2010 notes, into shares of common stock immediately prior to the closing of this offering at a conversion price equal to 80% of the initial public offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and assuming the conversion occurs on , 2011.

The actual numbers of shares issued upon exercise of the 2010 warrants and conversion of the 2010 notes is based on the assumptions set forth above and will likely differ from the numbers appearing in this discussion and the following table and footnotes. See “Prospectus Summary—The Offering.” Ownership information assumes no exercise of the underwriters’ over-allotment option.

	Number of Shares Beneficially Owned		Percentage of Common Stock Beneficially Owned	
Name and Address of Beneficial Owner	Prior to Offering	After Offering	Prior to Offering	After Offering
5% Stockholders:				
Funds affiliated with Three Arch Partners (1)	15,859,964		42.96%	
Funds affiliated with Skyline Venture Partners(2)	8,268,093		22.40%	
Funds affiliated with Alta Partners (3)	7,283,618		19.73%	
Funds affiliated with Kaiser Foundation Hospitals (4)	2,036,937		5.52%	
Named Executive Officers and Directors:				
Richard A. King (5)	114,153	114,153	*	*
James H. Welch	—	—	*	*
Pamela P. Palmer M.D., Ph.D.(6)	1,868,750	1,868,750	4.95%	
Badri Dasu(7)	240,937	240,937	*	*
Thomas A. Schreck (8)	2,065,353	2,065,353	5.48%	
Lawrence G. Hamel (9)	378,125	378,125	1.01%	*
Mark Wan(10)	15,859,964		42.96%	
Stephen J. Hoffman Ph.D., M.D. (11)	8,268,093		22.40%	
Guy P. Nohra(12)	7,283,618		19.73%	
Howard B. Rosen(13)	98,437	98,437	*	*
All executive officers and directors as a group (10 persons) (14)	36,177,430		97.44%	

* Represents less than one percent (1%) of the outstanding shares of our common stock.

(1) Includes 404,590 shares held by Three Arch Associates III, L.P., 171,311 shares held by Three Arch Associates IV, L.P., 7,525,392 shares held by Three Arch Partners III, L.P. and 7,758,671 shares held by Three Arch Partners IV, L.P. In addition, the number of shares beneficially owned after the offering includes (a) shares of common stock issuable upon conversion of a 2010 note held by Three Arch Associates III, L.P., shares of common stock issuable upon conversion of a 2010 note held by Three Arch Associates IV, L.P., shares of common stock issuable upon conversion of a 2010 note held by Three Arch Partners III, L.P. and shares of common stock issuable upon conversion of a 2010 note held by Three Arch Partners IV, L.P. and (b) shares of common stock issuable upon the net exercise of a 2010 warrant held by Three Arch Associates III, L.P. and the concomitant conversion of the underlying Series C convertible preferred stock into common stock, shares of common stock issuable upon the net exercise of a 2010 warrant held by Three Arch Associates IV, L.P. and the concomitant conversion of the underlying Series C convertible preferred stock into common stock, shares of common stock issuable upon the net exercise of a 2010 warrant held by Three Arch Partners III, L.P. and the concomitant conversion of the underlying Series C convertible preferred stock into common stock, and shares of common stock issuable upon the net exercise of a 2010 warrant held by held by Three Arch Partners IV, L.P. and the concomitant conversion of the underlying Series C convertible preferred stock into common stock. The voting and dispositive decisions with respect to the shares held by Three Arch Associates III, L.P. and Three Arch Partners III, L.P., are made by the following Managing Members of its general partner Three Arch Management III, L.L.C.: Mark Wan and Wilfred Jaeger, each of whom disclaims beneficial ownership of such shares. The voting and dispositive decisions with respect to the shares held by Three Arch Partners IV, L.P. and Three Arch Associates IV, L.P. are made by the following Managing Members of its general partner, Three Arch Management IV, L.L.C.: Mark Wan and Wilfred Jaeger, each of whom disclaims beneficial ownership of such shares. The address for the funds affiliated with Three Arch Partners is 3200 Alpine Road, Portola Valley, CA 94028.

(2) The 8,268,093 shares are held by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. In addition, the number of shares beneficially owned after the offering includes (a) shares of common stock issuable upon conversion of a 2010 note held by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. and (b) shares of common stock issuable upon the net exercise of a 2010 warrant held by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. and the concomitant conversion of the underlying Series C convertible preferred stock into common stock. John G. Freund and Yasunori Kaneko are the Managing Members of Skyline Venture Management IV, LLC, which is the general partner of Skyline Venture Partners Qualified Purchaser Fund IV, L.P., and as such Drs. Freund and Kaneko may be deemed to share voting and dispositive power with respect to all shares of common stock held by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. In addition, Dr. Hoffman, one

of our directors, is a Managing Director of Skyline Ventures and as such may be deemed to share voting and dispositive power with respect to all shares of common stock held by Skyline Venture Partners Qualified Purchasers Fund IV, L.P. Each of Drs. Freund, Kaneko and Hoffman disclaims beneficial ownership of such shares. The address for Skyline Ventures is 525 University Avenue, Ste. 520, Palo Alto, CA 94301.

(3) The 7,283,618 shares are beneficially owned by ACP IV, L.P., or ACPIV. In addition, the number of shares beneficially owned after the offering includes (a) shares of common stock issuable upon conversion of a 2010 note held by ACPIV and (b) shares of common stock issuable upon the net exercise of a 2010 warrant held by ACPIV and the concomitant conversion of the underlying Series C convertible preferred stock into common stock. ACMP IV, LLC, or ACMPIV, is the general partner of ACPIV. Jean Deleage, Dan Janney, David Mack, and Guy Nohra are directors of ACMPIV and they exercise shared voting and investment power with respect to the securities held by ACPIV. Mr. Deleage, Mr. Janney, Mr. Mack, and Mr. Nohra disclaim beneficial ownership of such securities. The address for ACPIV is One Embarcadero Center 37th Floor, San Francisco, CA 94111.

(4) Includes 1,018,468 shares held by Kaiser Foundation Hospitals, or KFH, 460,489 shares held by The Permanente Federation LLC-Series G, or PFG, and 557,980 shares held by The Permanente Federation LLC-Series I, or PFI. In addition, the number of shares beneficially owned after the offering includes (a) shares of common stock issuable upon conversion of a 2010 note held by KFH and shares of common stock issuable upon conversion of a 2010 note held by PFI and (b) shares of common stock issuable upon the net exercise of a 2010 warrant held by KFH and the concomitant conversion of the underlying Series C convertible preferred stock into common stock, and shares of common stock issuable upon the net exercise of a 2010 warrant held by PFI and the concomitant conversion of the underlying Series C convertible preferred stock into common stock. The voting and dispositive decisions with respect to the shares held by KFH, PFI and PFG are made by Jordan M. Kramer, Robert Ward, Dave Schulte, Chris M. Grant and other employees of KFH, PFI and PFG, each of whom disclaims beneficial ownership of such shares. The address for the funds affiliated with Kaiser Foundation Hospitals is One Kaiser Plaza, 22nd Floor, Oakland, CA 94612.

(5) Represents 114,153 shares issuable pursuant to stock options exercisable within 60 days of December 31, 2010.

(6) Includes 868,750 shares issuable pursuant to stock options exercisable within 60 days of December 31, 2010.

(7) Represents 240,937 shares issuable pursuant to stock options exercisable within 60 days of December 31, 2010.

(8) Includes 801,562 shares issuable pursuant to stock options exercisable within 60 days of December 31, 2010, and 65,946 shares held in trust for Mr. Schreck's children. Mr. Schreck disclaims beneficial ownership of the shares held in trust for Mr. Schreck's children.

(9) Represents 378,125 shares issuable pursuant to stock options exercisable within 60 days of December 31, 2010.

(10) Mr. Wan is a managing partner of Three Arch Management III, L.L.C. and Three Arch Management IV, L.L.C., and in such capacities he may be deemed to beneficially own the shares owned by the funds affiliated with Three Arch Partners. Mr. Wan disclaims beneficial ownership of these shares. The address of Mr. Wan is c/o Three Arch Partners, 3200 Alpine Road, Portola Valley, CA 94028.

(11) Dr. Hoffman, one of our directors, is a Managing Director of Skyline Ventures and as such may be deemed to share voting and dispositive power with respect to all shares of common stock held by Skyline Venture Partners Qualified Purchasers Fund IV, L.P. Dr. Hoffman disclaims beneficial ownership of such shares. The address for Dr. Hoffman is c/o Skyline Ventures, 525 University Avenue, Suite 520, Palo Alto, CA 94301.

(12) Mr. Nohra is a director of ACMPIV, and in such capacity he may be deemed to beneficially own the shares owned by ACPIV. Mr. Nohra disclaims beneficial ownership of these shares. The address for Mr. Nohra is c/o Alta Partners, One Embarcadero Center 37th Floor, San Francisco, CA 94111.

(13) Represents 98,437 shares issuable pursuant to stock options exercisable within 60 days of December 31, 2010.

(14) Includes 2,501,964 shares issuable pursuant to stock options exercisable within 60 days of December 31, 2010.

DESCRIPTION OF CAPITAL STOCK

Upon the completion of this offering, our amended and restated certificate of incorporation will authorize us to issue up to shares of common stock, $0.001 par value per share, and shares of preferred stock, $0.001 par value per share. As of September 30, 2010, after giving effect to the adjustments described below, there were outstanding:

- shares of our common stock held by approximately 35 stockholders;
- 926,717 shares of common stock issuable upon the exercise of outstanding warrants that are expected to remain outstanding upon completion of this offering; and
- 7,571,440 shares of our common stock issuable upon exercise of outstanding stock options.

The number of shares of our common stock outstanding as of September 30, 2010 as shown above assumes:

- the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 34,217,503 shares of common stock upon completion of this offering;
- the exercise, on a net issuance basis, of warrants outstanding as of September 30, 2010, or the 2010 warrants, which will be exercisable for shares of our Series C convertible preferred stock immediately prior to this offering, and the concomitant conversion of the shares of Series C convertible preferred stock into shares of common stock upon completion of this offering, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus; and
- the automatic conversion of the principal and accrued interest outstanding under our $8.0 million in aggregate principal amount of convertible promissory notes into shares of common stock immediately prior to the closing of this offering at a conversion price equal to 80% of the initial public offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and assuming the conversion occurs on , 2011.

The following description of our capital stock and provisions of our amended and restated certificate of incorporation and amended and restated bylaws are summaries and are qualified by reference to the amended and restated certificate of incorporation and the amended and restated bylaws that will be in effect upon completion of this offering. Copies of these documents will be filed with the SEC as exhibits to our registration statement, of which this prospectus forms a part. The descriptions of the common stock and preferred stock reflect changes to our capital structure that will occur immediately upon completion of this offering.

Common Stock

Voting Rights

Each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of the stockholders, including the election of directors. Our stockholders do not have cumulative voting rights in the election of directors. Accordingly, holders of a majority of the voting shares are able to elect all of the directors.

Dividends

Subject to preferences that may be applicable to any then outstanding preferred stock, holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds.

Liquidation

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all

of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then outstanding shares of preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion, subscription or other rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to and may be adversely affected by the rights of the holders of shares of any series of our preferred stock that we may designate in the future.

Fully Paid and Nonassessable

All of our outstanding shares of common stock are, and the shares of common stock to be issued pursuant to this offering will be, fully paid and nonassessable.

Preferred Stock

Upon the completion of this offering, our board of directors will have the authority, without further action by our stockholders, to issue up to shares of preferred stock in one or more series and to fix the number, rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, and sinking fund terms, and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change of control or other corporate action. Upon completion of this offering, no shares of preferred stock will be outstanding and we have no present plan to issue any shares of preferred stock.

2010 Notes

We issued convertible promissory notes in connection with our bridge loan financing in September 2010, or the 2010 notes. The 2010 notes accrue interest at a rate of 4.0% per annum. No payment of principal or interest has been paid on the 2010 notes since their issuance, and the aggregate amount of principal outstanding was $8.0 million as of September 30, 2010. In connection with this offering, the outstanding principal and interest of 2010 notes will automatically convert into common stock at a conversion price equal to 80% of the initial public offering price.

Warrants

As of September 30, 2010, 10,000 shares of our Series A preferred stock were issuable upon exercise of an outstanding warrant to purchase Series A preferred stock with an exercise price of $2.50 per share. This warrant was issued in connection with the execution of an equipment financing agreement we entered into with a lender. This warrant is immediately exercisable and will expire on March 15, 2017. This warrant has a net exercise provision under which the holder may, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of our common stock at the time of exercise of the warrant after deduction of the aggregate exercise price. The warrant contains provisions for the adjustment of the exercise price and the number of shares issuable upon the exercise of the warrant in the event of dilutive issuances affecting the Series A preferred stock and stock dividends, stock splits, reorganizations and reclassifications and consolidations.

As of September 30, 2010, 913,056 shares of our Series C preferred stock were issuable upon exercise of an outstanding warrant to purchase Series C preferred stock with an exercise price of approximately $0.99 per share. This warrant was issued in connection with the execution of a loan and security agreement we entered into with a lender. This warrant is immediately exercisable and will expire on

September 16, 2018. This warrant has a net exercise provision under which the holder may, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of our common stock at the time of exercise of the warrant after deduction of the aggregate exercise price. The warrant contains provisions for the adjustment of the exercise price and the number of shares issuable upon the exercise of the warrant in the event of diluting issuances affecting the Series C preferred stock and stock dividends, stock splits, reorganizations and reclassifications and consolidations.

In connection with the automatic conversion of all of our outstanding shares of preferred stock into common stock upon the closing of this offering:

- the warrant to purchase 10,000 shares of Series A preferred stock will automatically become exercisable for 13,661 shares of common stock; and
- the warrant to purchase 913,056 shares of Series C preferred stock will become exercisable for 913,056 shares of common stock.

We issued the 2010 warrants in connection with our bridge loan financing in September 2010. The 2010 warrants are not currently exercisable but will become exercisable by their terms for an aggregate of 2,029,011 shares of our Series C preferred stock at an exercise price of approximately $0.99 per share immediately prior to the closing of this offering. The 2010 warrants terminate if they are not exercised prior to the closing of this offering. Each 2010 warrant contains a customary net issuance feature, which allows the warrant holder to pay the exercise price of the warrant by forfeiting a portion of the exercised warrant shares with a value equal to the aggregate exercise price. All of the holders of the 2010 warrants have elected to exercise the 2010 warrants on a net issuance basis contingent upon and effective immediately prior to the completion of this offering, which, if effected, would result in the issuance of shares of common stock upon completion of this offering, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus.

Registration Rights

Immediately following the closing of this offering, the holders of an aggregate of shares of our common stock issued or issuable upon conversion of our preferred stock and the warrants described above (including shares of our common stock issued upon the expected net exercise of the 2010 warrants and the concomitant conversion of the shares of Series C convertible preferred stock acquired upon exercise of the 2010 warrants into common stock upon completion of this offering, assuming an initial public price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus), which shares we refer to as registrable securities, will have the right to demand that we file a registration statement or request that their shares be covered by a registration statement that we are otherwise filing pursuant to an investors' rights agreement we entered into with certain of our stockholders. In the event that we propose to register any of our securities under the Securities Act, either for our own account or for the account of other security holders, these holders are entitled to notice of our registration and are entitled to certain piggyback registration rights allowing the holders to include their registrable securities in such registration, subject to certain marketing and other limitations. Pursuant to the investors' rights agreement, the holders of registrable securities have the right to require us to file a registration statement under the Securities Act in order to register the resale of their shares of registrable securities, provided that the registration meets certain thresholds. We may, in certain circumstances, defer such registrations. In an underwritten offering, the managing underwriter has the right, subject to specified conditions, to limit the number of registrable securities such holders may include. The holders of registrable securities have waived their rights to include any of their shares in this offering prior to the completion of this offering.

Anti-Takeover Provisions

Certificate of Incorporation and Bylaws to be in Effect Upon the Completion of this Offering

Our amended and restated certificate of incorporation and amended and restated bylaws, each to become effective immediately prior to the completion of this offering, will include a number of provisions that may deter or impede hostile takeovers or changes of control or management. These provisions include:

- *Issuance of undesignated preferred stock.* After the filing of our amended and restated certificate of incorporation, our board of directors will have the authority, without further action by the stockholders, to issue up to shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by the board of directors. The existence of authorized but unissued shares of preferred stock enables our board of directors to make it more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise.
- *Classified board.* Our amended and restated certificate of incorporation provides for a classified board of directors consisting of three classes of directors, with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. This provision may have the effect of delaying a change in control of the board.
- *Board of directors vacancies.* Our amended and restated certificate of incorporation and amended and restated bylaws authorize only our board of directors to fill vacant directorships. In addition, the number of directors constituting our board of directors may be set only by resolution adopted by a majority vote of our entire board of directors. These provisions prevent a stockholder from increasing the size of our board of directors and gaining control of our board of directors by filling the resulting vacancies with its own nominees.
- *Stockholder action; special meetings of stockholders.* Our amended and restated certificate of incorporation provides that our stockholders may not take action by written consent, but may only take action at annual or special meetings of our stockholders. Stockholders will not be permitted to cumulate their votes for the election of directors. Our amended and restated bylaws further provide that special meetings of our stockholders may be called only by a majority of our board of directors, the chairman of our board of directors, or our chief executive officer.
- *Advance notice requirements for stockholder proposals and director nominations.* Our amended and restated bylaws provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders, or to nominate candidates for election as directors at our annual meeting of stockholders. Our bylaws also specify certain requirements as to the form and content of a stockholder's notice. These provisions may make it more difficult for our stockholders to bring matters before our annual meeting of stockholders or to nominate directors at our annual meeting of stockholders.

These provisions are intended to enhance the likelihood of continued stability in the composition of our board of directors and its policies and to discourage certain types of transactions that may involve an actual or threatened acquisition of us. These provisions are designed to reduce our vulnerability to an unsolicited acquisition proposal. The provisions also are intended to discourage certain tactics that may be used in proxy fights. However, these provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they may also reduce fluctuations in the market price of our shares that could result from actual or rumored takeover attempts.

Section 203 of the Delaware General Corporation Law

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years after the date that such stockholder became an interested stockholder, with the following exceptions:

- before such date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested holder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding (but not the outstanding voting stock owned by the interested stockholder) those shares owned (a) by persons who are directors and also officers and (b) pursuant to employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or after such date, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

In general, Section 203 defines business combination to include the following:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;
- subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;
- any transaction involving the corporation that has the effect of increasing the proportionate share of the stock or any class or series of the corporation beneficially owned by the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loss, advances, guarantees, pledges or other financial benefits by or through the corporation.

In general, Section 203 defines an "interested stockholder" as an entity or person who, together with the entity's or person's affiliates and associates, beneficially owns, or is an affiliate of the corporation and within three years prior to the time of determination of interested stockholder status did own, 15% or more of the outstanding voting stock of the corporation.

The NASDAQ Global Market Listing

We have applied to have our common stock approved for listing on the NASDAQ Global Market under the symbol "ACRX."

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare Trust Company, N.A. The transfer agent's address is 250 Royall Street, Canton, Massachusetts 02021.

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock. As described below, only a limited number of shares will be available for sale shortly after this offering due to contractual and legal restrictions on resale. Nevertheless, sales of our common stock in the public market after these restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price at such time and our ability to raise equity capital in the future.

Based on the number of shares of common stock outstanding as of September 30, 2010, upon the closing of this offering, shares of common stock will be outstanding. The number of shares outstanding upon completion of this offering assumes:

- the automatic conversion of all outstanding shares of our convertible preferred stock into an aggregate of 34,217,503 shares of common stock upon completion of this offering;
- the exercise, on a net issuance basis, of the 2010 warrants and the concomitant conversion of the shares of Series C convertible preferred stock acquired upon exercise of the 2010 warrants into shares of common stock upon completion of this offering, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus;
- the automatic conversion of the principal and accrued interest outstanding under the 2010 notes into shares of common stock immediately prior to the closing of this offering at a conversion price equal to 80% of the initial public offering price, assuming an initial public offering price of $ per share, the mid-point of the price range set forth on the cover page of this prospectus, and assuming the conversion occurs on , 2011;
- no exercise of the underwriters' over-allotment option; and
- no exercise of outstanding options or warrants, other than the 2010 warrants.

However, because the number of shares of common stock that will be issued upon exercise of the 2010 warrants and conversion of the 2010 notes depends upon the actual initial public offering price per share in this offering and, in the case of the 2010 notes, the closing date of this offering, the actual numbers of shares issuable upon such exercise and conversion will likely be different from the amounts we have assumed for purposes of this discussion. See "Prospectus Summary – The Offering."

All of the shares sold in this offering will be freely tradable unless purchased by our affiliates. The remaining of common stock outstanding after this offering will be restricted as a result of securities laws or lock-up agreements as described below. Following the expiration of the lock-up period, all shares will be eligible for resale in compliance with Rule 144 or Rule 701.

Rule 144

In general, under Rule 144 under the Securities Act, once we have become subject to public company reporting requirements for at least 90 days, a person who is one of our affiliates and who has beneficially owned shares of our common stock for at least six months would be entitled to sell, within any three-month period, a number of shares that does not exceed the greater of:

- 1% of the number of shares of common stock then outstanding, which will equal approximately shares immediately after the completion of this offering, based on shares of common stock outstanding on September 30, 2010 and the other assumptions set forth above; or

- the average weekly trading volume of our common stock on the NASDAQ Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Sales under Rule 144 by affiliates are also subject to manner of sale provisions and notice requirements and to the availability of current public information about us.

For a person who has not been our affiliate during the 90 days preceding a sale, sales of our securities held longer than six months, but less than one year, will be subject only to the current public information requirement.

A person who is not deemed to have been one of our affiliates at any time during the 90 days preceding a sale, and who has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than an affiliate, is entitled to sell the shares without complying with any of the requirements of Rule 144.

Rule 701

Rule 701 under the Securities Act, as in effect on the date of this prospectus, permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions of Rule 144, including the holding period requirement. Most of our employees, executive officers or directors who purchased shares under a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701, but all holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling their shares. However, substantially all Rule 701 shares are subject to lock-up agreements as described below and under “Underwriting” included elsewhere in this prospectus and will become eligible for sale only upon the expiration of the restrictions set forth in those agreements.

Lock-Up Agreements

We, along with our directors and executive officers and substantially all of our other security holders have agreed with the underwriters that, subject to certain exceptions, for a period of 180 days following the date of this prospectus, we or they will not offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, make any short sale or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into, exercisable or exchangeable for or that represent the right to receive our common stock (including without limitation, common stock which may be deemed to be beneficially owned by such director, executive officer or security holder in accordance with rules and regulations of the SEC and securities that may be issued upon exercise of a stock option or warrant) whether owned or later acquired, or enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of our common stock or such other securities, or make any demand for, or exercise any right with respect to, the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for our common stock, subject to specified exceptions, which exceptions include, in our case, our ability to issue up to 20% of our outstanding common stock to one or more counterparties in connection with certain strategic transactions, including partnering or collaboration arrangements, that we may enter into in the future. The underwriters may, in their sole discretion, at any time without prior notice, release all or any portion of the shares from the restrictions in any such agreement.

The 180-day lock-up period described in the preceding paragraph will be extended if:

- during the last 17 days of the 180-day lock-up period we issue an earnings release or material news or a material event relating to us occurs; or
- prior to the expiration of the 180-day lock-up period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 180-day period,

in which case the restrictions described in the preceding paragraph will continue to apply until the expiration of the 18-day period beginning on the issuance of the release or the occurrence of the material news or material event, unless such extension is waived, in writing, by Piper Jaffray & Co. on behalf of the underwriters.

Registration Rights

We are party to an investors' rights agreement which provides that certain holders of our common stock have the right to demand that we file a registration statement or request that their shares be covered by a registration statement that we are otherwise filing. See "Description of Capital Stock—Registration Rights." Except for shares purchased by affiliates, registration of their shares under the Securities Act would result in these shares becoming freely tradable without restriction under the Securities Act immediately upon effectiveness of the registration statement, subject to the expiration of the lock-up period and to the extent these shares have been released from any repurchase option that we may hold.

Equity Compensation Plans

As soon as practicable after the completion of this offering, we intend to file a Form S-8 registration statement under the Securities Act to register shares of our common stock subject to options outstanding or reserved for issuance under our 2006 Plan, our 2011 Equity Incentive Plan and our 2011 Employee Stock Purchase Plan. This registration statement will become effective immediately upon filing, and shares covered by this registration statement will be eligible for sale in the public markets, subject to Rule 144 limitations applicable to affiliates and any lock-up agreements described above. For a more complete discussion of our equity compensation plans, see "Executive Compensation— Employment Agreements and Arrangements—Employee Benefit and Stock Plans."

MATERIAL U.S. FEDERAL INCOME AND ESTATE TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following summary describes the material U.S. federal income and estate tax consequences of the acquisition, ownership and disposition of our common stock acquired in this offering by Non-U.S. Holders (as defined below). This discussion does not address all aspects of U.S. federal income and estate taxes and does not deal with foreign, state and local consequences that may be relevant to Non-U.S. Holders in light of their particular circumstances, nor does it address U.S. federal tax consequences other than income and estate taxes. Special rules different from those described below may apply to certain Non-U.S. Holders that are subject to special treatment under the Code, such as financial institutions, insurance companies, tax-exempt organizations, broker-dealers and traders in securities, U.S. expatriates, "controlled foreign corporations," "passive foreign investment companies," corporations that accumulate earnings to avoid U.S. federal income tax, persons that hold our common stock as part of a "straddle," "hedge," "conversion transaction," "synthetic security" or integrated investment or other risk reduction strategy, partnerships and other pass-through entities, and investors in such pass-through entities. Such Non-U.S. Holders are urged to consult their own tax advisors to determine the U.S. federal, state, local and other tax consequences that may be relevant to them. Furthermore, the discussion below is based upon the provisions of the Code, and Treasury regulations, rulings and judicial decisions thereunder as of the date hereof, and such authorities may be repealed, revoked or modified, perhaps retroactively, so as to result in U.S. federal income and estate tax consequences different from those discussed below. We have not requested a ruling from the U.S. Internal Revenue Service, or IRS, with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS will agree with such statements and conclusions. This discussion assumes that the Non-U.S. Holder holds our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment).

The following discussion is for general information only and is not tax advice. Persons considering the purchase of our common stock pursuant to this offering should consult their own tax advisors concerning the U.S. federal income and estate tax consequences of acquiring, owning and disposing of our common stock in light of their particular situations as well as any consequences arising under the laws of any other taxing jurisdiction, including any state, local or foreign tax consequences.

For the purposes of this discussion, a "Non-U.S. Holder" is, for U.S. federal income tax purposes, a beneficial owner of common stock that is neither a U.S. Holder, a partnership (or other entity treated as a partnership for U.S. federal income tax purposes regardless of its place of organization or formation), nor an entity that is treated as a disregarded entity for U.S. federal income tax purposes (regardless of its place of organization or formation). A "U.S. Holder" means a beneficial owner of our common stock that is for U.S. federal income tax purposes (a) an individual who is a citizen or resident of the United States, (b) a corporation or other entity treated as a corporation created or organized in or under the laws of the United States, any state thereof or the District of Columbia, (c) an estate the income of which is subject to U.S. federal income taxation regardless of its source or (d) a trust if it (1) is subject to the primary supervision of a court within the United States and one or more U.S. persons have the authority to control all substantial decisions of the trust or (2) has a valid election in effect under applicable U.S. Treasury regulations to be treated as a U.S. person.

Distributions

Subject to the discussion below, distributions, if any, made on our common stock to a Non-U.S. Holder of our common stock to the extent made out of our current or accumulated earnings and profits (as determined under U.S. federal income tax principles) generally will constitute dividends for U.S. tax purposes and will be subject to withholding tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. To obtain a reduced rate of withholding under a treaty, a Non-U.S.

Holder generally will be required to provide us with a properly executed IRS Form W-8BEN, or other appropriate form, certifying the Non-U.S. Holder's entitlement to benefits under that treaty. In the case of a Non-U.S. Holder that is an entity, Treasury Regulations and the relevant tax treaty provide rules to determine whether, for purposes of determining the applicability of a tax treaty, dividends will be treated as paid to the entity or to those holding an interest in that entity. If a Non-U.S. Holder holds stock through a financial institution or other agent acting on the holder's behalf, the holder will be required to provide appropriate documentation to such agent. The holder's agent will then be required to provide certification to us or our paying agent, either directly or through other intermediaries. If you are eligible for a reduced rate of U.S. federal withholding tax under an income tax treaty, you may be able to obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for a refund with the IRS.

We generally are not required to withhold tax on dividends paid to a Non-U.S. Holder that are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, are attributable to a permanent establishment that such holder maintains in the United States) if a properly executed IRS Form W-8ECI, stating that the dividends are so connected, is furnished to us (or, if stock is held through a financial institution or other agent, to such agent). In general, such effectively connected dividends will be subject to U.S. federal income tax, on a net income basis at the regular graduated rates, unless a specific treaty exemption applies. A corporate Non-U.S. Holder receiving effectively connected dividends may also be subject to an additional "branch profits tax," which is imposed, under certain circumstances, at a rate of 30% (or such lower rate as may be specified by an applicable treaty) on the corporate Non-U.S. Holder's effectively connected earnings and profits, subject to certain adjustments.

To the extent distributions on our common stock, if any, exceed our current and accumulated earnings and profits, they will constitute a non-taxable return of capital and will first reduce your adjusted basis in our common stock, but not below zero, and then will be treated as gain and taxed in the same manner as gain realized from a sale or other disposition of common stock as described in the next section.

Gain on Disposition of Our Common Stock

A Non-U.S. Holder generally will not be subject to U.S. federal income tax with respect to gain realized on a sale or other disposition of our common stock unless (a) the gain is effectively connected with a trade or business of such holder in the United States (and, if required by an applicable income tax treaty, is attributable to a permanent establishment that such holder maintains in the United States), (b) the Non-U.S. Holder is a nonresident alien individual and is present in the United States for 183 or more days in the taxable year of the disposition and certain other conditions are met, or (c) we are or have been a "United States real property holding corporation" within the meaning of Code Section 897(c)(2) at any time within the shorter of the five-year period preceding such disposition or such holder's holding period. In general, we would be a United States real property holding corporation if interests in U.S. real estate comprised (by fair market value) at least half of our business assets. We believe that we are not, and do not anticipate becoming, a United States real property holding corporation. Even if we are treated as a United States real property holding corporation, gain realized by a Non-U.S. Holder on a disposition of our common stock will not be subject to U.S. federal income tax so long as (1) the Non-U.S. Holder owned, directly, indirectly and constructively, no more than five percent of our common stock at all times within the shorter of (i) the five-year period preceding the disposition or (ii) the holder's holding period and (2) our common stock is regularly traded on an established securities market. There can be no assurance that our common stock will continue to qualify as regularly traded on an established securities market.

If you are a Non-U.S. Holder described in (a) above, you will be required to pay tax on the net gain derived from the sale at regular graduated U.S. federal income tax rates, unless a specific treaty

exemption applies, and corporate Non-U.S. Holders described in (a) above may be subject to the additional branch profits tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. If you are an individual Non-U.S. Holder described in (b) above, you will be required to pay a flat 30% tax on the gain derived from the sale, which gain may be offset by U.S. source capital losses (even though you are not considered a resident of the United States).

Information Reporting Requirements and Backup Withholding

Generally, we must report information to the IRS with respect to any dividends we pay on our common stock including the amount of any such dividends, the name and address of the recipient, and the amount, if any, of tax withheld. A similar report is sent to the holder to whom any such dividends are paid. Pursuant to tax treaties or certain other agreements, the IRS may make its reports available to tax authorities in the recipient's country of residence.

Dividends paid by us (or our paying agents) to a Non-U.S. Holder may also be subject to U.S. backup withholding. U.S. backup withholding generally will not apply to a Non-U.S. Holder who provides a properly executed IRS Form W-8BEN or otherwise establishes an exemption. The current backup withholding rate is 28%.

Under current U.S. federal income tax law, U.S. information reporting and backup withholding requirements generally will apply to the proceeds of a disposition of our common stock effected by or through a U.S. office of any broker, U.S. or foreign, except that information reporting and such requirements may be avoided if the holder provides a properly executed IRS Form W-8BEN or otherwise meets documentary evidence requirements for establishing Non-U.S. Holder status or otherwise establishes an exemption. Generally, U.S. information reporting and backup withholding requirements will not apply to a payment of disposition proceeds to a Non-U.S. Holder where the transaction is effected outside the United States through a non-U.S. office of a non-U.S. broker. Information reporting and backup withholding requirements may, however, apply to a payment of disposition proceeds if the broker has actual knowledge, or reason to know, that the holder is, in fact, a U.S. person. For information reporting purposes, certain brokers with substantial U.S. ownership or operations will generally be treated in a manner similar to U.S. brokers.

Backup withholding is not an additional tax. Rather, the amounts of tax withheld will be credits against the tax liability of persons subject to backup withholding, provided that the required information is timely furnished to the IRS.

Recently Enacted Legislation Affecting Taxation of Our Common Stock Held by or Through Foreign Entities

Recently enacted legislation generally will impose a U.S. federal withholding tax of 30% on dividends and the gross proceeds of a disposition of our common stock paid after December 31, 2012 to a foreign financial institution (as specifically defined for this purpose) unless such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners). The legislation also will generally impose a U.S. federal withholding tax of 30% on dividends and the gross proceeds of a disposition of our common stock paid after December 31, 2012 to a non-financial foreign entity unless such entity provides the withholding agent with either a certification that it does not have any substantial direct or indirect U.S. owners or provides information regarding direct and indirect U.S. owners of the entity. Under certain circumstances, a Non-U.S. Holder might be eligible for refunds or credits of such taxes. Holders are encouraged to consult with their own tax advisors regarding the possible implications of the legislation on their investment in our common stock.

Federal Estate Tax

An individual Non-U.S. Holder who is treated as the owner of, or has made certain lifetime transfers of, an interest in our common stock will be required to include the value thereof in his or her gross estate for U.S. federal estate tax purposes, and may be subject to U.S. federal estate tax unless an applicable estate tax treaty provides otherwise, even though such individual was not a citizen or resident of the United States at the time of his or her death.

THE PRECEDING DISCUSSION OF U.S. FEDERAL INCOME AND ESTATE TAX CONSIDERATIONS IS FOR GENERAL INFORMATION ONLY. IT IS NOT TAX ADVICE. EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAW.

UNDERWRITING

Piper Jaffray & Co. is acting as the book-running manager for this offering and as representative of the underwriters. We have entered into a firm commitment underwriting agreement with the representative. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has agreed to purchase, the number of shares listed next to its name in the following table:

Underwriters	Number of Shares
Piper Jaffray & Co.	
Canaccord Genuity Inc.	
Cowen and Company, LLC	
JMP Securities LLC	
Total	

The underwriters have advised us that they propose to offer shares of our common stock to the public at $ per share. The underwriters propose to offer the common stock to certain dealers at the same price less a concession of not more than $ per share. The underwriters may allow, and the dealers may re-allow, a concession of not more than $ per share on sales to certain other brokers and dealers. After this offering, these figures may be changed by the underwriters.

We have granted to the underwriters an option to purchase up to an additional shares of common stock from us at the same price to the public, and with the same underwriting discount, as set forth above. The underwriters may exercise this option any time during the 30-day period after the date of this prospectus, but only to cover over-allotments, if any. To the extent the underwriters exercise the option, each underwriter will become obligated, subject to certain conditions, to purchase approximately the same percentage of the additional shares as it was obligated to purchase under the purchase agreement.

We estimate that the total fees and expenses payable by us, excluding underwriting discounts and commissions, will be approximately $. The underwriting discounts and commissions are $ per share. The following table shows the underwriting fees to be paid to the underwriters in connection with this offering. These amounts are shown assuming both no exercise and full exercise of the over-allotment option.

	No Exercise	Full Exercise
Per Share	$	$
Total	$	$

We have agreed to indemnify the underwriters against certain liabilities, including civil liabilities under the Securities Act, or to contribute to payments that the underwriters may be required to make in respect of those liabilities.

Piper Jaffray has informed us that neither it, nor any other underwriter participating in the distribution of this offering, will make sales of the shares of common stock offered by this prospectus to accounts over which they exercise discretionary authority without the prior specific written approval of the customer.

We, along with our directors and executive officers and substantially all of our other security holders have agreed with the underwriters that, subject to certain exceptions, for a period of 180 days following the date of this prospectus, we or they will not offer, pledge, announce the intention to sell, sell, contract

to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, make any short sale or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into, exercisable or exchangeable for or that represent the right to receive our common stock (including without limitation, common stock which may be deemed to be beneficially owned by such director, executive officer or security holder in accordance with rules and regulations of the SEC and securities that may be issued upon exercise of a stock option or warrant) whether owned or later acquired, or enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of our common stock or such other securities, or make any demand for, or exercise any right with respect to, the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for our common stock, subject to specified exceptions, which exceptions include, in our case, our ability to issue up to 20% of our outstanding common stock to one or more counterparties in connection with certain strategic transactions, including partnering or collaboration arrangements, that we may enter into in the future. The underwriters may, in their sole discretion, at any time without prior notice, release all or any portion of the shares from the restrictions in any such agreement.

The 180-day lock-up period described in the preceding paragraph will be extended if:

- during the last 17 days of the 180-day lock-up period we issue an earnings release or material news or a material event relating to us occurs; or
- prior to the expiration of the 180-day lock-up period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 180-day period,

in which case the restrictions described in the preceding paragraph will continue to apply until the expiration of the 18-day period beginning on the issuance of the release or the occurrence of the material news or material event, unless such extension is waived, in writing, by Piper Jaffray on behalf of the underwriters.

Prior to this offering, there has been no established trading market for the shares. The NASDAQ Global Market has approved the listing of shares of our common stock under the symbol “ACRX.”

The initial public offering price for the common stock offered by this prospectus was negotiated by us and the underwriters. The factors considered in determining the initial public offering price include:

- the history of and the prospects for the industry in which we compete;
- our past and present operations;
- our historical results of operations;
- our prospects for future earnings;
- the recent market prices of securities of generally comparable companies; and
- the general condition of the securities markets at the time of this offering and other relevant factors.

There can be no assurance that the initial public offering price of the common stock will correspond to the price at which our common stock will trade in the public market subsequent to this offering or that an active public market for the common stock will develop and continue after this offering.

To facilitate this offering, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock during and after this offering. Specifically, the underwriters may over-allot or otherwise create a short position in the common stock for their own account by selling more common stock than we have sold to them. Short sales involve the sale by the underwriters of a greater number of shares of common stock than they are required to purchase in this

offering. “Covered” short sales are sales made in an amount not greater than the underwriters’ option to purchase additional shares of common stock in this offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares of common stock or purchasing shares of common stock in the open market. In determining the source of common stock to close out the covered short position, the underwriters will consider, among other things, the price of common stock available for purchase in the open market as compared to the price at which they may purchase common stock through the over-allotment option. “Naked” short sales are sales in excess of this option. The underwriters must close out any naked short position by purchasing common stock in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in this offering.

In addition, the underwriters may stabilize or maintain the price of the common stock by bidding for or purchasing shares of common stock in the open market and may impose penalty bids. If penalty bids are imposed, selling concessions allowed to syndicate members or other broker-dealers participating in this offering will be reclaimed if common stock previously distributed in this offering are repurchased, whether in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of the common stock at a level above that which might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of the common stock to the extent that it discourages resales of the common stock. The magnitude or effect of any stabilization or other transactions is uncertain. These transactions may be effected on the NASDAQ Global Market or otherwise and, if commenced, may be discontinued at any time. Some underwriters may also engage in passive market making transactions in our common stock. Passive market making consists of displaying bids on the NASDAQ Global Market limited by the prices of independent market makers and effecting purchases limited by those prices in response to order flow. Rule 103 of Regulation M promulgated by the Securities and Exchange Commission limits the amount of net purchases that each passive market maker may make and the displayed size of each bid. Passive market making may stabilize the market price of the common stock at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

This prospectus in electronic format may be made available on the websites maintained by one or more of the underwriters, if any, participating in this offering and one or more of the underwriters participating in this offering may distribute prospectuses and prospectus supplements electronically.

From time to time in the ordinary course of their respective businesses, certain of the underwriters and their affiliates may in the future engage in commercial banking or investment banking transactions with us and our affiliates.

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a “Relevant Member State”), with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, no offer of shares of our common stock has been made or will be made to the public in that Member State, except that, with effect from and including such date, an offer of shares of our common stock may be made to the public in the Relevant Member State at any time:

(a) to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;

(b) to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than €43,000,000 and

(3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts;

(c) to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive); or

(d) in any other circumstances which do not require the publication by us of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer of shares of our common stock to the public" in relation to any shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase any shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State and the expression "Prospectus Directive" means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

United Kingdom

In the United Kingdom this document is being distributed only to, and is directed only at Qualified Investors who are permitted to carry on regulated activity in the United Kingdom by the UK Financial Services Authority under the Financial Services and Markets Act 2000, as amended, persons whose ordinary activities for the purpose of their businesses involve them in buying, selling, subscribing for or underwriting such securities or making arrangements for another person to do so (whether as principal or agent) or advising on investments or other persons who are Investment Professionals within the meaning given in paragraph 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005. Persons who are not permitted to carry on such regulated activity may not rely on this document.

Hong Kong

Our common stock may not be offered or sold by means of any document other than: (1) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), (2) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules thereunder, or (3) in other circumstances which do not result in the document being a "prospectus" within the meaning of the Companies Ordinance. No advertisement, invitation or other document relating our common stock may be issued, whether in Hong Kong or elsewhere, where such document is directed at, or the contents are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the laws of Hong Kong), other than with respect to such common stock that is intended to be disposed of only to persons outside of Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance and any rules thereunder.

LEGAL MATTERS

The validity of our common stock offered by this prospectus will be passed upon for us by Cooley LLP, Palo Alto, California. Cooley LLP and certain attorneys and investment funds affiliated with the firm collectively own an aggregate of 76,088 shares of our common stock. Certain legal matters in connection with this offering will be passed upon for the underwriters by Morgan, Lewis & Bockius LLP, New York, New York.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements at December 31, 2008 and 2009, and for each of the three years in the period ended December 31, 2009, and for the period from July 13, 2005 (inception) through December 31, 2009, as set forth in their report (which contains an explanatory paragraph describing conditions that raise substantial doubt about our ability to continue as a going concern as described in Note 1 to the financial statements). We have included our financial statements in the prospectus and elsewhere in the registration statement in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of our common stock offered in this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the accompanying exhibits and schedules. Some items included in the registration statement are omitted from this prospectus in accordance with the rules and regulations of the SEC. For further information with respect to us and the common stock offered in this prospectus, we refer you to the registration statement and the accompanying exhibits and schedules. Statements contained in this prospectus as to the contents of any contract, agreement or any other document are summaries of the material terms of these contract, agreement or other document. With respect to each of these contracts, agreements or other documents filed as an exhibit to the registration statement, reference is made to such exhibit for a more complete description of the matter involved. A copy of the registration statement, and the accompanying exhibits and schedules, may be inspected without charge and copied 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 for further information on the operation of the Public Reference Room. The SEC maintains a web site that contains reports, proxy and information statements and other information regarding registrants that file electronically with the SEC. The address of the SEC's website is http://www.sec.gov.

Upon completion of this offering, we will become subject to the information and periodic reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and we will file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available for inspection and copying at the public reference room and website of the SEC referred to above. We maintain a website at http://www.acelrx.com. You may access our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act with the SEC free of charge at our website as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not part of this prospectus.

INDEX TO FINANCIAL STATEMENTS

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Index to Financial Statements

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of
AcelRx Pharmaceuticals, Inc.

We have audited the accompanying balance sheets of AcelRx Pharmaceuticals, Inc. (a development stage company) (the Company) as of December 31, 2008 and 2009, and the related statements of operations, convertible preferred stock and of stockholders' equity (deficit), and cash flows for the years ended December 31, 2007, 2008 and 2009, and for the period from July 13, 2005 (inception) through December 31, 2009 . These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of AcelRx Pharmaceuticals, Inc. (a development stage company) at December 31, 2008 and 2009, and the results of its operations and its cash flows for the years ended December 31, 2007, 2008 and 2009, and for the period from July 13, 2005 (inception) through December 31, 2009, in conformity with U.S. generally accepted accounting principles.

As discussed in Note 1 to the financial statements, the Company's recurring losses from operations raise substantial doubt about its ability to continue as a going concern. Management's plans as to these matters also are described in Note 1. The December 31, 2009, financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ Ernst & Young LLP

June 30, 2010
San Francisco, California

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AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Balance Sheets
(in thousands, except share and per share data)

	December 31, 2008	December 31, 2009	September 30, 2010 (Unaudited)	Pro Forma Stockholders' Equity as of September 30, 2010 (Unaudited) (Note 1)
ASSETS				
CURRENT ASSETS:				
Cash and cash equivalents	$ 6,072	$ 7,150	$ 7,558	
Short-term investments	14,135	5,396	524	
Prepaid expenses and other current assets	773	397	523	
Total current assets	20,980	12,943	8,605	
Property and equipment, net	1,412	1,280	926	
Restricted cash	205	205	205	
Other assets	82	63	50	
TOTAL ASSETS	$ 22,679	$ 14,491	$ 9,786	
LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)				
CURRENT LIABILITIES:				
Accounts payable	$ 1,188	$ 917	$ 602	
Accrued liabilities	500	369	259	
Convertible notes	—	—	4,603	—
Long-term debt, current portion	2,842	4,726	5,035	
Total current liabilities	4,530	6,012	10,499	
Deferred rent	596	425	290	
Long-term debt, net of current portion	9,492	5,008	1,347	
Call option liability	—	—	476	—
Convertible preferred stock warrant liability	240	169	2,219	—
Total liabilities	14,858	11,614	14,831	
Commitments and Contingencies (Note 8)				
Convertible preferred stock, $0.001 par value—13,736,125, 46,736,125 and 46,736,125 shares authorized as of December 31, 2008, 2009 and September 30, 2010 (unaudited); 13,501,125, 28,530,146 and 28,607,248 shares issued and outstanding as of December 31, 2008, 2009 and September 30, 2010 (unaudited); liquidation preference of $56,148 and $56,224 as of December 31, 2009 and September 30, 2010 (unaudited), actual; no shares issued and outstanding, pro forma (unaudited)	41,156	55,871	55,941	—
STOCKHOLDERS' EQUITY (DEFICIT):				
Common stock, $0.001 par value—25,000,000, 71,000,000 and 71,000,000 shares authorized as of December 31, 2008, 2009 and September 30, 2010 (unaudited); 2,096,516, 2,480,473 and 2,697,420 shares issued and outstanding as of December 31, 2008, 2009 and September 30, 2010 (unaudited), actual; 36,914,923 shares issued and outstanding, pro forma (unaudited)	3	3	3	37
Additional paid-in capital	723	1,224	4,051	67,256
Accumulated other comprehensive income (loss)	39	(2)	—	—
Deficit accumulated during the development stage	(34,100)	(54,219)	(65,040)	(65,040)
Total stockholders' equity (deficit)	(33,335)	(52,994)	(60,986)	$ 2,253
TOTAL LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' EQUITY (DEFICIT)	$ 22,679	$ 14,491	$ 9,786	

See notes to financial statements.

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Statements of Operations
(in thousands, except share and per share data)

	Year Ended December 31,			Period from July 13, 2005 (Inception) Through December 31, 2009	Nine Months Ended September 30,		Period from July 13, 2005 (Inception) Through September 30, 2010
	2007	2008	2009		2009	2010	
					(Unaudited)		(Unaudited)
Operating Expenses:							
Research and development	$ 8,209	$ 18,325	$ 15,502	$ 45,604	$ 13,180	$ 6,309	$ 51,913
General and administrative	2,082	2,365	3,529	8,501	2,510	3,033	11,534
Total operating expenses	10,291	20,690	19,031	54,105	15,690	9,342	63,447
Loss from operations	(10,291)	(20,690)	(19,031)	(54,105)	(15,690)	(9,342)	(63,447)
Interest income	687	484	33	1,551	37	2	1,553
Interest expense	(25)	(404)	(1,242)	(1,733)	(965)	(656)	(2,389)
Other income (expense), net	(1)	(52)	121	68	196	(825)	(757)
Loss before provision for income taxes	(9,630)	(20,662)	(20,119)	(54,219)	(16,422)	(10,821)	(65,040)
Provision for income taxes	—	—	—	—	—	—	—
Net loss	$ (9,630)	$ (20,662)	$ (20,119)	$ (54,219)	$ (16,422)	$ (10,821)	$ (65,040)
Net loss per share of common stock, basic and diluted	$ (6.61)	$ (10.92)	$ (8.73)		$ (7.27)	$ (4.16)	
Shares used in computing net loss per share of common stock, basic and diluted	1,456,183	1,891,677	2,304,116		2,258,310	2,603,113	
Pro forma net loss per share of common stock, basic and diluted (unaudited) (Note 11)			$ (0.55)			$ (0.27)	
Shares used in computing pro forma net loss per share of common stock, basic and diluted (unaudited) (Note 11)			36,521,619			36,820,616	

See notes to financial statements.

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Statements of Convertible Preferred Stock and of Stockholders' Equity (Deficit)
(in thousands, except share data)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Deficit Accumulated During the Development Stage	Other Comprehensive Income (loss)	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balance as of July 13, 2005 (Inception)	—	$ —	—	$ —	$ —	$ —	$ —	$ —
Net and comprehensive loss	—	—	—	—	—	(40)	—	(40)
Balance as of December 31, 2005	—	—	—	—	—	(40)	—	(40)
Issuance of restricted common stock to founders	—	—	1,000,000	1	—	—	—	1
Issuance of Series A convertible preferred stock (net of issuance costs of $100)	8,446,581	21,016	—	—	—	—	—	—
Issuance of common stock upon the exercise of common stock warrants	—	—	102,141	1	50	—	—	51
Stock-based compensation related to restricted stock	—	—	83,333	—	42	—	—	42
Comprehensive loss:								
Change in unrealized gains and losses on investments, net of taxes	—	—	—	—	—	—	(1)	(1)
Net loss	—	—	—	—	—	(3,768)	—	(3,768)
Total comprehensive loss								(3,769)
Balance as of December 31, 2006	8,446,581	21,016	1,185,474	2	92	(3,808)	(1)	(3,715)
Stock-based compensation related to restricted stock	—	—	509,792	1	116	—	—	117
Stock-based compensation related to stock options	—	—	—	—	33	—	—	33
Comprehensive loss:								
Change in unrealized gains and losses on investments, net of taxes	—	—	—	—	—	—	6	6
Net loss	—	—	—	—	—	(9,630)	—	(9,630)
Total comprehensive loss								(9,624)
Balance as of December 31, 2007	8,446,581	21,016	1,695,266	3	241	(13,438)	5	(13,189)
Issuance of Series B convertible preferred stock (net of issuance costs of $78)	5,054,544	20,140	—	—	—	—	—	—
Stock-based compensation related to restricted stock	—	—	391,250	—	271	—	—	271
Stock-based compensation related to stock options	—	—	—	—	197	—	—	197
Contribution of common stock to a charitable organization	—	—	10,000	—	14	—	—	14
Comprehensive loss:								
Change in unrealized gains and losses on investments, net of taxes	—	—	—	—	—	—	34	34
Net loss	—	—	—	—	—	(20,662)	—	(20,662)
Total comprehensive loss								(20,628)
Balance as of December 31, 2008	13,501,125	$ 41,156	$2,096,516	$ 3	$ 723	$ (34,100)	$ 39	$ (33,335)

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Statements of Convertible Preferred Stock and of Stockholders' Equity (Deficit)
(in thousands, except share data)

	Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Deficit Accumulated During the Development Stage	Other Comprehensive Income (loss)	Total Stockholders' Equity (Deficit)
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2008	13,501,125	$ 41,156	2,096,516	$ 3	$ 723	$ (34,100)	$ 39	$ (33,335)
Issuance of Series C convertible preferred stock (net of issuance costs of $99)	15,029,021	14,715	—	—	—	—	—	—
Stock-based compensation related to restricted stock	—	—	297,500	—	163	—	—	163
Stock-based compensation related to stock options	—	—	—	—	312	—	—	312
Issuance of common stock upon exercise of stock options	—	—	86,457	—	26	—	—	26
Comprehensive loss:								
Change in unrealized gains and losses on investments, net of taxes	—	—	—	—	—	—	(41)	(41)
Net loss	—	—	—	—	—	(20,119)	—	(20,119)
Total comprehensive loss								(20,160)
Balance as of December 31, 2009	28,530,146	55,871	2,480,473	3	1,224	(54,219)	(2)	(52,994)
Issuance of Series C convertible preferred stock (net of issuance costs of $6) (unaudited)	77,102	70	—	—	—	—	—	—
Stock-based compensation related to restricted stock (unaudited)	—	—	173,125	—	93	—	—	93
Stock-based compensation related to stock options (unaudited)	—	—	—	—	1,014	—	—	1,014
Issuance of common stock upon exercise of stock options (unaudited)	—	—	43,822	—	21	—	—	21
Beneficial conversion feature related to convertible notes (unaudited)	—	—	—	—	1,699	—	—	1,699
Comprehensive loss:								
Change in unrealized gains and losses on investments, net of taxes (unaudited)	—	—	—	—	—	—	2	2
Net loss (unaudited)	—	—	—	—	—	(10,821)	—	(10,821)
Total comprehensive loss (unaudited)								(10,819)
Balance as of September 30, 2010 (unaudited)	28,607,248	$ 55,941	2,697,420	$ 3	$ 4,051	$ (65,040)	$ —	$ (60,986)

See notes to financial statements.

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Statements of Cash Flows
(in thousands)

	Year Ended December 31,			Period from July 13, 2005 (Inception) Through December 31,	Nine Months Ended September 30,		Period from July 13, 2005 (Inception) Through September 30,
	2007	2008	2009	2009	2009	2010	2010
					(Unaudited)		(Unaudited)
CASH FLOWS FROM OPERATING ACTIVITIES:							
Net loss	$ (9,630)	$ (20,662)	$ (20,119)	$ (54,219)	$ (16,422)	$ (10,821)	$ (65,040)
Adjustments to reconcile net loss to net cash used in operating activities:							
Depreciation and amortization	216	383	481	1,086	363	359	1,445
Interest expense related to debt financings	—	161	280	491	215	168	659
Stock-based compensation	128	456	463	1,089	317	1,107	2,196
Contribution of shares to charitable organizations	—	14	—	14	—	—	14
Revaluation of convertible preferred stock warrant liability	—	77	(71)	170	(168)	827	997
Realized gain on sale of investments	—	—	(29)	(29)	(32)	—	(29)
Changes in operating assets and liabilities:							
Prepaids and other assets	(364)	109	138	(429)	28	(126)	(555)
Restricted cash	(28)	(27)	—	(205)	—	—	(205)
Accounts payable	422	319	(271)	917	745	(315)	602
Accrued liabilities	(251)	317	(119)	179	(159)	(106)	73
Deferred rent	646	(50)	(171)	425	(128)	(135)	290
Net cash used in operating activities	(8,861)	(18,903)	(19,418)	(50,511)	(15,241)	(9,042)	(59,553)
CASH FLOWS FROM INVESTING ACTIVITIES:							
Purchase of property and equipment	(1,558)	(547)	(111)	(2,365)	(110)	(4)	(2,369)
Purchase of investments	(8,109)	(14,088)	(13,906)	(40,378)	(8,537)	(4,823)	(45,201)
Proceeds from sale of investments	7,450	4,700	22,633	35,033	21,171	9,692	44,725
Net cash provided by (used in) investing activities	(2,217)	(9,935)	8,616	(7,710)	12,524	4,865	(2,845)
CASH FLOWS FROM FINANCING ACTIVITIES:							
Proceeds from the issuance long-term debt	621	12,000	—	12,621	—	—	12,621
Payment of long-term debt	(96)	(241)	(2,861)	(3,198)	(1,653)	(3,506)	(6,704)
Proceeds from issuance of convertible notes	—	—	—	1,000	—	8,000	9,000
Proceeds from issuance of common stock	—	—	26	77	26	21	98
Proceeds from issuance of convertible preferred stock, net of issuance costs	—	20,140	14,715	54,871	—	70	54,941
Net cash provided by (used in) financing activities	525	31,899	11,880	65,371	(1,627)	4,585	69,956
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(10,553)	3,061	1,078	7,150	(4,344)	408	7,558
CASH AND CASH EQUIVALENTS—Beginning of period	13,564	3,011	6,072	—	6,072	7,150	—
CASH AND CASH EQUIVALENTS—End of period	$ 3,011	$ 6,072	$ 7,150	$ 7,150	$ 1,728	$ 7,558	$ 7,558
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION:							
Cash paid for interest	$ 21	$ 204	$ 979	$ 1,204	$ 762	$ 521	$ 1,725
NONCASH INVESTING AND FINANCING ACTIVITIES:							
Issuance of convertible preferred stock warrants	$ 1	$ 162	$ —	$ 163	$ —	$ 1,223	$ 1,386
Beneficial conversion features related to convertible notes	$ —	$ —	$ —	$ —	$ —	$ 1,699	$ 1,699
Issuance of call option related to convertible notes	$ —	$ —	$ —	$ —	$ —	$ 476	$ 476

See notes to financial statements.

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Notes to Financial Statements

(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

1. Organization and Summary of Significant Accounting Policies

The Company

AcelRx Pharmaceuticals, Inc., or the Company, is a development stage company that was incorporated in Delaware on July 13, 2005 as SuRx, Inc. In January 2006, the Company changed its name to AcelRx Pharmaceuticals, Inc. The Company's operations are based in Redwood City, California.

The Company is a specialty pharmaceutical company focused on the development and commercialization of innovative therapies for the treatment of acute and breakthrough pain. Since incorporation, primary activities have consisted of establishing facilities, recruiting personnel, conducting research and development of its products, developing intellectual property, and raising capital. To date, the Company has not yet commenced primary operations or generated any revenues and, accordingly, the Company is considered to be in the development stage.

The Company has one business activity, which is the development and commercialization of product candidates for the treatment of pain, and a single reporting and operating unit structure.

The accompanying financial statements have been prepared assuming the Company will continue as a going concern. The Company has incurred recurring operating losses and negative cash flows from operating activities since inception through September 30, 2010. In addition, the Company had an accumulated deficit of $54.2 million and $65.0 million as of December 31, 2009 and September 30, 2010. Through September 30, 2010, the Company has relied primarily on the proceeds from equity offerings and loan proceeds to finance its operations. Management believes that currently available cash, cash equivalents and investments will provide sufficient funds to enable the Company to meet its obligations through at least March 2011. Management plans to continue to finance the Company's operations with a combination of equity issuances, debt arrangements and, in the longer term, revenues from collaborations with pharmaceutical companies, technology licenses and, ultimately, product sales and royalties. However, there is no assurance that additional funding will be available to the Company on acceptable terms on a timely basis, if at all, or that the Company will achieve profitable operations. If the Company is unable to raise additional capital to fund its operations, it will need to curtail planned activities to reduce costs. Doing so may affect the Company's ability to operate effectively. The accompanying financial statements do not include any adjustments that might result from the outcome of these uncertainties.

Subsequent Events

The Company applies Accounting Standards Codification, or ASC, Topic No. 855 for the accounting for and disclosure of events that occur after the balance sheet date but before financial statements are issued. For the financial statements as of December 31, 2008 and 2009, and the related statements of operations, convertible preferred stock and of stockholders' equity (deficit), and cash flows for the years ended December 31, 2007, 2008 and 2009, and for the period from July 13, 2005 (inception) through December 31, 2009, the Company has evaluated subsequent events through June 30, 2010, the date these financial statements were issued.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the amounts reported in

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Notes to Financial Statements—(Continued)

(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

the financial statements and accompanying notes. Such management estimates include the fair value of common stock, stock-based compensation expense, valuation of deferred tax assets and the fair value of the convertible preferred stock warrants. The Company bases its estimates on historical experience and also on assumptions that it believes are reasonable, however, actual results could differ from those estimates.

Unaudited Interim Financial Information

The accompanying interim balance sheet as of September 30, 2010, the interim statements of operations and cash flows for the nine months ended September 30, 2009 and 2010 and the period from July 13, 2005 (Inception) through September 30, 2010 and the interim statement of convertible preferred stock and of stockholders' equity (deficit) for the nine months ended September 30, 2010 are unaudited. The unaudited interim financial statements have been prepared on a basis consistent with the annual financial statements and, in the opinion of management, reflect all adjustments, which include only normal recurring adjustments, necessary to present fairly the Company's financial position as of September 30, 2010 and its results of operations and cash flows for the nine months ended September 30, 2009 and 2010 and the period from July 13, 2005 (inception) through September 30, 2010. The financial data and the other financial information disclosed in these notes to the financial statements related to the nine month periods are also unaudited. The results of operations for the nine months ended September 30, 2010 are not necessarily indicative of the results to be expected for the year ending December 31, 2010 or for any other future annual or interim period.

Unaudited Pro Forma Stockholders' Equity

The unaudited pro forma stockholders' equity as of September 30, 2010 has been prepared assuming that immediately prior to the consummation of an initial public offering: (1) the automatic conversion of all outstanding shares of the Company's convertible preferred stock into shares of common stock; (2) the automatic conversion of the convertible notes into shares of common stock and the related reclassification of the convertible note liability to common stock and additional paid-in capital; and (3) the reclassification of the convertible preferred stock warrant liability to additional paid-in capital. The pro forma shares of common stock outstanding as of September 30, 2010 reflect the conversion of 28,607,248 shares of convertible preferred stock into 34,217,503 shares of common stock but does not reflect the shares of common stock that will be issued as a result of the assumed conversion of the convertible notes or any warrant exercises.

Concentrations of Credit Risk

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of cash, cash equivalents, short-term investments and restricted cash. Cash, cash equivalents, short-term investments and restricted cash are invested with banks and other financial institutions in the United States and are only invested in high-credit quality instruments. Such deposits may be in excess of insured limits provided on such deposits.

Cash and Cash Equivalents

Cash and cash equivalents are stated at cost, which approximates fair value. The Company considers highly liquid investments with original maturities from the date of purchase of 90 days or less to be cash equivalents. Cash and cash equivalents consist primarily of demand deposits and money market mutual funds and are held primarily by two domestic financial institutions with high credit standings.

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Notes to Financial Statements—(Continued)

(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

Short-Term Investments

The Company's investments are all short-term and consist of high-credit quality U.S. government agency obligations that have maturities greater than 90 days, but less than 365 days from the date of purchase. Short-term investments are classified as available-for-sale and are, therefore, recorded at fair value, and unrealized gains and losses, net of any related tax effects, are not reflected in the statement of operations but are reported in the statement of stockholders' equity as a separate component of other comprehensive income (loss) until realized. The Company uses the specific-identification method to compute gains and losses on the investments. The amortized cost of securities is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization and accretion is included in interest income or expense. Realized gains and losses and declines in fair value that are deemed to be other-than-temporary are reported in the statement of operations.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation and amortization. Depreciation is calculated using the straight-line method over the estimated useful lives of the assets, generally three years for computer equipment and software, five years for research equipment, and seven years for furniture and fixtures. Leasehold improvements are amortized over the shorter of the estimated useful life of the improvements, generally five years, or the remaining lease term. Maintenance and repairs that do not extend the life or improve an asset are expensed in the period incurred.

Impairment of Long-Lived Assets

The Company periodically assesses the impairment of long-lived assets and, if indicators of asset impairment exist, the Company assesses the recoverability of the affected long-lived assets by determining whether the carrying value of such assets can be recovered through an analysis of the undiscounted future expected operating cash flows. If impairment is indicated, the Company records the amount of such impairment for the excess of the carrying value of the asset over its estimated fair value. As of September 30, 2010, the Company has not written down any of its long-lived assets as a result of impairment.

Restricted Cash

Under the Company's facility lease and corporate credit card agreements, the Company is required to maintain letters of credit as security for performance under these agreements. The letters of credit are secured by certificates of deposit in amounts equal to the letters of credit, which are classified as restricted cash on the balance sheet.

Research and Development Expenses

Research and development costs are charged to expense when incurred. Research and development expenses include salaries, employee benefits, laboratory supplies, costs associated with clinical trials and manufacturing, other professional services and facility costs. Expenses related to clinical trials generally are accrued based on the level of patient enrollment and activity according to the protocol. The Company monitors patient enrollment levels and related activity to the extent possible and adjusts accrual estimates accordingly.

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Notes to Financial Statements—(Continued)

(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

Comprehensive Loss

Comprehensive loss is comprised of net loss and other comprehensive income (loss). For the Company, other comprehensive income (loss) consists of changes in unrealized gains and losses on the Company's investments. Total comprehensive loss for all periods presented has been disclosed in the statements of convertible preferred stock and of stockholders' equity (deficit).

Fair Value of Financial Instruments

The Company measures and reports its cash equivalents, short-term investments and the liability associated with the warrants to purchase convertible preferred stock at fair value. Fair value is defined as the exchange price that would be received for an asset or an exit price paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The fair value hierarchy defines a three-level valuation hierarchy for disclosure of fair value measurements as follows:

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

Level II—Inputs other than quoted prices included within Level I that are observable, unadjusted quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the related assets or liabilities; and

Level III—Unobservable inputs that are supported by little or no market activity for the related assets or liabilities.

The categorization of a financial instrument within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

The Company's financial instruments consist of Level I and Level II assets and Level III liabilities. Level I securities include highly liquid money market funds. If quoted market prices are not available for the specific security, then the Company estimates fair value by using benchmark yields, reported trades, broker dealer quotes and issuer spreads. Such Level II instruments include U.S. government agency and corporate obligations. Level III liabilities that are measured at fair value on a recurring basis consist of convertible preferred stock warrant liabilities. The fair values of the outstanding convertible preferred stock warrants are measured using the Black-Scholes option-pricing model. Inputs used to determine estimated fair market value include the estimated fair value of the underlying stock at the valuation measurement date, the remaining contractual term of the warrants, risk-free interest rates, expected dividends and the expected volatility of the underlying stock.

Income Taxes

The Company estimates actual current tax exposure together with assessing temporary differences resulting from differences in accounting for reporting purposes and tax purposes for certain items, such as accruals and allowances not currently deductible for tax purposes. These temporary differences result in deferred tax assets and liabilities, which are included in the Company's balance sheets. In general, deferred tax assets represent future tax benefits to be received when certain expenses previously

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recognized in the Company's statements of operations become deductible expenses under applicable income tax laws or when net operating loss or credit carryforwards are utilized. Accordingly, realization of the Company's deferred tax assets is dependent on future taxable income against which these deductions, losses and credits can be utilized.

The Company must assess the likelihood that the Company's deferred tax assets will be recovered from future taxable income, and to the extent the Company believes that recovery is not likely, the Company establishes a valuation allowance. The Company recorded a full valuation allowance as of December 31, 2008, 2009 and September 30, 2010. Based on the available evidence, the Company believed it was more likely than not that it would not be able to utilize its deferred tax assets in the future. The Company intends to maintain valuation allowance until sufficient evidence exists to support its reversal.

The Company regularly reviews its tax positions and for benefits to be realized, a tax position must be more likely than not to be sustained upon examination. The amount recognized is measured as the largest amount of benefit that is more likely than not to be realized upon settlement. The Company's policy is to recognize interest and penalties related to income tax matters as an income tax expense. Through September 30, 2010, the Company did not have any interest or penalties associated with unrecognized tax benefits.

Liability Associated with Warrants to Purchase Convertible Preferred Stock

The Company accounts for freestanding warrants to purchase shares of convertible preferred stock that are contingently redeemable as liabilities on the balance sheet at their estimated fair value because these warrants may obligate the Company to redeem these warrants at some point in the future. At the end of each reporting period, changes in the estimated fair value of the warrants to purchase shares of the convertible preferred stock during the period are recorded through other income in the statements of operations. The Company will continue to adjust the liability associated with the warrants to purchase convertible preferred stock for changes in the estimated fair value of the warrants until the earlier of the exercise of the warrants or the completion of a liquidation event, including the completion of an initial public offering, at which time the convertible preferred stock issuable upon exercise of the warrants will become common stock and the related liability will be reclassified to stockholders' equity.

Stock-Based Compensation

Compensation costs related to stock options and shares of restricted stock granted to employees of the Company are based on the fair value of the awards on the date of grant, net of estimated forfeitures. The Company determines the grant date fair value of the awards using the Black-Scholes option-pricing model and generally recognizes the fair value as stock-based compensation expense on a straight-line basis over the vesting period of the respective awards.

The Company accounts for stock options and shares of restricted stock granted to non-employees also based on the fair value of the awards determined using the Black-Scholes option-pricing model. The fair value of the awards granted to non-employees is remeasured as the awards vest, and the resulting change in value, if any, is recognized in the statement of operations during the period the related services are rendered, which is generally the vesting period.

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Reduction in Work Force

On December 7, 2009, the Company announced a workforce reduction of approximately 44%, or 14 employees, a majority of whom were employed in product development and related support functions. This decision was made based on the challenging economic conditions and a decline in forecasted research and development activities expected for the year ending December 31, 2010.

As a result of this workforce reduction, the Company recorded a charge of $119,000 related to employee severance and other benefits which was included as operating expenses in the statement of operations for the year ended December 31, 2009. As of December 31, 2009, the Company had paid $30,000 for these employee severance and other termination benefits and had accrued the remaining $89,000 on the balance sheet. During the nine months ended September 30, 2010, the Company paid the remaining $89,000.

Net Loss per Share of Common Stock

The Company's basic net loss per share of common stock is calculated by dividing the net loss by the weighted average number of shares of common stock outstanding for the period. The weighted average number of shares of common stock used to calculate the Company's basic net loss per share of common stock excludes restricted stock held by the founders that are subject to repurchase as these shares are not deemed to be issued for accounting purposes until they vest. The diluted net loss per share of common stock is computed by giving effect to all potential common stock equivalents outstanding for the period determined using the treasury stock method. For purposes of this calculation, convertible preferred stock, options to purchase common stock, restricted stock subject to repurchase, warrants to purchase convertible preferred stock and warrants to purchase common stock are considered to be common stock equivalents but have been excluded from the calculation of diluted net loss per share of common stock as their effect is antidilutive.

Unaudited Pro Forma Net Loss per Share of Common Stock

In contemplation of the Company's initial public offering, the Company has presented the unaudited pro forma basic and diluted net loss per share of common stock which has been computed to give effect to the automatic conversion of the convertible preferred stock into shares of common stock as of the beginning of the period. Also, the numerator in the pro forma basic and diluted net loss per share calculation has been adjusted to remove gains and losses resulting from the remeasurement of the convertible preferred stock warrant liability as if the conversion had occurred as of the beginning of the period.

Recently Issued Accounting Pronouncements

In October 2009, the Financial Accounting Standards Board, or FASB, issued an accounting standards update that provides guidance on whether multiple deliverables exist, how the deliverables should be separated and how the consideration should be allocated to one or more units of accounting. This update establishes a selling price hierarchy for determining the selling price of a deliverable. The selling price used for each deliverable will be based on vendor specific objective evidence, if available, third party evidence if vendor-specific objective evidence is not available, or estimated selling price if neither vendor-specific nor third-party evidence is available. The Company will be required to apply this guidance prospectively for revenue arrangements entered into or materially modified after January 1, 2011. The

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Company has not recognized any revenue since inception. Therefore, adoption of this guidance is not expected to have a material impact on the Company's financial statements.

In January 2010, the FASB issued an amendment to an accounting standard which requires new disclosures for fair value measurements and provides clarification for existing fair value disclosure requirements. The amendment will require an entity to disclose separately the amounts of significant transfers in and out of Levels I and II fair value measurements and to describe the reasons for the transfers; and to disclose information about purchases, sales, issuances and settlements separately in the reconciliation for fair value measurements using significant unobservable inputs, or Level III inputs. This amendment clarifies existing disclosure requirements for the level of disaggregation used for classes of assets and liabilities measured at fair value and require disclosures about the valuation techniques and inputs used to measure fair value for both recurring and nonrecurring fair value measurements using Level II and Level III inputs. This guidance is effective for interim and annual reporting periods beginning after December 15, 2009, except for certain Level III activity disclosure requirements that will be effective for reporting periods beginning after December 15, 2010. Accordingly, the Company adopted this amendment as of January 1, 2010, except for the additional Level III requirements which will be adopted during the year ending December 31, 2011.

In April 2010, the FASB issued an accounting standard update which provides guidance on the criteria to be followed in recognizing revenue under the milestone method. The milestone method allows a vendor who is involved with the provision of deliverables to recognize the full amount of a milestone payment upon achievement, if, at the inception of the revenue arrangement, the milestone is determined to be substantive as defined in the standard. The guidance is effective on a prospective basis for milestones achieved in fiscal years and interim periods within those fiscal years, beginning on or after June 15, 2010. The Company has not recognized any revenue since inception. Therefore, adoption of this guidance is not expected to have a material impact on the Company's financial statements.

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2. Cash, Cash Equivalents and Short-Term Investments

Cash, cash equivalents and short-term investments consist of the following (in thousands):

	As of December 31, 2008			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash	$ 397	$ —	$ —	$ 397
Money market funds	678	—	—	678
U.S. government agency obligations	12,078	58	—	12,136
Corporate debt obligations	6,990	6	—	6,996
	$ 20,143	$ 64	$ —	$ 20,207

	As of December 31, 2009			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Cash	$ 960	$ —	$ —	$ 960
Money market funds	6,190	—	—	6,190
U.S. government agency obligations	5,398	—	(2)	5,396
	$12,548	$ —	$ (2)	$12,546

	As of September 30, 2010			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
		(Unaudited)		
Cash	$ 418	$ —	$ —	$ 418
Money market funds	7,140	—	—	7,140
U.S. government agency obligations	522	2	—	524
	$ 8,080	$ 2	$ —	$ 8,082

As of December 31, 2008, 2009 and September 30, 2010, the contractual maturity of all investments held was less than one year.

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3. Fair Value of Financial Instruments

The Company measures and reports its convertible preferred stock warrant liability and short-term investments at fair value. The following table sets forth the fair value of the Company's financial assets and liabilities by level within the fair value hierarchy (in thousands):

	As of December 31, 2008			
	Fair Value	Level I	Level II	Level III
Assets				
Money market funds	$ 678	$ 678	$ —	$ —
U.S. government agency obligations	12,136	—	12,136	—
Corporate obligations	6,996	—	6,996	—
Total assets measured at fair value	$19,810	$ 678	$19,132	$ —
Liabilities				
Convertible preferred stock warrant liability	$ 240	$ —	$ —	$ 240
Total liabilities measured at fair value	$ 240	$ —	$ —	$ 240

	As of December 31, 2009			
	Fair Value	Level I	Level II	Level III
Assets				
Money market funds	$ 6,190	$6,190	$ —	$ —
U.S. government agency obligations	5,396	—	5,396	—
Total assets measured at fair value	$11,586	$6,190	$5,396	$ —
Liabilities				
Convertible preferred stock warrant liability	$ 169	$ —	$ —	$ 169
Total liabilities measured at fair value	$ 169	$ —	$ —	$ 169

	As of September 30, 2010			
	Fair Value	Level I	Level II	Level III
		(Unaudited)		
Assets				
Money market funds	$ 7,140	$7,140	$ —	$ —
U.S. government agency obligations	524	—	524	—
Total assets measured at fair value	$ 7,664	$7,140	$ 524	$ —
Liabilities				
Convertible preferred stock warrant liability	$ 2,219	$ —	$ —	$ 2,219
Call option liability	476	—	—	476
Total liabilities measured at fair value	$ 2,695	$ —	$ —	$2,695

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The following table sets forth a summary of the changes in the fair value of the Company's Level III financial liabilities (in thousands):

	Year Ended December 31,			Nine Months Ended September 30,	
	2007	2008	2009	2009	2010
				(Unaudited)	
Fair value—beginning of period	$—	$ 1	$ 240	$ 240	$ 169
Issuance of warrants	1	162	—	—	1,223
Issuance of call option	—	—	—	—	476
Change in fair value of Level III liabilities	—	77	(71)	(168)	827
Fair value—end of period	$ 1	$ 240	$ 169	$ 72	$2,695

The determination of the fair value of the convertible preferred stock warrants is discussed in Note 7.

4. Property and Equipment

Property and equipment consist of the following (in thousands):

	December 31,		September 30,
	2008	2009	2010
			(Unaudited)
Research equipment	$ 675	$ 1,003	$ 1,009
Leasehold improvements	1,005	1,008	1,008
Computer equipment and software	227	248	246
Furniture and fixtures	110	107	108
Total property, plant and equipment	2,017	2,366	2,371
Less accumulated depreciation and amortization	(605)	(1,086)	(1,445)
	$1,412	$ 1,280	$ 926

Depreciation and amortization expense was $216,000, $383,000, $481,000, $363,000, $359,000, $1.1 million and $1.4 million for the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010.

5. Long-Term Debt

Equipment Financing Obligation

In March 2007, the Company entered into an equipment financing agreement in which the Company could receive advances for an amount up to $750,000. Advances under the agreement were repaid in 30 monthly installments of principal and interest and carried an average interest rate of 9.4% per annum. As of December 31, 2008, the Company had an outstanding balance of $284,000 under the agreement. As of December 31, 2009, the Company had repaid all amounts outstanding under the agreement.

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In connection with this agreement, the Company issued immediately exercisable and fully vested warrants to purchase 10,000 shares of its Series A convertible preferred stock, or Series A, at an exercise price of $2.50 per share. The fair value of the Series A warrant on the date of issuance of $1,000, as determined using the Black-Scholes option-pricing model, was recorded as a convertible preferred stock warrant liability and as a deferred financing cost in other assets. The deferred financing cost was amortized to interest expense over the draw down term. As of December 31, 2009 and September 30, 2010, the deferred financing cost had been fully amortized.

Loan and Security Agreement

In September 2008, the Company entered into a $12.0 million loan and security agreement with Pinnacle Ventures L.L.C. In November 2008, the Company drew down all $12.0 million of the loan facility. The loan is repayable over 36 months, carries an interest rate of 8.5% per annum and is collateralized by the Company's tangible assets and proceeds from intellectual property. An additional $600,000 will be due as a final payment at the end of the loan term in November 2011, representing a 5.0% final payment fee. The final payment is being accreted on an effective interest basis over the term of the loan agreement. As of December 31, 2009 and September 30, 2010, the Company accrued $311,000 and $466,000 relating to this final payment, which is classified as a component of long-term debt in the balance sheet. As of December 31, 2008, 2009 and September 30, 2010, the Company had outstanding borrowings under the loan and security agreement of $12.0 million, $9.7 million and $6.4 million.

In connection with the loan and security agreement, the Company issued immediately exercisable and fully vested warrants to purchase 225,000 shares of Series B convertible preferred stock, or Series B, with an exercise price of $4.00 per share. Upon the closing of the Company's Series C convertible preferred stock, or Series C, financing during the year ended December 31, 2009, the warrants underlying the loan and security agreement became exercisable for 913,056 shares of Series C with an exercise price of $0.99 per share.

As discussed in Note 7 "Warrants," the Company determined the fair value of the Series B and Series C warrants on the dates of issuance to be $162,000, as determined using the Black-Scholes option-pricing model, which was recorded as a convertible preferred stock warrant liability and as a deferred financing cost in other assets. The deferred financing cost is being amortized to interest expense over the loan term. For the years ended December 31, 2008, 2009 and the nine months ended September 30, 2009 and 2010, amortization of the deferred financing cost to interest expense was $110,000, $19,000, $14,000 and $13,000. As of December 31, 2008, 2009 and September 30, 2010, deferred financing cost on the balance sheets related to this loan and security agreement was $52,000, $33,000 and $20,000.

Scheduled principal payments for the Company's loan and security agreement as of December 31, 2009 are as follows (in thousands):

Year Ending December 31:	
2010	$4,726
2011	5,008
Total long-term debt	$9,734

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During the nine months ended September 30, 2010, the Company made regular payments on the loan and security agreement of $3.4 million.

6. Convertible Notes

2006 Convertible Notes

In March and April 2006, the Company issued convertible notes, or 2006 Convertible Notes, to various individuals, including Company executives, in exchange for $1.0 million in cash. These notes bore interest at 6.0% per annum and were due to be repaid on March 1, 2008. In August 2006, the 2006 Convertible Notes and related accrued interest totaling $1.0 million automatically converted into 408,581 shares of Series A upon the closing of the Series A financing.

In conjunction with the issuance of the 2006 Convertible Notes during the year ended December 31, 2006, the Company issued warrants to purchase an aggregate of 102,141 shares of common stock with an exercise price of $0.01 per share. As discussed in Note 7 “Warrants”, the Company calculated the fair value of the warrants on the date of issuance to be $25,000, as determined using the Black-Scholes option-pricing model, which was amortized as interest expense during the year ended December 31, 2006. In addition, the Company also recognized a beneficial conversion feature on the 2006 Convertible Notes in the amount of $25,000 as interest expense during the year ended December 31, 2006.

2010 Convertible Notes

On September 14, 2010, the Company sold convertible promissory notes, or 2010 Convertible Notes, to purchase shares of the Company’s equity securities to certain existing investors for an aggregate purchase price of $8.0 million. The 2010 Convertible Notes cannot be prepaid without written consent of the holders, accrue interest at a rate of 4.0% per annum and have a maturity date of the earliest of (1) September 14, 2011 or (2) an event of default. The principal and the interest under the 2010 Convertible Notes are automatically convertible (1) into the securities that are sold in the Company’s next equity financing prior to September 14, 2011, with total proceeds of not less than $15.0 million, or Qualified Financing, at the price at which such securities are sold to other investors, (2) into securities that are sold in the Company’s initial public offering at a conversion price equal to 80% of the initial public offering price or (3) following September 14, 2011, with the consent of the holders of a majority of the principal amount of the 2010 Convertible Notes still outstanding, into shares of Series C at the Series C price of $0.99 per share. In addition, holders of the 2010 Convertible Notes have the option to convert the 2010 Convertible Notes into shares of Series C in connection with a liquidation, sale of substantially all of the Company’s assets, or merger, if such liquidation, sale of substantially all of the Company’s assets, or merger occurs before the Qualified Financing or initial public offering.

Upon the election of the holders of a majority of the aggregate principal amount payable under the 2010 Convertible Notes outstanding, the Company will sell an additional $4.0 million of 2010 Convertible Notes. This additional $4.0 million was determined to be a call option that has been recorded at its fair value of $476,000 as a debt discount that will be amortized to interest expense over the one-year term of the 2010 Convertible Notes. The fair value of the call option was determined by evaluating multiple potential outcomes using a market approach and an income approach depending on the scenario and discounted these values back to September 30, 2010 while applying estimated probabilities to each scenario value. These scenarios include a potential initial public offering, merger or sale at different times during 2011 and 2012 as well as remaining private.

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In conjunction with the issuance of the 2010 Convertible Notes, the Company issued warrants that are exercisable into (1) shares of preferred stock sold in the next equity financing with proceeds in excess of $15.0 million with an exercise price equal to the price of the preferred stock sold in such equity financing or (2) shares of Series C at a price per share of the Series C. The aggregate number of shares exercisable under the warrants will equal 25% of the principal amount of the 2010 Convertible Notes divided by (1) the per share price of the equity securities sold in the next qualified equity financing or (2) the price of the Series C of $0.99 per share. As discussed in Note 7 "Warrants," the Company calculated the fair value of the warrants to be $1.2 million, which was recorded as a debt discount that will be amortized to interest expense over the one-year term of the 2010 Convertible Notes.

In addition, the Company also recognized a beneficial conversion feature related to these warrants and the call option discussed above in the aggregate amount of $1.7 million as an additional debt discount that will also be amortized to interest expense over the one-year term of the 2010 Convertible Notes. In addition to these beneficial conversion features, the 2010 Convertible Notes have contingent beneficial conversion features related to the conversion options following the maturity of the 2010 Convertible Notes or in connection with a liquidation, sale or merger into Series C. The contingent beneficial features were determined on the date of the issuance of the 2010 Convertible Notes based on the intrinsic value of this feature in the amount of $2.8 million. This beneficial conversion feature will be recorded if and when the related contingent event occurs.

Amortization expense for the debt discount from the issuance of the 2010 Convertible Notes on September 14, 2010 through the end of the reporting period on September 30, 2010 was insignificant.

7. Warrants

Series A Warrants

In March 2007, the Company entered into an equipment financing agreement in which the Company issued immediately exercisable and fully vested warrants to purchase 10,000 shares of its Series A with an exercise price of $2.50 per share. The Series A warrants expire in March 2017. The fair value of the Series A warrant on the date of issuance was $1,000, as determined using the Black-Scholes option-pricing model using the following assumptions: 10 year contractual term, 72% expected volatility, 4.1% risk-free interest rate and no expected dividend. This fair value was recorded as a convertible preferred stock warrant liability and as a deferred financing cost in other assets. The Company revalued the convertible preferred stock warrant liability related to the Series A warrants at the end of each reporting period using the Black-Scholes option-pricing model with the following assumptions:

	Year Ended December 31,			Nine Months Ended September 30,	
	2007	2008	2009	2009	2010
				(Unaudited)	
Expected term (in years)	9.2	8.2	7.2	7.5	6.5
Risk-free interest rate	4.1%	2.1%	3.1%	3.1%	1.9%
Expected volatility	72%	81%	74%	75%	82%
Expected dividend rate	0%	0%	0%	0%	0%

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The fair value of the liability related to the Series A warrants was estimated to be $10,000, $2,000 and $10,000 as of December 31, 2008, 2009 and September 30, 2010. The change in the fair value of the Series A warrants resulted in a charge to other income (expense), net of $9,000 and $8,000 during the year ended December 31, 2008 and the nine months ended September 30, 2010 and a benefit to other income (expense), net of $7,000 and $8,000 and during the nine months ended September 30, 2009 and the year ended December 31, 2009. As of September 30, 2010, the Series A warrants had not been exercised and were still outstanding.

Series B and Series C Warrants

In September 2008, the Company entered into a $12.0 million loan and security agreement with Pinnacle Ventures. In November 2008, the Company drew down all $12.0 million of the loan facility. In connection with the loan and security agreement, the Company issued immediately exercisable and fully vested warrants to purchase 225,000 shares of Series B with an exercise price of $4.00 per share. Upon the closing of the Series C financing during the year ended December 31, 2009, the warrants underlying the loan and security agreement became exercisable for 913,056 shares of Series C with an exercise price of $0.99 per share. These warrants expire in September 2018.

The Company determined the fair value of the Series B and Series C warrants on the dates of issuance to be $162,000, as determined using the Black-Scholes option-pricing model using the following assumptions: 10 year contractual term, 76% expected volatility, 3.4% risk-free interest rate and no expected dividend, which was recorded as a convertible preferred stock warrant liability and as a deferred financing cost in other assets. The Company revalued the convertible preferred stock warrant liability related to the Series B and Series C warrants at the end of each reporting period using the Black-Scholes option-pricing model with the following assumptions:

	Year Ended December 31,		Nine Months Ended September 30,	
	2008	2009	2009	2010
			(Unaudited)	
Expected term (in years)	9.7	8.7	9.0	8.0
Risk-free interest rate	2.4%	3.4%	3.3%	2.2%
Expected volatility	87%	76%	80%	83%
Expected dividend rate	0%	0%	0%	0%

The fair value of the convertible preferred stock warrant liability related to these Series B and Series C warrants was estimated to be $230,000, $167,000 and $986,000 as of December 31, 2008, 2009 and September 30, 2010. The change in the fair value of the warrants resulted in a charge to other income (expense), net of $68,000 and $819,000 during the year ended December 31, 2008 and the nine months ended September 30, 2010 and a benefit to other income (expense), net of $161,000 and $63,000 during the nine months ended September 30, 2009 and the year ended December 31, 2009. As of September 30, 2010, the Series C warrants had not been exercised and were still outstanding.

2010 Warrants

The Company issued warrants in connection with the 2010 Convertible Notes in September 2010, or the 2010 Warrants. The 2010 Warrants are exercisable into (1) shares of preferred stock sold in the next

equity financing with proceeds in excess of $15.0 million with an exercise price equal to the price of the preferred stock sold in such equity financing or (2) shares of Series C at a price per share of the Series C (x) if the next equity financing with proceeds in excess of $15.0 million does not occur prior to September 14, 2011, upon the election of holders of a majority of the aggregate principal amount of the 2010 Convertible Notes or (y) in the event of the initial public offering, a liquidation, sale of substantially all of the Company's assets, or merger. Each 2010 Warrant may be exercisable for a number of shares equal to the quotient obtained by dividing 25% of the principal amount of the 2010 Convertible Notes by the applicable per share price indicated above. The 2010 Warrants terminate if they are not exercised immediately prior to an initial public offering. The 2010 Warrants are exercisable upon issuance and allow for cashless exercises.

In order to determine a fair value for the 2010 Warrants upon issuance of the 2010 Convertible Notes, the Company evaluated multiple potential outcomes using the intrinsic value or Black-Scholes value depending on the scenario and discounted these values back to September 30, 2010 while applying estimated probabilities to each scenario value. These scenarios included a potential initial public offering or potential merger or sale at different times during 2011 and 2012 as well as remaining private with estimated future qualifying equity financings. Accordingly, the Company determined the fair value of the warrants to be $1,223,000, which was recorded as a convertible preferred stock warrant liability and a debt discount. The Company will revalue the 2010 Warrants at the end of each reporting period; however, there was no adjustment to the convertible preferred stock warrant liability as of September 30, 2010 as there was no change in the fair value of the 2010 Warrants between the time of issuance on September 14, 2010 and the end of the period.

Common Stock Warrants

In March and April 2006, the Company issued the 2006 Convertible Notes to various individuals, including the Company executives. In conjunction with the issuance of the 2006 Convertible Notes, the Company issued warrants to purchase an aggregate of 102,141 shares of common stock with an exercise price of $0.01 per share. The Company calculated the fair value of the warrants on the date of issuance to be $25,000, as determined using the Black-Scholes option-pricing model using the following assumptions: three year contractual term, 72% expected volatility, 4.0% risk-free interest rate and no expected dividend, which was fully amortized as interest expense during the year ended December 31, 2006. These common stock warrants were exercised during the year ended December 31, 2006.

8. Commitments and Contingencies

Operating Leases

In January 2007, the Company entered into a non-cancelable lease agreement for office and laboratory facilities in Redwood City, California. The lease term commenced in April 2007 and expires in April 2012. Rental expense from the facility lease is recognized on a straight-line basis from the inception of the lease in January 2007, the early access date, through the end of the lease. Rent expense was $284,000, $158,000, $158,000, $118,000, $118,000, $659,000 and $777,000 for the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010.

Future minimum payments under the lease agreement as of December 31, 2009 are as follows (in thousands):

Year Ending December 31:	
2010	$ 338
2011	348
2012	97
Total minimum payments	$ 783

During the nine months ended September 30, 2010, the Company made regular payments on the operating lease of $253,000.

During 2007, the landlord provided a tenant improvement allowance of $746,000 to the Company to complete the office and lab facility. The Company has recorded the tenant improvement allowance paid by the landlord as a leasehold improvement asset and a deferred rent liability on the balance sheet. The allowance is amortized as a credit to rent expense over the term of the lease, and the leasehold improvements are amortized as depreciation expense over the period from when the improvements were placed in service until the end of their useful life, which is the end of the lease term. As of December 31, 2008, 2009 and September 30, 2010, the Company has an unamortized tenant improvement allowance of $596,000, $425,000 and $290,000.

Litigation

The Company is not a party to any litigation and does not have contingent reserves established for any litigation liabilities.

9. Stockholders' Equity

Common Stock

As of December 31, 2008, 2009 and September 30, 2010, the Company had reserved shares of common stock, on an as if converted basis, for issuance as follows:

	December 31,		September 30,
	2008	2009	2010
			(Unaudited)
Issuances under stock option plan	2,868,000	8,285,780	8,241,958
Conversion of convertible preferred stock	19,111,380	34,140,401	34,217,503
Issuances upon exercise of convertible preferred stock warrants	926,717	926,717	926,717
	22,906,097	43,352,898	43,386,178

The above table does not include potential issuances of common stock related to the 2010 Convertible Notes or the 2010 Warrants.

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Convertible Preferred Stock

During the year ended December 31, 2006, the Company completed a private placement of an aggregate of 8,446,581 shares of Series A, which included 408,581 shares issued upon conversion of the 2006 Convertible Notes, at a price of $2.50 per share, resulting in net cash proceeds of $21.0 million.

During the year ended December 31, 2008, the Company issued 5,054,544 shares of Series B at $4.00 per share, resulting in net cash proceeds of $20.1 million.

During the year ended December 31, 2009, the Company issued 15,029,021 shares of Series C at $0.99 per share, resulting in net cash proceeds of $14.7 million. During the nine months ended September 30, 2010, the Company issued another 77,102 shares of Series C at $0.99 per share, resulting in net cash proceeds of $76,000.

	As of December 31, 2008		
	Shares Authorized	Shares Issued and Outstanding	Aggregate Liquidation Preference
Series A	8,456,581	8,446,581	$ 21,116,000
Series B	5,279,544	5,054,544	20,218,000
Total	13,736,125	13,501,125	$ 41,334,000

	As of December 31, 2009		
	Shares Authorized	Shares Issued and Outstanding	Aggregate Liquidation Preference
Series A	8,456,581	8,446,581	$ 21,116,000
Series B	5,279,544	5,054,544	20,218,000
Series C	33,000,000	15,029,021	14,814,000
Total	46,736,125	28,530,146	$ 56,148,000

	As of September 30, 2010		
	Shares Authorized	Shares Issued and Outstanding (Unaudited)	Aggregate Liquidation Preference
Series A	8,456,581	8,446,581	$ 21,116,000
Series B	5,279,544	5,054,544	20,218,000
Series C	33,000,000	15,106,123	14,890,000
Total	46,736,125	28,607,248	$ 56,224,000

The Company recorded the convertible preferred stock at fair value on the dates of issuance, net of issuance costs. The Company classifies the convertible preferred stock outside of stockholders' deficit because the shares contain redemption features that are not solely within the Company's control. For the

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years ended December 31, 2007, 2008 and 2009, the Company did not adjust the carrying values of the redeemable convertible preferred stock to the deemed redemption values of such shares since a liquidation event was not probable. Subsequent adjustments to increase the carrying values to the ultimate redemption values will be made only when it becomes probable that such a liquidation event will occur.

The rights, preferences and privileges of the convertible preferred stockholders are as follows:

Conversion Rights

Each share of convertible preferred stock is convertible at the option of the holder into the number of shares determined by dividing the original purchase price by the applicable conversion price. The original per share purchase price was $2.50, $4.00 and $0.99 for Series A, Series B and Series C. At the current conversion prices, each share of Series A, Series B and Series C will convert into 1.37, 1.50 and 1.00 share(s) of common stock. The conversion price per share for convertible preferred stock shall be adjusted for certain recapitalizations, splits, combinations, common stock dividends, or similar events. The convertible preferred stock automatically converts into shares of common stock at the conversion price in effect upon the earlier of (1) the closing of an underwritten initial public offering at a public offering price of at least $3.00 per share (adjusted for stock dividends, stock splits, recapitalizations, or similar events) with aggregate gross cash proceeds to the Company of at least $30 million, or (2) when the holders of 60% of the outstanding shares of convertible preferred stock elect conversion.

Voting Rights

Each share of convertible preferred stock has a number of votes equal to the number of shares of common stock into which it is convertible. The Series A holders, as a class, are entitled to elect two members of the board of directors; the Series B holders, as a class, are entitled to elect one member of the board of directors; the common stock holders, as a class, are entitled to elect two members of the board of directors. The common stock holders and the holders of the convertible preferred stock voting together are entitled to elect the remaining members of the board of directors.

Liquidation Preferences

In the event of any liquidation of the Company, the holders of the Series A, Series B and Series C are entitled to liquidation preferences of $2.50, $4.00 and $0.99 per share, plus any declared and unpaid dividends. Upon distribution of the liquidation preferences to the holders of the convertible preferred stock, if assets remain, holders of the common stock will receive all of the remaining assets on a pro rata basis.

Dividends Rights

The holders of the Series A, Series B and Series C are entitled to receive dividends, when and if declared by the board of directors, in the amount of $0.20, $0.32 and $0.08 per share (adjusted for stock splits, stock dividends, recapitalizations or similar events), per annum on each outstanding share of convertible preferred stock. The dividends are payable in preference and priority to any dividend on common stock and are noncumulative. No dividends have been declared through September 30, 2010.

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Notes to Financial Statements—(Continued)

(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

Redemption Rights

The Series A, Series B and Series C are not redeemable.

10. Stock-Based Compensation

The Company recorded stock-based compensation expense for its stock-based awards as follows (in thousands):

	Year Ended December 31,			Period from July 13, 2005 (Inception) Through December 31, 2009	Nine Months Ended September 30,		Period from July 13, 2005 (Inception) Through September 30, 2010
	2007	2008	2009		2009	2010	
					(Unaudited)		(Unaudited)
Employee stock options	$ 29	$ 126	$ 282	$ 437	$ 171	$ 983	$ 1,420
Non-employee stock options	4	71	30	105	30	31	136
Restricted stock	95	259	151	547	116	93	640
Total	$ 128	$ 456	$ 463	$ 1,089	$ 317	$ 1,107	$ 2,196

Stock Option Plan

As of December 31, 2008, 2009 and September 30, 2010, the Company had one stock-based compensation plan, the 2006 Stock Plan, or the Plan. In August 2006, the Company established the Plan in which 1,368,000 shares of common stock were originally reserved for the issuance of incentive stock options, or ISOs, and nonstatutory stock options, or NSOs, to employees, directors or consultants of the Company. In February 2008, an additional 1,500,000 shares of common stock were reserved for issuance under the Plan and, in November 2009, an additional 5,504,237 shares of common stock were reserved for issuance under the Plan. Per the Plan, the exercise price of ISOs and NSOs granted to a stockholder who at the time of grant owns stock representing more than 10% of the voting power of all classes of the stock of the Company shall be no less than 110% of the fair value per share of the underlying common stock on the date of grant.

The Company's stock options generally vest over four years at a rate of 25% on the first anniversary and 1/48 th per month thereafter. The stock options generally expire ten years from the date of grant. However, in the case of an ISO issued to an optionee who at the time of grant owns stock representing more than 10% of the voting power of all classes of the stock of the Company, the term of the option will be no more than five years. Stock bonus awards and rights to immediately purchase stock may also be granted under the Plan, with terms, conditions and restrictions determined by the board of directors.

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The following table summarizes option activity under the Plan and related information:

		Options Outstanding	
	Number of Shares Available for Grant	Number of Shares Underlying Outstanding Options	Weighted Average Exercise Price Per Share
Balance as of January 1, 2007	1,368,000	—	—
Options granted	(1,162,500)	1,162,500	$ 0.30
Options forfeited	5,000	(5,000)	0.30
Balance as of December 31, 2007	210,500	1,157,500	0.30
Additional options authorized	1,500,000	—	—
Options granted	(797,500)	797,500	1.00
Balance as of December 31, 2008	913,000	1,955,000	0.59
Additional options authorized	5,504,237	—	—
Options granted	(917,500)	917,500	1.38
Options forfeited	123,543	(123,543)	0.67
Options exercised	—	(86,457)	0.30
Balance as of December 31, 2009	5,623,280	2,662,500	0.87
Options granted (unaudited)	(5,266,440)	5,266,440	0.30
Options forfeited (unaudited)	313,678	(313,678)	0.99
Options exercised (unaudited)	—	(43,822)	0.47
Balance as of September 30, 2010 (unaudited)	670,518	7,571,440	0.47

Additional information regarding the Company's stock options outstanding and vested and exercisable as of December 31, 2009 is summarized below:

	Options Outstanding			Options Vested and Exercisable	
Exercise Prices	Number of Stock Options Outstanding	Weighted Average Remaining Contractual Life (Years)	Weighted Average Exercise Price per Share	Shares Subject to Stock Options	Weighted Average Exercise Price per Share
$0.30	832,500	7.5	$ 0.30	567,502	$ 0.30
$0.33	175,000	7.3	0.33	134,896	0.33
$1.00	727,500	8.6	1.00	340,625	1.00
$1.38	927,500	9.3	1.38	192,500	1.38
	2,662,500	8.4	0.87	1,235,523	0.66

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Notes to Financial Statements—(Continued)

(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

Additional information regarding the Company's stock options outstanding and vested and exercisable as of September 30, 2010 is summarized below:

	Options Outstanding			Options Vested and Exercisable	
Exercise Prices	Number of Stock Options Outstanding	Weighted Average Remaining Contractual Life (Years) (Unaudited)	Weighted Average Exercise Price per Share	Shares Subject to Stock Options (Unaudited)	Weighted Average Exercise Price per Share
$0.30	5,981,440	9.4	$ 0.30	2,051,450	$ 0.30
$0.33	175,000	6.5	0.33	167,708	0.33
$1.00	640,000	7.9	1.00	421,095	1.00
$1.38	775,000	8.5	1.38	330,524	1.38
	7,571,440	9.1	0.47	2,970,777	0.52

The weighted average grant-date fair value of options granted for the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010, was $0.21, $0.72, $0.49, $0.49, $0.50, $0.44 and $0.48 per share. Total future stock-based compensation expense related to these unvested options based on grant date fair value estimates to be recorded subsequent to December 31, 2009 and September 30, 2010 was $710,000 and $2.3 million which is expected to be recognized over a weighted-average period of 2.7 years and 1.6 years. The total fair value of shares vested during the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010, was $35,000, $169,000, $244,000, $183,000, $2.5 million, $448,000 and $3.0 million. The total intrinsic value of options exercised during the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010 was zero, zero, $62,000, $62,000, $3,000, $62,000 and $65,000.

Determining Fair Value of Stock Options

The fair value of each grant of stock options was determined by the Company and its board of directors using the methods and assumptions discussed below. Each of these inputs is subjective and generally requires significant judgment to determine.

Valuation Method—The Company estimates the fair value of its stock options using the Black-Scholes option-pricing model.

Expected Term—The expected term represents the period that the stock-based awards are expected to be outstanding. For option grants that are considered to be "plain vanilla," the Company used the simplified method to determine the expected term as provided by the Securities and Exchange Commission. The simplified method calculates the expected term as the average of the time-to-vesting and the contractual life of the options. For other option grants, the expected term is derived from the Company's historical data on employee exercises and post-vesting employment termination behavior taking into account the contractual life of the award.

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Expected Volatility—The expected volatility was based on the historical stock volatilities of several of the Company's publicly listed peers over a period approximately equal to the expected terms of the options as the Company did not have a sufficient trading history to use the volatility of its own common stock.

Fair Value of Common Stock—The fair value of the common stock underlying the stock options has historically been determined by the Company's board of directors. Because there has been no public market for the Company's common stock, the board of directors has determined fair value of the common stock at the time of grant of the option by considering a number of objective and subjective factors including valuations of comparable companies, sales of convertible preferred stock to unrelated third parties, operating and financial performance, lack of liquidity of capital stock and general and industry-specific economic outlook, amongst other factors. The fair value of the underlying common stock shall be determined by the board of directors until such time that the Company's common stock is listed on an established stock exchange or national market system.

Risk-Free Interest Rate—The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant for zero coupon U.S. Treasury notes with maturities approximately equal to the expected term of the options.

Expected Dividend—The expected dividend has been zero as the Company has never paid dividends and does not expect to pay dividends.

Forfeiture Rate—The Company estimates its forfeiture rate based on an analysis of its actual forfeitures and will continue to evaluate the adequacy of the forfeiture rate based on actual forfeiture experience, analysis of employee turnover behavior, and other factors. The impact from a forfeiture rate adjustment will be recognized in full in the period of adjustment, and if the actual number of future forfeitures differs from that estimated by the Company, the Company may be required to record adjustments to stock-based compensation expense in future periods.

Summary of Assumptions—The fair value of each employee stock option was estimated at the date of grant using a Black-Scholes option-pricing model with the following assumptions:

	Year Ended December 31,			Period from July 13, 2005 (Inception) Through December 31,	Nine Months Ended September 30,		Period from July 13, 2005 (Inception) Through September 30,
	2007	2008	2009	2009	2009	2010	2010
						(Unaudited)	(Unaudited)
Expected term (in years)	6.25	6.25	6.25	6.25	6.25	5.75 - 6.25	5.75 - 6.25
Risk-free interest rate	3.6% - 4.6%	3.5%	3.0%	2.6% - 4.6%	3.0%	1.6% - 2.4%	1.6% - 4.6%
Expected volatility	72%	74%	73%	70% - 74%	73%	75%	70% - 75%
Expected dividend rate	0%	0%	0%	0%	0%	0%	0%

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(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

Employee Stock-Based Compensation for Stock Options

The Company recorded compensation expense for options granted to employees as follows (in thousands):

	Year Ended December 31,			Period from July 13, 2005 (Inception) Through December 31, 2009	Nine Months Ended September 30,		Period from July 13, 2005 (Inception) Through September 30, 2010
	2007	2008	2009		2009	2010	
					(Unaudited)		(Unaudited)
Research and development	$ 25	$ 66	$167	$ 258	$ 74	$ 539	$ 797
General and administrative	4	60	115	179	97	444	623
Total	$ 29	$126	$282	$ 437	$171	$ 983	$ 1,420

There were no capitalized stock-based compensation costs or recognized stock-based compensation tax benefits during the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, or the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010.

Non-Employee Stock-Based Compensation for Stock Options

During the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010, the Company granted 100,000, 150,000, zero, zero, zero, 250,000 and 250,000 stock options to non-employees of the Company. Also during the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010, certain employees of the Company transitioned to non-employees, therefore, zero, 89,167, 10,833, 10,833, 287,186, 89,167 and 376,353 options became non-employee options during these periods. As of December 31, 2009 and September 30, 2010, the Company had non-employee stock options to purchase 340,000 and 497,500 shares of common stock outstanding with exercise prices ranging from $0.30 to $1.38 and contractual lives up to ten years. As of December 31, 2009 and September 30, 2010, 119,896 and 192,552 of these shares were vested, 12,220 and 9,916 of these options had been exercised and 63,822 and 237,584 of these options had been forfeited. The Company has recorded stock-based compensation expense for to these non-employee options of $4,000, $71,000, $30,000, $30,000, $31,000, $105,000 and $136,000 for the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010.

Restricted Stock

In January 2006, the Company issued 2,000,000 shares of its common stock, which consisted of 1,000,000 shares to each of the two founders, for $0.001 per share. These shares were initially fully vested but were subject to the right of first refusal by the Company until such time as a public market existed for the common stock. In August 2006, as a condition of the closing of the Series A financing, the founders signed a vesting agreement which required that 50% of the shares purchased by each founder be subject to a right of repurchase by the Company which lapses at a rate of 1/48 th per month over four

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years. Under the terms of the agreements, the repurchase price is the original exercise price. As such, the shares subject to vesting repurchase right are not deemed outstanding for accounting purposes until the shares vest and a liability has been included on the balance sheets for an amount equal to the purchase price of the unvested founder shares. These amounts will be reclassified to stockholders' equity as the repurchase rights lapse. As of December 31, 2008 and 2009, 416,667 and 166,667 of the founders' shares are still subject to repurchase. All restricted shares were no longer subject to repurchase as of September 30, 2010.

During the year ended December 31, 2006, three employees purchased an aggregate of 340,000 shares of the Company's common stock for $0.001 per share, and two employees purchased an aggregate of 190,000 shares of common stock for $0.25 per share, the estimated fair value of the Company's common stock at the time of each purchase. These shares are subject to a right of repurchase by the Company, which lapses with respect to 25% of the shares one year from the purchase date and 1/48th per month thereafter if the holders remain employees of the Company. Under the terms of these agreements, the repurchase price is the original exercise price. As such, these shares are not deemed outstanding for accounting purposes until the repurchase rights lapse and a liability has been included on the balance sheets for an amount equal to the purchase price of the shares. These amounts will be reclassified to stockholders' equity as the repurchase rights lapse. In August 2008, the Company repurchased 75,000 of these restricted shares of common stock for $0.001 per share. As of December 31, 2008 and 2009, 53,958 and 6,458 of these restricted shares are still subject to repurchase. These restricted shares were no longer subject to repurchase as of September 30, 2010.

The Company determined the aggregate fair value of these restricted shares on the grant dates to be $362,000, as determined using the Black-Scholes option-pricing model. Stock-based compensation expense related to these shares was $95,000, $259,000, $151,000, $127,000, $138,000, $547,000 and $685,000 for the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010. These amounts are net of the amortization of the liability related to the restricted shares that are subject to repurchase of $21,000, $12,000, $12,000, $9,000, $2,000, $47,000 and $49,000 for the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010.

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(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

11. Net Loss per Share of Common Stock

The following table sets for the computation of the Company's basic and diluted net loss per share of common stock during the years ended December 31, 2007, 2008, 2009 and the nine months ended September 30, 2009 and 2010 (in thousands, except for share and per share amounts):

	Year Ended December 31,			Nine Months Ended September 30,	
	2007	2008	2009	2009	2010
				(Unaudited)	
Net loss	$ (9,630)	$ (20,662)	$ (20,119)	$ (16,422)	$ (10,821)
Shares used in computing net loss per share of common stock, basic and diluted	1,456,183	1,891,677	2,304,116	2,258,310	2,603,113
Net loss per share of common stock, basic and diluted	$ (6.61)	$ (10.92)	$ (8.73)	$ (7.27)	$ (4.16)

The following outstanding shares of common stock equivalents were excluded from the computation of diluted net loss per share of common stock for the periods presented because including them would have been antidilutive:

	Year Ended December 31,			Nine Months Ended September 30,	
	2007	2008	2009	2009	2010
				(Unaudited)	
Convertible preferred stock	8,446,581	13,501,125	28,530,146	13,501,125	28,607,248
Stock options to purchase common stock	1,157,500	1,955,000	2,662,500	2,672,500	7,571,440
Restricted shares of common stock subject to repurchase	936,874	470,624	173,125	247,499	—
Convertible preferred stock warrants	10,000	235,000	923,056	235,000	923,056

The above table does not include common stock equivalents related to the 2010 Convertible Notes or the 2010 Warrants.

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(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

The following table sets forth the computation of the Company's pro forma basic and diluted net loss per share of common stock during the year ended December 31, 2009 and the nine months ended September 30, 2010 (in thousands, except for share and per share amounts):

	Year Ended December 31, 2009	Nine Months Ended September 30, 2010 (Unaudited)
Net loss	$ (20,119)	$ (10,821)
Change in fair value of convertible preferred stock warrant liabilities	(71)	827
Net loss used in computing pro forma net loss per share of common stock, basic and diluted	$ (20,190)	$ (9,994)
Shares used in computing net loss per share of common stock, basic and diluted	2,304,116	2,603,113
Pro forma adjustments to reflect assumed conversion of convertible preferred stock	34,217,503	34,217,503
Shares used in computing pro forma net loss per share of common stock, basic and diluted	36,521,619	36,820,616
Pro forma net loss per share of common stock, basic and diluted	$ (0.55)	$ (0.27)

12. 401(k) Plan

The Company sponsors a 401(k) plan that stipulates that eligible employees can elect to contribute to the 401(k) plan, subject to certain limitations. Pursuant to the 401(k) plan, the Company makes a discretionary safe harbor profit-sharing contribution equal to 3% of the related compensation. Eligible employees are 100% vested in this safe harbor profit-sharing contribution regardless of whether they make salary deferrals into the 401(k) plan. Contributions were $33,000, $93,000, $133,000, $97,000, $78,000, $259,000 and $337,000 for the years ended December 31, 2007, 2008, 2009, the nine months ended September 30, 2009 and 2010, and the periods from July 13, 2005 (inception) through December 31, 2009 and September 30, 2010.

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(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

13. Income Taxes

The Company did not record a provision for income taxes for the years ended December 31, 2007, 2008 and 2009. Net deferred tax assets as of December 31, 2008 and 2009 consist of the following (in thousands):

	December 31,	
	2008	2009
Deferred tax assets:		
Accruals and other	$ 243	$ 296
Research credits	773	1,283
Net operating loss carryforward	13,246	21,070
Total deferred tax assets	14,262	22,649
Deferred tax liabilities:		
Unrealized gains or losses on investments	(25)	—
Total deferred tax liabilities	(25)	—
Gross deferred tax assets	14,237	22,649
Valuation allowance	(14,237)	(22,649)
Net deferred tax assets	$ —	$ —

Reconciliations of the statutory federal income tax to the Company's effective tax for the years ended December 31, 2007, 2008 and 2009 are as follows (in thousands):

	Year Ended December 31,		
	2007	2008	2009
Tax at statutory federal rate	$ (3,274)	$ (7,034)	$ (6,840)
State tax—net of federal benefit	(615)	(1,334)	(1,300)
Other	(70)	(263)	(272)
Change in valuation allowance	3,959	8,631	8,412
Provision (benefit) for income taxes	$ —	$ —	$ —

A valuation allowance is provided when it is more likely than not that the deferred tax assets will not be realized. The Company has established a valuation allowance to offset net deferred tax assets as of December 31, 2008 and 2009 due to the uncertainty of realizing future tax benefits from its net operating loss carryforwards and other deferred tax assets.

The valuation allowance increased by $4.0 million, $8.6 million and $8.4 million during the years ended December 31, 2007, 2008 and 2009.

As of December 31, 2009, the Company has federal net operating loss carryforwards of $52.9 million expiring beginning in 2025. As of December 31, 2009, the Company has state net operating loss carryforwards of $52.8 million, expiring beginning in 2017.

AcelRx Pharmaceuticals, Inc.
(A Development Stage Company)

Notes to Financial Statements—(Continued)

(Information pertaining to September 30, 2010, the nine months ended September 30, 2009 and 2010 and for the period from July 13, 2005 (Inception) through September 30, 2010 is unaudited)

As of December 31, 2009, the Company has federal research credit carryovers of $887,000 expiring beginning in 2026. As of December 31, 2009, the Company has state research credit carryovers of $599,000 which will carryforward indefinitely.

Internal Revenue Code section 382 places a limitation, or the Section 382 Limitation, on the amount of taxable income that can be offset by net operating carryforwards after a change in control (generally greater than 50% change in ownership) of a loss corporation. California has similar rules. The Company's capitalization described herein resulted in such a change. Generally, after a control change, a loss corporation cannot deduct operating loss carryforwards in excess of the Section 382 Limitation. Management has determined the impact such limitation may have on the utilization of its operating loss carryforwards against taxable income in future periods.

Uncertain Tax Positions

A reconciliation of the beginning and ending balances of the unrecognized tax benefits during the years ended December 31, 2007, 2008 and 2009 is as follows (in thousands):

	Year Ended December 31,		
	2007	2008	2009
Unrecognized benefit—beginning of period	$26	$ 96	$292
Gross increases—current period tax positions	70	196	203
Unrecognized benefit—end of period	$96	$292	$495

The entire amount of the unrecognized tax benefits would not impact our effective tax rate if recognized.

Accrued interest and penalties related to unrecognized tax benefits are classified as income tax expense and were immaterial. The Company files income tax returns in the United States and in California. The tax years 2005 through 2008 remain open in both jurisdictions. The Company is not currently under examination by income tax authorities in federal, state or other foreign jurisdictions.

14. Subsequent Events (unaudited)

Stock Option Modification

In December 2010, the Company's board of directors allowed all employees and non-employees to increase the exercise price of stock options granted to them on June 15, 2010 in light of the potential risk of adverse tax consequences under Internal Revenue Service Code Section 409A. Based on the elections by the optionees, 4,933,940 of the 5,266,440 options granted on June 15, 2010, including vested and unvested options, were modified such that the original exercise prices of $0.30 per share were increased to $0.64 per share. Accordingly, holders of options to purchase an aggregate 332,500 shares of common stock elected to leave their options unchanged. No other terms of the options were modified and there were no incremental stock-based compensation charges as a result of the re-pricing.

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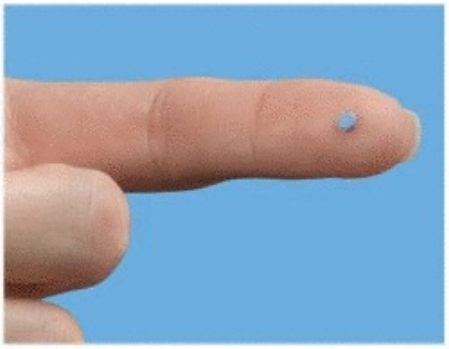
AcelRx Pharmaceuticals, Inc.

Sufentanil NanoTab



ARX-01
Sufentanil NanoTab PCA System

ARX-02
Sufentanil NanoTab BTP Management System

ARX-03
Sufentanil/Triazolam NanoTab

Accelerate. Innovate. Alleviate.

These product candidates have not been approved by the FDA. We have not generated any revenue from the sale of any of our product candidates.

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Shares

ACELRX PHARMACEUTICALS, INC.

Common Stock

PROSPECTUS

Until and including , 2011, all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

Sole Book-Running Manager

Piper Jaffray

Canaccord Genuity **Cowen and Company** **JMP Securities**

, 2011

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth the fees and expenses, other than underwriting discounts and commissions, payable in connection with the registration of the common stock hereunder. All amounts are estimates except the SEC registration fee, the FINRA filing fee and the NASDAQ Global Market listing fee.

SEC registration fee	$ 6,150
FINRA filing fee	9,125
NASDAQ Global Market listing fee	125,000
Blue sky fees and expenses	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees	*
Miscellaneous expenses	*
Total	$ *

* To be provided by amendment.

Item 14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law permits a corporation to include in its charter documents, and in agreements between the corporation and its directors and officers, provisions expanding the scope of indemnification beyond that specifically provided by the current law.

The Registrant's amended and restated certificate of incorporation provides for the indemnification of directors to the fullest extent permissible under Delaware law.

The Registrant's amended and restated bylaws provide for the indemnification of officers, directors and third parties acting on the Registrant's behalf if such persons act in good faith and in a manner reasonably believed to be in and not opposed to the Registrant's best interest, and, with respect to any criminal action or proceeding, such indemnified party had no reason to believe his or her conduct was unlawful.

The Registrant has entered into indemnification agreements with each of its directors and executive officers, in addition to the indemnification provisions provided for in its charter documents, and the Registrant intends to enter into indemnification agreements with any new directors and executive officers in the future.

The underwriting agreement (filed as Exhibit 1.1 hereto) will provide for indemnification by the underwriters of the Registrant, the Registrant's executive officers and directors, and indemnification of the underwriters by the Registrant for certain liabilities, including liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, in connection with matters specifically provided in writing by the underwriters for inclusion in the registration statement.

The Registrant intends to purchase and maintain insurance on behalf of any person who is or was a director or officer against any loss arising from any claim asserted against him or her and incurred by him or her in that capacity, subject to certain exclusions and limits of the amount of coverage.

Item 15. Recent Sales of Unregistered Securities

Since November 1, 2007, the Registrant has issued and sold the following unregistered securities:

(a) Issuances of Capital Stock

1. In February 2008, the Registrant issued and sold an aggregate of 5,054,544 shares of the Registrant's Series B convertible preferred stock to twelve (12) purchasers at $4.00 per share for an aggregate consideration of approximately $20.2 million. Upon completion of this offering, these shares of Series B convertible preferred stock will convert into 7,572,344 shares of the Registrant's common stock.
2. In December 2008, the Registrant issued 10,000 shares of its common stock to one (1) service provider as consideration for services provided to the Registrant.
3. In November 2009, the Registrant issued 15,029,021 shares of the Registrant's Series C convertible preferred stock to eight (8) purchasers at approximately $0.99 per share, for approximately $14.8 million. Upon completion of this offering, these shares of Series C convertible preferred stock will convert into 15,029,021 shares of the Registrant's common stock.
4. In January 2010, the Registrant issued 77,102 shares of the Registrant's Series C convertible preferred stock to two (2) purchasers at approximately $0.99 per share, for approximately $76,000. Upon completion of this offering, these shares of Series C convertible preferred stock will convert into 77,102 shares of the Registrant's common stock.
5. Between November 1, 2007 and November 12, 2010, the Registrant issued and sold an aggregate of 130,279 shares of its common stock to the Registrant's employees, consultants and directors at prices ranging from $0.30 to $1.38 per share pursuant to exercises of options granted under the Registrant's 2006 Stock Plan.

(b) Stock Option Grants and Warrant Issuances

6. Between November 1, 2007 and January 7, 2011, the Registrant granted stock options to purchase an aggregate of 7,596,440 shares of the Registrant's common stock at exercise prices ranging from $0.30 to $1.38 per share to a total of 40 employees, consultants and directors of the Registrant under the Registrant's 2006 Stock Plan, of which options to purchase 444,221 shares were cancelled without being exercised. On December 27, 2010, the Registrant amended options to purchase an aggregate of 4,933,940 shares of the Registrant's common stock originally granted to 15 employees on June 15, 2010 to increase the exercise price of these options from $0.30 per share to $0.64 per share.
7. In September 2008, in connection with its borrowing under a $12.0 million loan and security agreement, the Registrant issued a warrant to purchase up to an aggregate of 225,000 shares of the Registrant's Series B convertible preferred stock to the lender at an exercise price of $4.00 per share. Upon the initial closing of the Registrant's Series C convertible preferred stock financing in November 2009, the warrant became exercisable for 913,056 shares of the Registrant's Series C convertible preferred stock at an exercise price of approximately $0.99 per share. Upon completion of this offering, these warrants will become warrants to purchase 913,056 shares of the Registrant's common stock at an exercise price of approximately $0.99 per share.
8. In September 2010, in connection with a bridge loan financing, the Registrant granted warrants to purchase an aggregate of $2.0 million of its preferred stock to eight (8) purchasers. In connection with this offering, these warrants will become warrants to purchase 2,029,011 shares of the Registrant's Series C convertible preferred stock (convertible into 2,029,011 shares of the Registrant's common stock) at an exercise
price of approximately $0.99 per share. The warrants will be terminated in the event they are not exercised prior to the closing of this offering.

(c) Issuances of Convertible Promissory Notes

9. In September 2010, in connection with a bridge loan financing, the Registrant issued convertible promissory notes to eight (8) purchasers for an aggregate principal amount of $8.0 million. Upon completion of this offering, these convertible promissory notes will convert into shares of the Registrant's common stock at a conversion price equal to eighty percent (80%) of the price per share of the Registrant's common stock sold by the Registrant in the offering.

The issuances of securities described above in paragraphs 1 through 5 and 7 through 9 were exempt from registration under the Securities Act of 1933, as amended, or the Securities Act, in reliance on Section 4(2) of the Securities Act, and Regulation D promulgated thereunder, as transactions by an issuer not involving any public offering. The purchasers of the securities in these transactions represented that they were accredited investors and that they were acquiring the securities for investment only and not with a view toward the public sale or distribution thereof. Such purchasers received written disclosures that the securities had not been registered under the Securities Act, and that any resale must be made pursuant to a registration statement or an available exemption from registration. All purchasers either received adequate financial statement or non-financial statement information about the Registrant or had adequate access, through their relationship with the Registrant, to financial statement or non-financial statement information about the Registrant. The sale of these securities was made without general solicitation or advertising.

The issuance of securities described above in paragraph 6 was exempt from registration under the Securities Act, in reliance on Rule 701 of the Securities Act, pursuant to compensatory benefit plans or agreements approved by the Registrant's board of directors.

Item 16. Exhibits and Financial Statement Schedules

(a) Exhibits.

Exhibit Number	Description of the Document
1.1	Form of Underwriting Agreement.
3.1#	Amended and Restated Certificate of Incorporation of the Registrant, currently in effect.
3.2	Form of Amended and Restated Certificate of Incorporation of the Registrant to be effective upon the closing of this offering.
3.3#	Bylaws of the Registrant, currently in effect.
3.4	Form of Amended and Restated Bylaws of the Registrant to be effective upon the closing of this offering.
4.1	Reference is made to Exhibits 3.1 through 3.4.
4.2†	Specimen Common Stock Certificate of the Registrant.
4.3#	Amended and Restated Investor's Rights Agreement, among the Registrant and certain of its security holders, dated as of November 23, 2009.
4.4#	Warrant to Purchase Stock of the Registrant, issued to Wells Fargo Bank, N.A., dated March 15, 2007.
4.5#	Warrant to Purchase Preferred Stock of the Registrant, issued to Pinnacle Ventures II Equity Holdings, L.L.C., dated September 16, 2008.
4.6#	Form of Convertible Promissory Note, dated September 14, 2010.
4.7#	Form of Warrant to Purchase Preferred Stock, dated September 14, 2010.

Exhibit Number	Description of the Document
5.1†	Opinion of Cooley LLP.
10.1+	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers.
10.2+#	2006 Stock Plan, as amended.
10.3+#	Form of Notice of Stock Option and Stock Option Agreement under 2006 Stock Plan for executive officers.
10.4+	2011 Equity Incentive Plan.
10.5+	Forms of Stock Option Grant Notice, Stock Option Exercise Notice and Stock Option Agreement under 2011 Equity Incentive Plan.
10.6+	Form of Restricted Stock Unit Award Agreement under 2011 Equity Incentive Plan.
10.7+	2011 Employee Stock Purchase Plan.
10.8#	Lease Agreement, between Metropolitan Life Insurance Company and Registrant, dated January 2, 2007.
10.9#	Loan and Security Agreement between Registrant and Pinnacle Ventures, L.L.C., as agent for the Lenders (as defined therein) and the Lenders, dated September 16, 2008.
10.10#	Note and Warrant Purchase Agreement between Registrant and the Purchasers defined therein, dated September 14, 2010.
10.11+	Founder's Vesting Agreement between Registrant and Pamela Palmer, dated August 16, 2006.
10.12+	Founder's Vesting Agreement between Registrant and Thomas Schreck, dated August 16, 2006.
10.13+	Offer Letter between the Registrant and Thomas Schreck, dated August 15, 2006.
10.14+	Amended and Restated Offer Letter between the Registrant and Larry Hamel, dated December 31, 2010.
10.15+	Amended and Restated Offer Letter between the Registrant and Badri (Anil) Dasu, dated December 30, 2010.
10.16+	Amended and Restated Offer Letter between the Registrant and Pamela Palmer, dated December 29, 2010.
10.17+	Amended and Restated Offer Letter between the Registrant and Richard King, dated December 31, 2010.
10.18+	Amended and Restated Offer Letter between the Registrant and James Welch, dated December 29, 2010.
10.19+	Resignation Agreement, between the Registrant and Thomas Schreck, dated May 6, 2010.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2†	Consent of Cooley LLP (included in Exhibit 5.1).
24.1#	Power of Attorney (included on signature page to this registration statement).

† To be filed by amendment.
+ Indicates management contract or compensatory plan.
# Previously filed.

(b) Financial Statement Schedules

No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or the notes thereto.

Item 17. Undertakings

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933, as amended, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933, as amended, and will be governed by the final adjudication of such issue.

The Registrant hereby undertakes that:

(a) The Registrant will provide to the underwriters at the closing as specified in the underwriting agreement, certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

(b) For purposes of determining any liability under the Securities Act of 1933, as amended, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act of 1933, as amended, shall be deemed to be part of this registration statement as of the time it was declared effective.

(c) For the purpose of determining any liability under the Securities Act of 1933, as amended, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

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SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this Amendment No. 2 to the Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Redwood City, State of California, on the 7th day of January 2011.

ACELRX PHARMACEUTICALS, INC.

By: /s/ RICHARD A. KING
Richard A. King
President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Amendment No. 2 to the Registration Statement has been signed by the following persons in the capacities indicated.

Signature	Title	Date
/s/ RICHARD A. KING **Richard A. King**	President, Chief Executive Officer and Director (*Principal Executive Officer*)	January 7, 2011
/s/ JAMES H. WELCH **James H. Welch**	Chief Financial Officer *(Principal Accounting and Financial Officer)*	January 7, 2011
* **Stephen J. Hoffman**	Director	January 7, 2011
* **Guy P. Nohra**	Director	January 7, 2011
* **Pamela P. Palmer**	Director	January 7, 2011
* **Howard B. Rosen**	Director	January 7, 2011
* **Thomas A. Schreck**	Director	January 7, 2011
* **Mark Wan**	Director	January 7, 2011

*By /S/ RICHARD A. KING
Richard A. King
Attorney-in-Fact

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† To be filed by amendment.
+ Indicates management contract or compensatory plan.
# Previously filed.

Exhibit 1.1

[•] Shares[1]

ACELRX PHARMACEUTICALS, INC.

Common Stock

PURCHASE AGREEMENT

[•], 2011

PIPER JAFFRAY & CO.
As Representatives of the several
Underwriters named in Schedule I hereto
c/o Piper Jaffray & Co.
800 Nicollet Mall
Minneapolis, Minnesota 55402

Ladies and Gentlemen:

AcelRx Pharmaceuticals, Inc., a Delaware corporation (the ***"Company"***), proposes to sell to the several Underwriters named in Schedule I hereto (the ***"Underwriters"***) an aggregate of authorized but unissued **[•]** shares (the ***"Firm Shares"***) of Common Stock, $0.001 par value per share (the ***"Common Stock"***), of the Company. The Company has also granted to the several Underwriters an option to purchase up to **[•]** additional shares of Common Stock on the terms and for the purposes set forth in Section 3 hereof (the ***"Option Shares"***). The Firm Shares and any Option Shares purchased pursuant to this Purchase Agreement are herein collectively called the ***"Securities."***

The Company hereby confirms its agreement with respect to the sale of the Securities to the several Underwriters, for whom you are acting as representatives (the ***"Representatives"***).

1. ***Registration Statement and Prospectus***. A registration statement on Form S-1 (File No. 333-170594) (the ***"initial registration statement")*** with respect to the Securities, including a preliminary form of prospectus, has been prepared by the Company in conformity with the requirements of the Securities Act of 1933, as amended (the ***"Act"***), and the rules and regulations (***"Rules and Regulations"***) of the Securities and Exchange Commission (the ***"Commission"***) thereunder and has been filed with the Commission; one or more amendments to such registration statement have also been so prepared and have been, or will be, so filed; and, if the Company has elected to rely upon Rule 462(b) of the Rules and Regulations to increase the size of the offering

[1] Plus an option to purchase up to [•] additional shares to cover over-allotments.

registered under the Act, the Company will prepare and file with the Commission a registration statement with respect to such increase pursuant to Rule 462(b) (the ***"additional registration statement"***). Copies of such registration statements and amendments and each related preliminary prospectus have been delivered to you.

If the Company has elected not to rely upon Rule 430A of the Rules and Regulations, the Company has prepared and will promptly file an amendment to the registration statement and an amended prospectus. If the Company has elected to rely upon Rule 430A of the Rules and Regulations, it will prepare and file a prospectus pursuant to Rule 424(b) of the Rules and Regulations that discloses the information previously omitted from the prospectus in reliance upon Rule 430A (***"Rule 430A Information"***). ***"Original Registration Statement"*** as of any time means the initial registration statement, in the form then filed with the Commission, including all amendments to the initial registration statement as of such time, all information contained in the additional registration statement (if any) and then deemed to be a part of the initial registration statement pursuant to the General Instructions of Form S-1 and all information (if any) included in a prospectus then deemed to be a part of the initial registration statement pursuant to Rule 430C of the Rules and Regulations or retroactively deemed to be a part of the initial registration statement pursuant to Rule 430A(b) of the Rules and Regulations. ***"Rule 462(b) Registration Statement"*** as of any time means the additional registration statement in the form then filed with the Commission, including the contents of the Original Registration Statement incorporated by reference therein and including all information (if any) included in a prospectus then deemed to be a part of the additional registration statement pursuant to Rule 430C or retroactively deemed to be a part of the additional registration statement pursuant to Rule 430A(b). ***"Registration Statement"*** as of any time means the Original Registration Statement and any Rule 462(b) Registration Statement as of such time. For purposes of the foregoing definitions, information contained in a form of prospectus that is deemed retroactively to be a part of the Registration Statement pursuant to Rule 430A shall be considered to be included in the Registration Statement as of the time specified in Rule 430A. For purposes of this Agreement, ***"Effective Time"*** with respect to the Original Registration Statement or the Rule 462(b) Registration Statement means the date and time as of which such Registration Statement was declared effective by the Commission or has become effective upon filing pursuant to Rule 462(b). ***"Registration Statement"*** without reference to a time means the Registration Statement as of its Effective Time. ***"Statutory Prospectus"*** as of any time means the prospectus included in the Registration Statement immediately prior to that time, including any information in a prospectus deemed to be a part thereof pursuant to Rule 430A or 430C. For purposes of the preceding sentence, information contained in a form of prospectus that is deemed retroactively to be a part of the Registration Statement pursuant to Rule 430A shall be considered to be included in the Statutory Prospectus as of the actual time that form of prospectus is filed with the Commission pursuant to Rule 424(b) and not retroactively. ***"Prospectus"*** means the Statutory Prospectus that discloses the public offering price and other final terms of the Securities and the offering and otherwise satisfies Section 10(a) of the Act. ***"Preliminary Prospectus"*** as of any time means any Statutory Prospectus included in the Registration Statement prior to the time it becomes or became effective under the Act and any prospectus that omits Rule 430A Information. All references in this Agreement to the Registration Statement, any Preliminary Prospectus, the Prospectus or any amendment or supplement to any of the foregoing, shall be deemed to include the copy filed with the Commission pursuant to its Electronic Data Gathering, analysis and Retrieval System (***"EDGAR"***).

2. ***Representations and Warranties of the Company***.

(a) The Company represents and warrants to, and agrees with, the several Underwriters as follows:

(i) No order preventing or suspending the use of any Preliminary Prospectus has been issued by the Commission and the Preliminary Prospectus included in the Time of Sale Disclosure Package (as defined below), at the time of filing thereof or the time of first use within the meaning of the Rules and Regulations, complied in all material respects with the requirements of the Act and the Rules and Regulations and did not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; except that the foregoing shall not apply to statements in or omissions from any Preliminary Prospectus in reliance upon, and in conformity with, written information furnished to the Company by you, or by any Underwriter through you, specifically for use in the preparation thereof, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 6(f).

(ii) As of the time any part of each of the Original Registration Statement and the 462(b) Registration Statement (or any post-effective amendment thereto) became effective and at all other subsequent times until expiration of the Prospectus Delivery Period (as defined below), upon the filing or first use within the meaning of the Rules and Regulations of the Prospectus (or any supplement to the Prospectus) and at all other subsequent times until expiration of the Prospectus Delivery Period and at the First Closing Date and Second Closing Date, (A) the Registration Statement and the Prospectus (in each case, as so amended and/or supplemented) conformed or will conform in all material respects to the requirements of the Act and the Rules and Regulations, (B) the Registration Statement (as so amended) did not or will not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and (C) the Prospectus (as so supplemented) did not or will not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances in which they are or were made, not misleading; except that each of the foregoing shall not apply to statements in or omissions from any such document in reliance upon, and in conformity with, written information furnished to the Company by you, or by any Underwriter through you, specifically for use in the preparation thereof, it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 6(f). If the Registration Statement has been declared effective by the Commission, no stop order suspending the effectiveness of the Registration Statement has been issued, and no proceeding for that purpose has been initiated or communicated to the Company, or, to the Company's knowledge, threatened by the Commission.

(iii) Neither (A) the Issuer General Free Writing Prospectus(es) issued at or prior to the Time of Sale and set forth on Schedule II, the information on Schedule III, and the Statutory Prospectus as of the Time of Sale, all considered together (collectively, the ***"Time of Sale Disclosure Package"***), nor (B) any individual Issuer Limited-Use Free Writing Prospectus, when considered together with the Time of Sale Disclosure Package, includes or included as of the Time of Sale any untrue statement of a material fact or omit or omitted as of the Time of Sale to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The preceding sentence does not apply to statements in or omissions from any Statutory Prospectus or any Issuer Free Writing Prospectus based upon and in conformity with written information furnished to the Company by you or by any Underwriter through you specifically for use therein; it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 6(f). As used in this paragraph and elsewhere in this Agreement:

(1) ***"Time of Sale"*** means **[•]**:00 ****[a/p]**m (Eastern time) on the date of this Agreement.

(2) ***"Issuer Free Writing Prospectus"*** means any "issuer free writing prospectus," as defined in Rule 433 under the Act, relating to the Securities that (A) is required to be filed with the Commission by the Company, or (B) is exempt from filing pursuant to Rule 433(d)(5)(i) under the Act because it contains a description of the Securities or of the offering that does not reflect the final terms or pursuant to Rule 433(d)(8)(ii) because it is a "bona fide electronic road show," as defined in Rule 433 of the Rules and Regulations which is made available without restriction, in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company's records pursuant to Rule 433(g) under the Act.

(3) ***"Issuer General Free Writing Prospectus"*** means any Issuer Free Writing Prospectus that is intended for general distribution to prospective investors, as evidenced by its being specified in Schedule II to this Agreement.

(4) ***"Issuer Limited-Use Free Writing Prospectus"*** means any Issuer Free Writing Prospectus that is not an Issuer General Free Writing Prospectus.

(iv) (A) Each Issuer Free Writing Prospectus, as of its issue date and at all subsequent times through the completion of the public offer and sale of the Securities or until any earlier date that the Company notified or notifies the Representatives as described in Section 4(a)(iii)(B), did not, does not and will not include any information that conflicted, conflicts or will conflict with the information contained in the Registration Statement, any

Statutory Prospectus or the Prospectus. The foregoing sentence does not apply to statements in or omissions from any Issuer Free Writing Prospectus based upon and in conformity with written information furnished to the Company by you or by any Underwriter through you specifically for use therein; it being understood and agreed that the only such information furnished by any Underwriter consists of the information described as such in Section 6(f).

(B) (1) At the time of filing the Registration Statement and (2) at the date hereof, the Company was not and is not an "ineligible issuer," as defined in Rule 405 under the Act, including the Company in the preceding three years not having been convicted of a felony or misdemeanor or having been made the subject of a judicial or administrative decree or order as described in Rule 405 under the Act (without taking account of any determination by the Commission pursuant to Rule 405 that it is not necessary that the Company be considered an ineligible issuer), nor an "excluded issuer" as defined in Rule 164 under the Act.

(C) Each Issuer Free Writing Prospectus satisfied, as of its issue date and at all subsequent times through the completion of the public offer and sale of the Securities, all other conditions to use thereof as set forth in Rules 164 and 433 under the Act.

(v) The financial statements of the Company, together with the related notes, set forth in the Registration Statement, the Time of Sale Disclosure Package and Prospectus comply in all material respects with the requirements of the Act and fairly present, in all material respects, the financial condition of the Company as of the dates indicated and the results of operations and changes in cash flows for the periods therein specified in conformity with generally accepted accounting principles in the United States consistently applied throughout the periods involved (except in the case of unaudited financial statements, which are subject to normal year-end adjustments and do not contain certain footnotes as permitted by the applicable rules of the Commission); the supporting schedules included in the Registration Statement present fairly the information required to be stated therein; there are no non-GAAP financial measures (as such term is defined by the rules and regulations of the Commission) in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus; and, except as disclosed in the Time of Sale Disclosure Package and the Prospectus, there are no material off-balance sheet arrangements (as defined in Regulation S-K under the Act, Item 303(a)(4)(ii)) or any other relationships with unconsolidated entities or other persons, that may have a material current or, to the knowledge of the Company, material future effect on the Company's financial condition, results of operations, liquidity, capital expenditures, capital resources or significant components of revenue or expenses. No other financial statements or schedules are required to be included in the Registration Statement, the Time of Sale Disclosure Package or the Prospectus. Ernst & Young, which has expressed its opinion with respect to the financial statements and schedules filed as a part of the Registration Statement and included in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, is (x) an independent public accounting firm within the meaning of the Act

and the Rules and Regulations, (y) a registered public accounting firm (as defined in Section 2(a)(12) of the Sarbanes-Oxley Act of 2002 (the ***"Sarbanes-Oxley Act"***)) and (z) not in violation of the auditor independence requirements of the Sarbanes-Oxley Act.

(vi) The Company has been duly organized and is validly existing as a corporation in good standing under the laws of its jurisdiction of incorporation. The Company has full corporate power and authority to own its properties and conduct its business as currently being carried on and as described in the Registration Statement, the Time of Sale Disclosure Package and Prospectus, and is duly qualified to do business as a foreign corporation in good standing in each jurisdiction in which it owns or leases real property or in which the conduct of its business makes such qualification necessary and in which the failure to so qualify would have a material adverse effect upon the business, prospects, management, properties, operations, condition (financial or otherwise) or results of operations of the Company (***"Material Adverse Effect"***).

(vii) Except as contemplated in the Time of Sale Disclosure Package and in the Prospectus, subsequent to the respective dates as of which information is given in the Time of Sale Disclosure Package, the Company has not incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock; and there has not been any change in the capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise or conversion of outstanding options, warrants, rights or convertible securities), or any material change in the short-term or long-term debt, or any issuance of options, warrants, convertible securities or other rights to purchase the capital stock (except pursuant to equity compensation plans or arrangements described in the Time of Sale Disclosure Package and in the Prospectus) of the Company, or any material adverse change in the general affairs, condition (financial or otherwise), business, prospects, management, properties, operations or results of operations of the Company (***"Material Adverse Change"***) or any development which could reasonably be expected to result in any Material Adverse Change.

(viii) Except as set forth in the Time of Sale Disclosure Package and in the Prospectus, there is not pending, or to the knowledge of the Company, threatened or contemplated, any action, suit or proceeding (a) to which the Company is a party or (b) which has as the subject thereof any officer or director of the Company, any employee benefit plan sponsored by the Company or any property or assets owned or leased by the Company before or by any court or Governmental Authority (as defined below), or any arbitrator, which, individually or in the aggregate, would reasonably be expected to result in any Material Adverse Change, or would materially and adversely affect the ability of the Company to perform its obligations under this Agreement or which are otherwise material in the context of the sale of the Securities (except that the foregoing representation as to any non-employee outside director of the Company with respect to any pending action, suit or proceeding shall be to the knowledge of the Company). There are no current or, to the knowledge of the Company, pending, legal, governmental or regulatory actions, suits or proceedings (x) to which the Company is subject or (y) which has as the subject thereof any

officer or director of the Company, any employee plan sponsored by the Company or any property or assets owned or leased by the Company, that are required to be described in the Registration Statement, Time of Sale Disclosure Package and Prospectus by the Act or by the Rules and Regulations and that have not been so described (except that the foregoing representation as to any non-employee outside director of the Company shall be to the knowledge of the Company).

(ix) There are no statutes, regulations, contracts or documents that are required to be described in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus or required to be filed as exhibits to the Registration Statement by the Act or by the Rules and Regulations that have not been so described or filed.

(x) This Agreement has been duly authorized, executed and delivered by the Company, and constitutes a valid, legal and binding obligation of the Company, enforceable in accordance with its terms, except as rights to indemnity hereunder may be limited by federal or state securities laws and except as such enforceability may be limited by bankruptcy, insolvency, reorganization or similar laws affecting the rights of creditors generally and subject to general principles of equity. The execution, delivery and performance of this Agreement and the consummation of the transactions herein contemplated will not (A) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company pursuant to any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company is a party or by which the Company is bound or to which any of the property or assets of the Company is subject, (B) result in any violation of the provisions of the Company's charter or by-laws or (C) result in the violation of any law or statute or any judgment, order, rule, regulation or decree of any court or arbitrator or federal, state, local or foreign governmental agency or regulatory authority having jurisdiction over the Company or any of its properties or assets (each, a ***"Governmental Authority"***). No consent, approval, authorization or order of, or registration or filing with any Governmental Authority is required to be obtained or made by the Company for the execution, delivery and performance of this Agreement or for the consummation of the transactions contemplated hereby, including the issuance or sale of the Securities by the Company, except such as may be required under the Act , the rules of the Financial Industry Regulatory Authority (***"FINRA"***) or state securities or blue sky laws; and the Company has full corporate power and authority to enter into this Agreement and to consummate the transactions contemplated hereby, including the authorization, issuance and sale of the Securities as contemplated by this Agreement.

(xi) All of the issued and outstanding shares of capital stock of the Company, including the outstanding shares of Common Stock, are duly authorized and validly issued, fully paid and nonassessable, have been issued in compliance with all federal and state and foreign securities laws, were not issued in violation of or subject to any preemptive rights or other rights to subscribe for or purchase securities that have not been

waived or satisfied in writing (a copy of which has been delivered to counsel to the Representatives), and the holders thereof are not subject to personal liability by reason of being such holders; the Securities which may be sold hereunder by the Company have been duly authorized and, when issued, delivered and paid for in accordance with the terms of this Agreement, will have been validly issued and will be fully paid and nonassessable, and the holders thereof will not be subject to personal liability by reason of being such holders; and the capital stock of the Company, including the Common Stock, conforms to the description thereof in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus. Except as otherwise stated in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus, there are no preemptive rights or other rights to subscribe for or to purchase, or any restriction upon the voting or transfer of, any shares of Common Stock pursuant to the Company's charter, by-laws or any agreement or other instrument to which the Company is a party or by which the Company is bound. Except as disclosed in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus, neither the filing of the Registration Statement nor the offering or sale of the Securities as contemplated by this Agreement gives rise to any rights for or relating to the registration of any shares of Common Stock or other securities of the Company (collectively ***"Registration Rights"***), and any person to whom the Company has granted Registration Rights has agreed not to exercise such rights until after expiration of the Lock-Up Period (as defined below), or if such persons have not agreed to not exercise such right, such persons do not own, in the aggregate, sufficient number of shares of Common Stock to exercise such rights. Except as described in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus, there are no options, warrants, agreements, contracts or other rights in existence to purchase or acquire from the Company any shares of the capital stock of the Company. The Company has an authorized and outstanding capitalization as set forth in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus under the caption "Capitalization." The Common Stock (including the Securities) conforms in all material respects to the description thereof contained in the Time of Sale Disclosure Package and the Prospectus. The description of the Company's stock option, stock bonus and other stock plans or arrangements, and the options or other rights granted thereunder, set forth in the Time of Sale Disclosure Package and the Prospectus accurately and fairly presents the information required to be shown with respect to such plans, arrangements, options and rights.

(xii) The Company holds, and is operating in compliance in all material respects with, all franchises, grants, authorizations, licenses, permits, easements, consents, certificates and orders of any Governmental Authority or self-regulatory body required for the conduct of its business and, to the knowledge of the Company, all such franchises, grants, authorizations, licenses, permits, easements, consents, certifications and orders are valid and in full force and effect; and the Company has not received notice of any revocation or modification of any such franchise, grant, authorization, license, permit, easement, consent, certification or order or has reason to believe that any such franchise, grant, authorization, license, permit, easement, consent, certification or order will not be renewed in the ordinary course.

(xiii) The Company has good and marketable title to all property (whether real or personal) described in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus as being owned by it, in each case free and clear of all material liens, claims, security interests, other encumbrances or defects except such as are described in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus. The property held under lease by the Company is held by it under valid, subsisting and enforceable leases with only such exceptions with respect to any particular lease as do not interfere in any material respect with the conduct of the business of the Company.

(xiv) Except as described in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus, the Company owns, possesses, or can acquire on reasonable terms, all Intellectual Property necessary for the conduct of the Company's business as now conducted or as described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus to be conducted, except as such failure to own, possess, or acquire such rights would not result in a Material Adverse Effect. Furthermore, (A) to the knowledge of the Company, there is no infringement, misappropriation or violation by third parties of any such Intellectual Property, except as such infringement, misappropriation or violation would not result in a Material Adverse Effect; (B) there is no pending or, to the knowledge of the Company, threatened, action, suit, proceeding or claim by others challenging the Company's rights in or to any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such claim; (C) the Intellectual Property owned by the Company, and to the knowledge of the Company, the Intellectual Property licensed to the Company, has not been adjudged invalid or unenforceable, in whole or in part, and there is no pending or threatened action, suit, proceeding or claim by others challenging the validity or scope of any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such claim; (D) there is no pending or, to the knowledge of the Company, threatened action, suit, proceeding or claim by others that the Company infringes, misappropriates or otherwise violates any Intellectual Property or other proprietary rights of others, the Company has not received any written notice of such claim and the Company is unaware of any other fact which would form a reasonable basis for any such claim; and (E) to the knowledge of the Company, no employee of the Company is in or has ever been in violation of any term of any employment contract, patent disclosure agreement, invention assignment agreement, non-competition agreement, non-solicitation agreement, nondisclosure agreement or any restrictive covenant to or with a former employer where the basis of such violation relates to such employee's employment with the Company or actions undertaken by the employee while employed with the Company, except as such violation would not result in a Material Adverse Effect. ***"Intellectual Property"*** shall mean all patents, patent applications, trade and service marks, trade and service mark registrations, trade names, copyrights, licenses, inventions, trade secrets, domain names, technology, know-how and other intellectual property.

(xv) The Company is not in violation of its charter or by-laws, nor is the Company in material breach of or otherwise in default in any material respect of, and no

event has occurred which, with notice or lapse of time or both, would constitute such a default in the performance of any material obligation, agreement or condition contained in any bond, debenture, note, indenture, loan agreement or any other material contract, lease or other instrument to which it is subject or by which it may be bound, or to which any of the material property or assets of the Company is subject.

(xvi) The Company has duly and properly filed or caused to be filed with the U.S. Patent and Trademark Office (the "PTO") and applicable foreign and international patent authorities all patent applications owned by the Company (the "Company Patent Applications"). To the knowledge of the Company, the Company has complied with the PTO's duty of candor and disclosure for the Company Patent Applications and has made no material misrepresentation in the Company Patent Applications. To the knowledge of the Company, except as disclosed in the Time of Sale Disclosure Package and the Prospectus, the Company Patent Applications disclose patentable subject matters, and the Company has not been notified of any inventorship challenges nor has any interference been declared or provoked nor is any material fact known by the Company that would preclude the issuance of patents with respect to the Company Patent Applications or would render such patents invalid or unenforceable, except in each case as would not individually or in the aggregate have a Material Adverse Effect. To the knowledge of the Company, except as disclosed in the Time of Sale Disclosure Package and the Prospectus, no third party possesses rights to the Company's Intellectual Property that, if exercised, could enable such party to develop products competitive to those the Company intends to develop as described in each of the Time of Sale Disclosure Package and the Prospectus

(xvii) The Company has timely filed all federal, state, local and foreign income and franchise tax returns required to be filed, and are not in default in the payment of any taxes which were payable pursuant to said returns or any assessments with respect thereto, other than (A) those currently payable without penalty or interest, or (B) which the Company is contesting in good faith. There is no pending dispute with any taxing authority relating to any of such returns, and the Company has no knowledge of any proposed liability for any tax to be imposed upon the properties or assets of the Company for which there is not an adequate reserve reflected in the Company's financial statements included in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus.

(xviii) The Company has not distributed and will not distribute any prospectus or other offering material in connection with the offering and sale of the Securities other than any Preliminary Prospectus, the Time of Sale Disclosure Package or the Prospectus or other materials permitted by the Act to be distributed by the Company; *provided, however,* that, except as set forth on Schedule II, the Company has not made and will not make any offer relating to the Securities that would constitute a "free writing prospectus" as defined in Rule 405 under the Act, except in accordance with the provisions of Section 4(a)(xviii) of this Agreement.

(xix) The Securities have been approved for listing on The NASDAQ Global Market upon official notice of issuance and, on the date the Original Registration Statement became effective, the Company's Registration Statement on Form 8-A or other applicable form under the Securities Exchange Act of 1934, as amended (the ***"Exchange Act"***), became effective. Except as previously disclosed to counsel for the Underwriters or as set forth in the Time of Sale Disclosure Package and the Prospectus, there are no affiliations with members of the FINRA among the Company's officers or directors or, to the knowledge of the Company, any five percent or greater stockholders of the Company or any beneficial owner of the Company's unregistered equity securities that were acquired during the 180-day period immediately preceding the initial filing date of the Original Registration Statement.

(xx) The Company, directly or indirectly, does not own capital stock or other equity or ownership or proprietary interest in any corporation, partnership, association, trust or other entity.

(xxi) The Company maintains a system of internal accounting controls sufficient to provide reasonable assurances that (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles in the United States and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Except as disclosed in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus, the Company's internal control over financial reporting is effective and none of the Company, its board of directors and audit committee is aware of any "significant deficiencies" or "material weaknesses" (each as defined by the Public Company Accounting Oversight Board) in its internal control over financial reporting, or any fraud, whether or not material, that involves management or other employees of the Company who have a significant role in the Company's internal controls; and since the end of the latest audited fiscal year, there has been no change in the Company's internal control over financial reporting (whether or not remediated) that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting. The Company's board of directors has, subject to the exceptions, cure periods and the phase-in periods specified in the applicable NASDAQ Marketplace Rules (***"Exchange Rules"***) and the Exchange Act and rules and regulations of the Commission thereunder, validly appointed an audit committee to oversee internal accounting controls whose composition satisfies the applicable requirements of the Exchange Rules and the Company's board of directors and/or the audit committee has adopted a charter that satisfies the requirements of the Exchange Rules.

(xxii) Other than as contemplated by this Agreement, the Company has not incurred any liability for any finder's or broker's fee or agent's commission in connection with the execution and delivery of this Agreement or the consummation of the transactions contemplated hereby.

(xxiii) The Company carries, or is covered by, insurance from insurers with appropriately rated claims paying abilities in such amounts and covering such risks as is adequate for the conduct of its business and the value of its properties and as is customary for companies engaged in similar businesses in similar industries; all policies of insurance and any fidelity or surety bonds insuring the Company or its business, assets, employees, officers and directors are in full force and effect; the Company is in compliance with the terms of such policies and instruments in all material respects; there are no claims by the Company under any such policy or instrument as to which any insurance company is denying liability or defending under a reservation of rights clause; and the Company has no reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost that would not have a Material Adverse Effect.

(xxiv) The Company is not and, after giving effect to the offering and sale of the Securities, will not be an "investment company," as such term is defined in the Investment Company Act of 1940, as amended.

(xxv) The Company is in compliance with all applicable provisions of the Sarbanes-Oxley Act and the rules and regulations of the Commission thereunder.

(xxvi) The Company has established and maintains disclosure controls and procedures (as defined in Rules 13a-14 and 15d-14 under the Exchange Act) and such controls and procedures are effective in ensuring that material information relating to the Company is made known to the principal executive officer and the principal financial officer. The Company has utilized such controls and procedures in preparing and evaluating the disclosures in the Registration Statement, in the Time of Sale Disclosure Package and in the Prospectus.

(xxvii) Each of the Company, its officers, directors and current employees has not violated, and the Company's participation in the offering will not violate, and the Company has instituted and maintains policies and procedures designed to ensure continued compliance with, each of the following laws: (a) anti-bribery laws, including but not limited to, any applicable law, rule, or regulation of any locality, including but not limited to any law, rule, or regulation promulgated to implement the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, signed December 17, 1997, including the U.S. Foreign Corrupt Practices Act of 1977, as amended, or any other law, rule or regulation of similar purposes and scope, (b) anti-money laundering laws, including but not limited to, applicable federal, state, international, foreign or other laws, regulations or government guidance regarding anti-money laundering, including, without limitation, Title 18 US. Code section 1956 and 1957, the Patriot Act, the Bank Secrecy Act, and international anti-money laundering principles or procedures by an intergovernmental group or organization, such as the Financial Action Task Force on

Money Laundering, of which the United States is a member and with which designation the United States representative to the group or organization continues to concur, all as amended, and any Executive order, directive, or regulation pursuant to the authority of any of the foregoing, or any orders or licenses issued thereunder or (c) laws and regulations imposing U.S. economic sanctions measures, including, but not limited to, the International Emergency Economic Powers Act, the Trading with the Enemy Act, the United Nations Participation Act and the Syria Accountability and Lebanese Sovereignty Act, all as amended, and any Executive Order, directive, or regulation pursuant to the authority of any of the foregoing, including the regulations of the United States Treasury Department set forth under 31 CFR, Subtitle B, Chapter V, as amended, or any orders or licenses issued thereunder.

(xxviii) Neither the Company nor, to the knowledge of the Company, any director, officer or employee of the Company, is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury.

(xxix) To the knowledge of the Company, no transaction has occurred between or among the Company, on the one hand, and any of the Company's officers, directors or 5% stockholders or any affiliate or affiliates of any such officer, director or 5% stockholders that is required to be described under the Rules and Regulations that is not so described in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus. The Company has not, directly or indirectly, extended or maintained credit, or arranged for the extension of credit, or renewed an extension of credit, in the form of a personal loan to or for any of its directors or executive officers in violation of applicable laws, including Section 402 of the Sarbanes-Oxley Act.

(xxx) Except as disclosed in the Time of Disclosure Package and the Prospectus, the Company is not in violation of any statute, any rule, regulation, decision or order of any Governmental Authority or any court, domestic or foreign, relating to the use, disposal or release of hazardous or toxic substances or relating to the protection or restoration of the environment or human exposure to hazardous or toxic substances (collectively, ***"Environmental Laws"***), owns or operates any real property contaminated with any substance that is subject to any environmental laws, is liable for any off-site disposal or contamination pursuant to any environmental laws, or is subject to any claim relating to any environmental laws, which violation, contamination, liability or claim would individually or in the aggregate, have a Material Adverse Effect; and the Company is not aware of any pending investigation which could reasonably be expected to lead to such a claim.

(xxxi) The Company (A) is in compliance, in all material respects, with any and all applicable foreign, federal, state and local laws, rules, regulations, treaties, statutes and codes promulgated by any and all governmental authorities (including pursuant to the Occupational Health and Safety Act) relating to the protection of human

health and safety in the workplace (***"Occupational Laws"***); (B) has received all material permits, licenses or other approvals required of it under applicable Occupational Laws to conduct its business as currently conducted, except as would not reasonably be expected to result in a Material Adverse Effect; and (C) is in compliance, in all material respects, with all terms and conditions of such permit, license or approval. No action, proceeding, revocation proceeding, writ, injunction or claim is pending or, to the knowledge of the Company, threatened against the Company relating to Occupational Laws.

(xxxii) (i) To the knowledge of the Company, no "prohibited transaction" as defined under Section 406 of ERISA or Section 4975 of the Code and not exempt under ERISA Section 408 and the regulations and published interpretations thereunder has occurred with respect to any Employee Benefit Plan. At no time has the Company or any ERISA Affiliate maintained, sponsored, participated in, contributed to or has or had any liability or obligation in respect of any Employee Benefit Plan subject to Part 3 of Subtitle B of Title I of ERISA, Title IV of ERISA, or Section 412 of the Code or any "multiemployer plan" as defined in Section 3(37) of ERISA or any multiple employer plan for which the Company or any ERISA Affiliate has incurred or could reasonably be expected to incur any liability under Section 4063 or 4064 of ERISA. No Employee Benefit Plan provides or promises, or at any time provided or promised, retiree health, retiree life insurance, or other retiree welfare benefits except as may be required by the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended, or similar state law. Each Employee Benefit Plan is and has been operated in material compliance with its terms and all applicable laws, including but not limited to ERISA and the Code and, to the knowledge of the Company, no event has occurred (including a "reportable event" as such term is defined in Section 4043 of ERISA) and no condition exists that would subject the Company or any ERISA Affiliate to any material tax, fine, lien, penalty or liability imposed by ERISA, the Code or other applicable law. Each Employee Benefit Plan intended to be qualified under Code Section 401(a) is so qualified and has a favorable determination or opinion letter from the IRS upon which it can rely, and any such determination or opinion letter remains in effect and has not been revoked; to the knowledge of the Company, nothing has occurred since the date of any such determination or opinion letter that is reasonably likely to adversely affect such qualification; (ii) with respect to each Foreign Benefit Plan, such Foreign Benefit Plan (A) if intended to qualify for special tax treatment, meets, in all material respects, the requirements for such treatment, and (B) if required to be funded, is funded to the extent required by applicable law, and with respect to all other Foreign Benefit Plans, adequate reserves therefore have been established on the accounting statements of the applicable Company; (iii) the Company does not have any obligations under any collective bargaining agreement with any union and no organization efforts are underway with respect to Company employees. As used in this Agreement, ***"Code"*** means the Internal Revenue Code of 1986, as amended; ***"Employee Benefit Plan"*** means any "employee benefit plan" within the meaning of Section 3(3) of ERISA, including, without limitation, all stock purchase, stock option, stock-based severance, employment, change-in-control, medical, disability, fringe benefit, bonus, incentive, deferred compensation, employee loan and all other employee benefit plans, agreements, programs, policies or other

arrangements, whether or not subject to ERISA, under which (A) any current or former employee, director or independent contractor of the Company has any present or future right to benefits and which are contributed to, sponsored by or maintained by the Company or (B) the Company has any present or future obligation or liability; ***"ERISA"*** means the Employee Retirement Income Security Act of 1974, as amended; ***"ERISA Affiliate"*** means any member of the company's controlled group as defined in Code Section 414(b), (c), (m) or (o); and ***"Foreign Benefit Plan"*** means any Employee Benefit Plan established, maintained or contributed to outside of the United States of America or which covers any employee working or residing outside of the United States.

(xxxiii) Except as disclosed in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, the Company has not granted rights to develop, manufacture, produce, assemble, distribute, license, market or sell its product candidates to any other person and is not bound by any agreement that affects the exclusive right of the Company to develop, manufacture, produce, assemble, distribute, license, market or sell its products.

(xxxiv) No labor problem or dispute with the employees of the Company exists or is threatened or, to the knowledge of the Company, imminent, and the Company is not aware of any existing or imminent labor disturbance by the employees of any of its principal suppliers, contractors or customers, that would reasonably be expected to have a Material Adverse Effect.

(xxxv) Any third-party statistical and market-related data included in the Registration Statement, the Time of Sale Disclosure Package and the Prospectus are based on or derived from sources that the Company believes to be reliable and accurate in all material respects.

(xxxvi) There are no outstanding loans, advances (except normal advances for business expenses in the ordinary course of business) or guarantees or indebtedness, in each case made by or from the Company to or for the benefit of any of the officers or directors of the Company or any of the Company's stockholders, except as disclosed in the Time of Sale Disclosure Package and the Prospectus.

(xxxvii) Except as disclosed in the Time of Sale Disclosure Package and the Prospectus, the Company (i) does not have any material lending or other relationship with any bank or lending affiliate of any Underwriter and (ii) does not intend to use any of the proceeds from the sale of the Securities hereunder to repay any outstanding debt owed to any affiliate of any Underwriter.

(xxxviii) To the knowledge of the Company, and except as would not, individually or in the aggregate, have a Material Adverse Effect, the Company's manufacturing facilities and operations are in compliance with applicable regulations of the U.S. Food and Drug Administration (the "***FDA***"), including current Good Manufacturing Practices.

(xxxix)To the knowledge of the Company, the descriptions of the results of the studies, tests and trials contained in the Time of Sale Disclosure Package and the Prospectus are accurate in all material respects; there are no other studies or tests, the results of which could reasonably be expected to discredit or call into question the results described in the Time of Sale Disclosure Package and the Prospectus; and except with respect to clinical trial holds that have been lifted with respect to completed clinical trials previously conducted by the Company, the Company has not received any notice or correspondence from the FDA or any other governmental agency requiring the termination or suspension of any pre-clinical or clinical trials conducted by, or on behalf of, the Company or in which the Company has participated.

(xl) Except as would not, individually or in the aggregate, have a Material Adverse Effect, the Company is in compliance in all material respects with all applicable rules and regulations of the FDA, and all applicable U.S. and foreign laws, statutes, ordinances, rules or regulations.

(b) Any certificate signed by any officer of the Company and delivered to you or to counsel for the Underwriters shall be deemed a representation and warranty by the Company to each Underwriter as to the matters covered thereby.

3. ***Purchase, Sale and Delivery of Securities***.

(a) On the basis of the representations, warranties and agreements herein contained, but subject to the terms and conditions herein set forth, the Company agrees to issue and sell **[•]** Firm Shares, and each Underwriter agrees, severally and not jointly, to purchase from the Company the number of Firm Shares set forth opposite the name of such Underwriter in Schedule I hereto. The purchase price for each Firm Share shall be $ **[•]** per share. The obligation of each Underwriter to the Company shall be to purchase from the Company that number of Firm Shares (to be adjusted by the Representatives to avoid fractional shares) which represents the same proportion of the number of Firm Shares to be sold by the Company pursuant to this Agreement as the number of Firm Shares set forth opposite the name of such Underwriter in Schedule I hereto represents to the total number of Firm Shares to be purchased by all Underwriters pursuant to this Agreement. In making this Agreement, each Underwriter is contracting severally and not jointly; except as provided in paragraph (c) of this Section 3 and in Section 8 hereof, the agreement of each Underwriter is to purchase only the respective number of Firm Shares specified in Schedule I.

The Firm Shares will be delivered by the Company to you for the accounts of the several Underwriters against payment of the purchase price therefor by wire transfer of same day funds payable to the order of the Company, at the offices of Morgan, Lewis & Bockius LLP, Two Palo Alto Square, Palo Alto, CA 94306, or such other location as may be mutually acceptable, at 9:00 a.m. Eastern time on the third (or if the Securities are priced, as contemplated by Rule 15c6-1(c) under the Exchange Act, after 4:30 p.m. Eastern time, the fourth) full business day following

the date hereof, or at such other time and date as you and the Company determine pursuant to Rule 15c6-1(a) under the Exchange Act, such time and date of delivery being herein referred to as the ***"First Closing Date."*** If the Representatives so elect, delivery of the Firm Shares may be made by credit through full fast transfer to the accounts at The Depository Trust Company designated by the Representatives. Certificates representing the Firm Shares, in definitive form and in such denominations and registered in such names as you may request upon at least two business days' prior notice to the Company, or evidence of their issuance, will be made available for checking at a reasonable time preceding the First Closing Date at the offices of Morgan, Lewis & Bockius LLP, Two Palo Alto Square, Palo Alto, CA 94306, or such other location as may be mutually acceptable.

(b) On the basis of the representations, warranties and agreements herein contained, but subject to the terms and conditions herein set forth, the Company, with respect to **[•]** of the Option Shares, hereby grants to the several Underwriters an option to purchase all or any portion of the Option Shares at the same purchase price as the Firm Shares, for use solely in covering any over-allotments made by the Underwriters in the sale and distribution of the Firm Shares. The option granted hereunder may be exercised in whole or in part at any time (but not more than once) within 30 days after the effective date of this Agreement upon notice (confirmed in writing) by the Representatives to the Company setting forth the aggregate number of Option Shares as to which the several Underwriters are exercising the option, the names and denominations in which the certificates for the Option Shares are to be registered and the date and time, as determined by you, when the Option Shares are to be delivered, such time and date being herein referred to as the "Second Closing" and "Second Closing Date", respectively; provided, however, that the Second Closing Date shall not be earlier than the First Closing Date nor earlier than the second business day after the date on which the option shall have been exercised. If the option is exercised, the obligation of each Underwriter shall be to purchase from the Company up to an aggregate of **[•]** Option Shares. The number of Option Shares to be purchased by each Underwriter shall be the same percentage of the total number of Option Shares to be purchased by the several Underwriters as the number of Firm Shares to be purchased by such Underwriter is of the total number of Firm Shares to be purchased by the several Underwriters, as adjusted by the Representatives in such manner as the Representatives deem advisable to avoid fractional shares. No Option Shares shall be sold and delivered unless the Firm Shares previously have been, or simultaneously are, sold and delivered.

The Option Shares will be delivered by the Company to you for the accounts of the several Underwriters against payment of the purchase price therefor by wire transfer of same day funds payable to the order of the Company at the offices of Morgan, Lewis & Bockius LLP, Two Palo Alto Square, Palo Alto, CA 94306, or such other location as may be mutually acceptable at [9:00] a.m., Eastern time, on the Second Closing Date. If the Representatives so elect, delivery of the Option Shares may be made by credit through full fast transfer to the accounts at The Depository Trust Company designated by the Representatives. Certificates representing the Option Shares in definitive form and in such denominations and registered in such names as you have set forth in your notice of option exercise, or evidence of their issuance, will be made available for checking at a reasonable time preceding the Second Closing Date at the office of Morgan, Lewis & Bockius LLP, Two Palo Alto Square, Palo Alto, CA 94306, or such other location as may be mutually acceptable.

(c) It is understood that you, individually and not as Representatives of the several Underwriters, may (but shall not be obligated to) make payment to the Company on behalf of any Underwriter for the Securities to be purchased by such Underwriter. Any such payment by you shall not relieve any such Underwriter of any of its obligations hereunder. Nothing herein contained shall constitute any of the Underwriters an unincorporated association or partner with the Company.

4. ***Covenants***.

(a) The Company covenants and agrees with the several Underwriters as follows:

(i) If the Original Registration Statement has not already been declared effective by the Commission, the Company will use its best efforts to cause the Original Registration Statement and any post-effective amendments thereto to become effective as promptly as possible; the Company will notify you promptly of the time when the Original Registration Statement or any post-effective amendment to the Original Registration Statement has become effective or any supplement to the Prospectus has been filed and of any request by the Commission for any amendment or supplement to the Original Registration Statement or Prospectus or additional information; if the Company has elected to rely on Rule 430A of the Rules and Regulations, the Company will prepare and file a Prospectus containing the information omitted therefrom pursuant to Rule 430A of the Rules and Regulations with the Commission within the time period required by, and otherwise in accordance with the provisions of, Rules 424(b) and 430A of the Rules and Regulations; if the Company has elected to rely upon Rule 462(b) of the Rules and Regulations to increase the size of the offering registered under the Act and the Rule 462(b) Registration Statement has not yet been filed and become effective, the Company will prepare and file the Rule 462 Registration Statement with the Commission within the time period required by, and otherwise in accordance with the provisions of, Rule 462(b) and the Act; the Company will prepare and file with the Commission, promptly upon your request, any amendments or supplements to the Registration Statement or Prospectus that, based on the advice of counsel, may be necessary or advisable in connection with the distribution of the Securities by the Underwriters; and the Company will furnish the Representatives and counsel for the Underwriters a copy of any proposed amendment or supplement to the Registration Statement or Prospectus and will not file any amendment or supplement to the Registration Statement or Prospectus to which you shall reasonably object by notice to the Company after having been furnished a copy a reasonable time prior to the filing.

(ii) The Company will advise you, promptly after it shall receive notice or obtain knowledge thereof, of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement, or any post-effective amendment thereto or preventing or suspending the use of any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, of the suspension of the qualification of the Securities for offering or sale in any jurisdiction,

or of the initiation or threatening of any proceeding for any such purpose; and the Company will promptly use its best efforts to prevent the issuance of any stop order or to obtain its withdrawal if such a stop order should be issued. Additionally, the Company agrees that it shall comply with the provisions of Rules 424(b) and 430A, as applicable, under the Act and will use its reasonable efforts to confirm that any filings made by the Company under Rule 424(b), Rule 433 or Rule 462 were received in a timely manner by the Commission.

(iii) (A) Within the time during which a prospectus (assuming the absence of Rule 172) relating to the Securities is required to be delivered under the Act by any Underwriter or dealer (the "Prospectus Delivery Period"), the Company will use its best effort to comply with all requirements imposed upon it by the Act, as now and hereafter amended, and by the Rules and Regulations, as from time to time in force, so far as necessary to permit the continuance of sales of or dealings in the Securities as contemplated by the provisions hereof, the Time of Sale Disclosure Package and the Prospectus. If during such period any event occurs as a result of which the Prospectus (or if the Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) would include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during such period it is necessary to amend the Registration Statement or supplement the Prospectus (or if the Prospectus is not yet available to prospective investors, the Time of Sale Disclosure Package) to comply with the Act, the Company will promptly notify you and will amend the Registration Statement or supplement the Prospectus (or, if the Prospectus is not yet available to prospective purchasers, the Time of Sale Disclosure Package) (at the expense of the Company) so as to correct such statement or omission or effect such compliance.

(B) If at any time following issuance of an Issuer Free Writing Prospectus and through the Prospectus Delivery Period, there occurred or occurs an event or development as a result of which such Issuer Free Writing Prospectus conflicted or would conflict, during such time, with the information contained in the Registration Statement, any Statutory Prospectus or the Prospectus relating to the Securities or included or, during such time, would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances prevailing at that subsequent time, not misleading, the Company has promptly notified or promptly will notify the Representatives and has promptly amended or will promptly amend or supplement, at its own expense, such Issuer Free Writing Prospectus to eliminate or correct such conflict, untrue statement or omission.

(iv) The Company shall take or cause to be taken all necessary action to qualify the Securities for sale under the securities laws of such jurisdictions as you reasonably designate and to continue such qualifications in effect so long as required for the distribution of the Securities, except that the Company shall not be required in connection therewith to qualify as a foreign corporation or to execute a general consent to service of process in any state.

(v) The Company will furnish, at its own expense, to the Underwriters and counsel for the Underwriters copies of the Registration Statement (one of which will be signed and will include all consents and exhibits filed therewith), and to the Underwriters and any dealer each Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, any Issuer Free Writing Prospectus and all amendments and supplements to such documents, in each case as soon as available and in such quantities as you may from time to time reasonably request.

(vi) During a period of five years commencing with the date hereof, the Company will furnish to the Representatives, as the Representatives may from time to time reasonably request in writing, copies of all periodic and special reports furnished to the stockholders of the Company generally, and all public information, documents and reports filed with the Commission, FINRA or any securities exchange (other than any such information, documents and reports that are filed with the Commission electronically via EDGAR or any successor system).

(vii) The Company will make generally available to its security holders as soon as practicable, but in no event later than 15 months after the end of the Company's current fiscal quarter, an earnings statement (which need not be audited) covering a 12-month period beginning after the effective date of the Original Registration Statement (or if later the Rule 462(b) Registration Statement) that shall satisfy the provisions of Section 11(a) of the Act and Rule 158 of the Rules and Regulations.

(viii) The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is prevented from becoming effective under the provisions of Section 9(a) hereof or is terminated, will pay or cause to be paid (A) all expenses (including transfer taxes allocated to the respective transferees) incurred in connection with the delivery to the Underwriters of the Securities, (B) all expenses and fees (including, without limitation, fees and expenses of the Company's accountants and counsel but, except as otherwise provided below, not including fees of the Underwriters' counsel) in connection with the preparation, printing, filing, delivery, and shipping of the Registration Statement (including the financial statements therein and all amendments, schedules, and exhibits thereto), the Securities, each Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, any Issuer Free Writing Prospectus and any amendment thereof or supplement thereto, and the printing, delivery, and shipping of this Agreement and other underwriting documents, including Blue Sky Memoranda (covering the states and other applicable jurisdictions), (C) all filing fees and reasonable fees and disbursements of the Underwriters' counsel incurred in connection with the qualification of the Securities for offering and sale by the Underwriters or by dealers under the securities or blue sky laws of the states and other jurisdictions which you shall designate, (D) the fees and expenses of any transfer agent or registrar, (E) the filing fees and fees and disbursements of Underwriters' counsel incident to any required review and approval by FINRA of the terms of the sale of the Securities, which shall not exceed $40,000 in the aggregate, (F) listing fees, if any, (G) the cost and expenses of the Company relating to investor presentations or any "road show" undertaken in connection with marketing of the Securities, and (I) all other costs and

expenses of the Company incident to the performance of its obligations hereunder that are not otherwise specifically provided for herein. If the sale of the Firm Shares provided for herein is not consummated by reason of action by the Company pursuant to Section 9(a)(i) hereof which prevents this Agreement from becoming effective, if this Agreement is terminated by the Representatives pursuant to Section 9 hereof prior to the First Closing or if the sale of the Firm Shares provided for herein is not consummated by reason of any failure, refusal or inability on the part of the Company to perform any agreement on its or their part to be performed, or because any other condition of the Underwriters' obligations hereunder required to be fulfilled by the Company prior to the First Closing is not fulfilled, the Company will reimburse the several Underwriters for all out-of-pocket disbursements (including but not limited to fees and disbursements of counsel, printing expenses, travel expenses, postage, facsimile and telephone charges) incurred by the Underwriters in connection with their investigation, preparing to market and marketing the Securities or in contemplation of performing their obligations hereunder. Except as provided in this Section 4(a)(viii) and in Section 6 hereof, the Underwriters will pay all of their own costs and expenses, including, but not limited to, the fees and disbursements of Underwriters' counsel, stock transfer taxes, if any, on resale of any of the Securities by them, and any advertising expenses of the Underwriters in connection with any offers they may make.

(ix) The Company will apply the net proceeds from the sale of the Securities to be sold by it hereunder for the purposes set forth in the Time of Sale Disclosure Package and in the Prospectus and will file such reports with the Commission with respect to the sale of the Securities and the application of the proceeds therefrom as may be required in accordance with Rule 463 of the Rules and Regulations.

(x) The Company will not, without the prior written consent of Piper Jaffray & Co., from the date of execution of this Agreement and continuing to and including the date 180 days after the date of the Prospectus (the ***"Lock-Up Period"***), (A) offer, pledge, announce the intention to sell, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase or otherwise transfer or dispose of, directly or indirectly, any shares of Stock or any securities convertible into or exercisable or exchangeable for Common Stock or (B) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the Common Stock, whether any such transaction described in clause (A) or (B) above is to be settled by delivery of Common Stock or such other securities, in cash or otherwise, except (i) to the Underwriters pursuant to this Agreement; (ii) to one or more counterparties in connection with the consummation of any strategic partnership, joint venture, collaboration or other strategic transaction, or the acquisition or license of any business products or technology, provided that the total number of shares of Common Stock, including shares underlying convertible or exercisable securities, which may be issued pursuant to this subclause (ii) may not exceed an aggregate of **[•]** shares of Common Stock of the Company, (iii) pursuant to the exercise or conversion of any options, warrants, rights or convertible securities outstanding on the date hereof or (iv) pursuant to any equity compensation plans or arrangements described in the Time of Sale Disclosure Package and the Prospectus. For the avoidance of doubt, this Section 4(a)(x)

shall not apply to the filing by the Company of any registration statement under the Securities Act on Form S-8 in respect of any equity compensation plans or arrangements maintained or assumed by the Company, and nothing in this Section 4(a)(x) shall otherwise be deemed to prohibit or limit the Company's ability to effect any such registration. If (1) during the last 17 days of the Lock-Up Period, (a) the Company issues an earnings release, (b) the Company publicly announces material news or (c) a material event relating to the Company occurs; or (2) prior to the expiration of the Lock-Up Period, the Company announces that it will release earnings results during the 16-day period beginning on the last day of the Lock-Up Period, then the restrictions in this Agreement, unless otherwise waived by Piper Jaffray & Co. in writing, shall continue to apply until the expiration of the date that is 18 calendar days after the date on which (a) the Company issues the earnings release, (b) the Company publicly announces material news or (c) a material event relating to the Company occurs. The Company will provide the Representatives with prior notice of any such announcement (but not the substance of such announcement) that gives rise to the extension of the Lock-Up Period.

(xi) The Company has caused to be delivered to you prior to the date of this Agreement a letter, in the form of Exhibit A hereto (the ***"Lock-Up Agreement"***), from each of the Company's directors and officers and substantially all of the stockholders of the Company. The Company will enforce the terms of each Lock-Up Agreement, which such obligation will be satisfied solely by issuing stop-transfer instructions to the transfer agent for the Common Stock with respect to any transaction or contemplated transaction that would constitute a breach of or default under the applicable Lock-Up Agreement.

(xii) The Company has not taken and will not take, directly or indirectly, any action designed to or which might reasonably be expected to cause or result in, or which has constituted, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Securities, and has not effected any sales of Common Stock which are required to be disclosed in response to Item 701 of Regulation S-K under the Act which have not been so disclosed in the Registration Statement.

(xiii) The Company will not incur any liability for any finder's or broker's fee or agent's commission in connection with the execution and delivery of this Agreement or the consummation of the transactions contemplated hereby.

(xiv) During the Prospectus Delivery Period, the Company will file on a timely basis with the Commission such periodic and special reports as required by the Rules and Regulations.

(xv) During the one-year period from the date of this Agreement, the Company will maintain such controls and other procedures, including without limitation those required by Sections 302 and 906 of the Sarbanes-Oxley Act and the applicable regulations thereunder, that are designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is

recorded, processed, summarized and reported within the time periods specified in the Commission's rules and forms, including without limitation, controls and procedures designed to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its principal executive officer and its principal financial officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure, to ensure that material information relating to Company is made known to them by others within those entities.

(xvi) During the one-year period from the date of this Agreement, the Company will comply in all material respects with all applicable provisions of the Sarbanes-Oxley Act.

(xvii) The Company represents and agrees that, unless it obtains the prior written consent of Piper Jaffray & Co., and each Underwriter severally represents and agrees that, unless it obtains the prior written consent of the Company and Piper Jaffray & Co., it has not made and will not make any offer relating to the Securities that would constitute an "issuer free writing prospectus," as defined in Rule 433 under the Securities Act, or that would otherwise constitute a "free writing prospectus," as defined in Rule 405 under the Act, required to be filed with the Commission; provided that the prior written consent of the parties hereto shall be deemed to have been given in respect of the free writing prospectuses included in Schedule II. Any such free writing prospectus consented to by the Company and Piper Jaffray & Co. is hereinafter referred to as a ***"Permitted Free Writing Prospectus."*** The Company represents that it has treated or agrees that it will treat each Permitted Free Writing Prospectus as an "issuer free writing prospectus," as defined in Rule 433, and has complied and will comply with the requirements of Rules 164 and 433 applicable to any Permitted Free Writing Prospectus, including timely Commission filing where required, legending and record keeping. The Company represents that it has satisfied and agrees that it will satisfy the conditions in Rule 433 to avoid a requirement to file with the Commission any electronic road show.

5. ***Conditions of Underwriters' Obligations***. The obligations of the several Underwriters hereunder are subject to the accuracy, as of the date hereof and at each of the First Closing Date and the Second Closing Date (as if made at such Closing Date), of and compliance with all representations, warranties and agreements of the Company contained herein, to the performance by the Company and to the following additional conditions:

(a) The Registration Statement shall have become effective not later than 5:00 p.m., Eastern time, on the date of this Agreement, or such later time and date as you, as Representatives of the several Underwriters, shall approve and all filings required by Rules 424, 430A and 433 of the Rules and Regulations shall have been timely made (without reliance on Rule 424(b)(8) or Rule 164(b)); no stop order suspending the effectiveness of the Registration Statement or any part thereof or any amendment thereof, nor suspending or preventing the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus shall have been

issued; no proceedings for the issuance of such an order shall have been initiated or threatened; and any request of the Commission for additional information (to be included in the Registration Statement, the Time of Sale Disclosure Package, the Prospectus, any Issuer Free Writing Prospectus or otherwise) shall have been complied with to your satisfaction.

(b) The Representative shall not have advised the Company that (i) the Registration Statement or any amendment thereof or supplement thereto contains an untrue statement of a material fact which, based on the advice of counsel, is material or omits to state a material fact which, based on the advice of counsel, is required to be stated therein or necessary to make the statements therein not misleading, or (ii) the Time of Sale Disclosure Package or the Prospectus, or any amendment thereof or supplement thereto, or any Issuer Free Writing Prospectus contains an untrue statement of fact which, based on the advice of counsel, is material, or omits to state a fact which, based on the advice of counsel, is material and is required to be stated therein, or necessary to make the statements therein, in light of the circumstances under which they are made, not misleading.

(c) Except as contemplated in the Time of Sale Disclosure Package and in the Prospectus, subsequent to the respective dates as of which information is given in the Time of Sale Disclosure Package and the Prospectus, the Company shall have not incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock; and there shall not have been any change in the capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise or conversion of outstanding options, warrants, rights or convertible securities), or any material change in the short-term or long-term debt of the Company, or any issuance of options, warrants, convertible securities or other rights to purchase the capital stock of the Company except pursuant to equity compensation plans or arrangements described in the Time of Sale Disclosure Package and in the Prospectus, or any Material Adverse Change or any development that would result in a Material Adverse Change (whether or not arising in the ordinary course of business), that, in your judgment, makes it impractical or inadvisable to offer or deliver the Securities on the terms and in the manner contemplated in the Time of Sale Disclosure Package and in the Prospectus.

(d) On or after the Time of Sale (i) if applicable, no downgrading shall have occurred in the rating accorded the Company's debt securities or preferred stock by any "nationally recognized statistical organization," as that term is defined by the Commission for purposes of Rule 436(g)(2) under the Act, and (ii) no such organization shall have publicly announced that it has under surveillance or review, with possible negative implications, its rating of any of the Company's debt securities or preferred stock.

(e) On each Closing Date, there shall have been furnished to you, as Representatives of the several Underwriters, the opinion and negative assurance letter of Cooley LLP, corporate counsel for the Company, each dated such Closing Date and addressed to you in substantially the forms attached hereto as Exhibit B.

(f) On each Closing Date, there shall have been furnished to you, as Representatives of the several Underwriters, the opinion of McDonnell Boehnen Hulbert & Berghoff LLP, intellectual property counsel for the Company, dated such Closing Date and addressed to you in substantially the form attached hereto as Exhibit C.

(g) On each Closing Date, there shall have been furnished to you, as Representatives of the several Underwriters, the opinion of Cooley LLP, regulatory counsel for the Company, dated such Closing Date and addressed to you in substantially the form attached hereto as Exhibit D.

(h) On each Closing Date, there shall have been furnished to you, as Representatives of the several Underwriters, the opinion of Linda Judge, in-house counsel for the Company, dated such Closing Date and addressed to you in substantially the form attached hereto as Exhibit E.

(i)On each Closing Date, there shall have been furnished to you, as Representatives of the several Underwriters, such opinion or opinions from Morgan, Lewis & Bockius LLP, counsel for the several Underwriters, dated such Closing Date and addressed to you, with respect to the formation of the Company, the validity of the Securities, the Registration Statement, the Time of Sale Disclosure Package or the Prospectus and other related matters as you reasonably may request, and such counsel shall have received such papers and information as they request to enable them to pass upon such matters.

(j) On the date hereof and on each Closing Date you, as Representatives of the several Underwriters, shall have received a letter from Ernst & Young LLP, dated such date and addressed to you, confirming that it is an independent registered public accounting firm within the meaning of the Act and are in compliance with the applicable requirements relating to the qualifications of accountants under Rule 2-01 of Regulation S-X of the Commission, and stating, as of the date of such letter (or, with respect to matters involving changes or developments since the respective dates as of which specified financial information is given in the Time of Sale Disclosure Package, as of a date not prior to the date hereof or more than five days prior to the date of such letter), the conclusions and findings of said firm with respect to the financial information and other matters covered by its letter delivered to you concurrently with the execution of this Agreement, and the effect of the letter so to be delivered on such Closing Date shall be to confirm the conclusions and findings set forth in such prior letter.

(k) On each Closing Date, there shall have been furnished to you, as Representatives of the Underwriters, a certificate, dated such Closing Date and addressed to you, signed by the chief executive officer and by the chief financial officer of the Company, to the effect that:

(i) The representations and warranties of the Company in this Agreement are true and correct, in all material respects, as if made at and as of such Closing Date, and the Company has complied with all the agreements and satisfied all the conditions on its part to be performed or satisfied under this Agreement at or prior to such Closing Date;

(ii) No stop order or other order suspending the effectiveness of the Registration Statement or any part thereof or any amendment thereof or the qualification of the Securities for offering or sale, nor suspending or preventing the use of the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus, has been issued, and no proceeding for that purpose has been instituted or, to the best of their knowledge, is contemplated by the Commission or any state or regulatory body; and

(iii) The signers of said certificate have carefully examined the Registration Statement, the Time of Sale Disclosure Package and the Prospectus, and any amendments thereof or supplements thereto, and (A) each part of the Registration Statement and the Prospectus, and any amendments thereof or supplements thereto contain, and contained when such part of the Registration Statement, or any amendment thereof, became effective, all statements and information required to be included therein, the Registration Statement, or any amendment thereof, does not contain and did not contain when such part of the Registration Statement, or any amendment thereof, became effective, any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading, and the Prospectus, as amended or supplemented, does not include and did not include as of its date or the time of first use within the meaning of the Rules and Regulations, any untrue statement of material fact or omit to state and did not omit to state as of its date or the time of first use within the meaning of the rules and Regulations a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, (B) neither (1) the Time of Sale Disclosure Package nor (2) any individual Issuer Limited-Use Free Writing Prospectus, when considered together with the Time of Sale Disclosure Package, include, nor included as of the Time of Sale any untrue statement of a material fact or omits, or omitted as of the Time of Sale, to state any material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading, (C) since the Time of Sale there has occurred no event required to be set forth in an amended or supplemented prospectus which has not been so set forth, (D) subsequent to the respective dates as of which information is given in the Time of Sale Disclosure Package and in the Prospectus, the Company has not incurred any material liabilities or obligations, direct or contingent, or entered into any material transactions, not in the ordinary course of business, or declared or paid any dividends or made any distribution of any kind with respect to its capital stock, and except as disclosed in the Time of Sale Disclosure Package and in the Prospectus, there has not been any change in the capital stock (other than a change in the number of outstanding shares of Common Stock due to the issuance of shares upon the exercise or conversion of outstanding options, warrants, rights or convertible securities), or any material change in the short-term or long-term debt, or any issuance of options, warrants, convertible securities or other rights to purchase the capital stock, except pursuant to equity compensation plans or arrangements described in the Time of Sale Disclosure Package and in the Prospectus, of the Company, or any other Material Adverse Change or any development which could reasonably be

expected to result in any Material Adverse Change (whether or not arising in the ordinary course of business), and (E) except as stated in the Time of Sale Disclosure Package and in the Prospectus, there is not pending, or, to the knowledge of the Company, threatened or contemplated, any action, suit or proceeding to which the Company is a party before or by any court, Governmental Agency or any arbitrator, which could reasonably be expected to result in any Material Adverse Change.

(l) The Underwriters shall have received all of the Lock-Up Agreements referenced in Section 4.

(m) The Company shall have furnished to you and counsel for the Underwriters such additional documents, certificates and evidence as you or they may have reasonably requested.

(n) FINRA shall have raised no objection to the fairness and reasonableness of the underwriting terms and arrangements.

(o) The Securities to be delivered on such Closing Date will have been approved for listing on the NASDAQ Global Market, subject to official notice of issuance.

All such opinions, certificates, letters and other documents mentioned above and elsewhere in this Agreement will be in compliance with the provisions hereof only if they are satisfactory in form and substance to you and counsel for the Underwriters. The Company will furnish you with such conformed copies of such opinions, certificates, letters and other documents as you shall reasonably request.

6. ***Indemnification and Contribution***.

(a) The Company agrees to indemnify and hold harmless each Underwriter, its affiliates, directors and officers and each person, if any, who controls such Underwriter within the meaning of Section 15 of the Act or Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities, joint or several, to which such Underwriter may become subject, under the Act or otherwise (including in settlement of any litigation, or any investigation or proceeding by any governmental agency or body, commenced or threatened, if such settlement is effected with the written consent of the Company), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, including the 430A Information and any other information deemed to be a part of the Registration Statement at the time of effectiveness and at any subsequent time pursuant to the Rules and Regulations, if applicable, any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto, any Issuer Free Writing Prospectus or in any materials or information provided to investors by, or with the written approval of, the Company in connection with the marketing of the offering of the Common Stock (***"Marketing Materials"***), including any road show or investor presentations made to investors by the Company (whether in person or electronically), or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of

(other than in the case of the Registration Statement) the circumstances under which they are made, not misleading, and will reimburse each Underwriter for any legal or other expenses reasonably incurred by it in connection with preparing, investigating or defending against such loss, claim, damage, liability or action as such expenses are incurred; *provided, however,* that the Company will not be liable in any such case to the extent that any such loss, claim, damage, liability or action arises out of or is based upon an untrue statement or alleged untrue statement or omission or alleged omission made in the Registration Statement, any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, or any such amendment or supplement, any Issuer Free Writing Prospectus or in any Marketing Materials, in reliance upon and in conformity with written information furnished to the Company by you, or by any Underwriter through you, specifically for use in the preparation thereof; it being understood and agreed that the only information furnished by an Underwriter consists of the information described as such in Section 6(f).

(b) Each Underwriter will, severally and not jointly, indemnify and hold harmless the Company, its affiliates, directors and officers and each person, if any, who controls the Company within the meaning of Section 15 of the Act and Section 20 of the Exchange Act, from and against any losses, claims, damages or liabilities to which the Company may become subject, under the Act or otherwise (including in settlement of any litigation, or any investigation or proceeding by any governmental agency or body, commenced or threatened, if such settlement is effected with the written consent of such Underwriter), insofar as such losses, claims, damages or liabilities (or actions in respect thereof) arise out of or are based upon an untrue statement or alleged untrue statement of a material fact contained in the Registration Statement, any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, or any amendment or supplement thereto, or any Issuer Free Writing Prospectus or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of (other than in the case of the Registration Statement) the circumstances under which they are made, not misleading, in each case to the extent, but only to the extent, that such untrue statement or alleged untrue statement or omission or alleged omission was made in the Registration Statement, any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus, or any such amendment or supplement, or any Issuer Free Writing Prospectus in reliance upon and in conformity with written information furnished to the Company by you, or by such Underwriter through you, specifically for use in the preparation thereof (it being understood and agreed that the only information furnished by an Underwriter consists of the information described as such in Section 6 (f), and will reimburse the Company for any legal or other expenses reasonably incurred by the Company in connection with investigating or defending against any such loss, claim, damage, liability or action as such expenses are incurred.

(c) Promptly after receipt by an indemnified party under subsection (a), (b) or (c) above of notice of the commencement of any action, such indemnified party shall, if a claim in respect thereof is to be made against the indemnifying party under such subsection, notify the indemnifying party in writing of the commencement thereof; but the omission so to notify the indemnifying party shall not relieve the indemnifying party from any liability that it may have to any indemnified party except to the extent such indemnifying party has been materially prejudiced by such failure (through the forfeiture of substantive rights or defenses). In case any such action

shall be brought against any indemnified party, and it shall notify the indemnifying party of the commencement thereof, the indemnifying party shall be entitled to participate in, and, to the extent that it shall wish, jointly with any other indemnifying party similarly notified, to assume the defense thereof, with counsel satisfactory to such indemnified party, and after notice from the indemnifying party to such indemnified party of the indemnifying party's election so to assume the defense thereof, the indemnifying party shall not be liable to such indemnified party under such subsection for any legal or other expenses subsequently incurred by such indemnified party in connection with the defense thereof other than reasonable costs of investigation; provided, however, that if, in the sole judgment of the Representatives, it is advisable for the Underwriters to be represented as a group by separate counsel, the Representatives shall have the right to employ a single counsel (in addition to local counsel) to represent the Representatives and all Underwriters who may be subject to liability arising from any claim in respect of which indemnity may be sought by the Underwriters under subsection (a) or (b) of this Section 6, in which event the reasonable fees and expenses of such separate counsel shall be borne by the indemnifying party or parties and reimbursed to the Underwriters as incurred. An indemnifying party shall not be obligated under any settlement agreement relating to any action under this Section 6 to which it has not agreed in writing. In addition, no indemnifying party shall, without the prior written consent of the indemnified party (which consent shall not be unreasonably withheld or delayed, effect any settlement of any pending or threatened proceeding unless such settlement includes an unconditional release of such indemnified party for all liability on claims that are the subject matter of such proceeding and does not include a statement as to, or an admission of, fault, culpability or a failure to act by or on behalf of an indemnified party.

(d) If the indemnification provided for in this Section 6 is unavailable or insufficient to hold harmless an indemnified party under subsection (a) or (b) above, then each indemnifying party shall contribute to the amount paid or payable by such indemnified party as a result of the losses, claims, damages or liabilities referred to in subsection (a) or (b) above, (i) in such proportion as is appropriate to reflect the relative benefits received by the Company on the one hand and the Underwriters on the other from the offering of the Securities or (ii) if the allocation provided by clause (i) above is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company on the one hand and the Underwriters on the other in connection with the statements or omissions that resulted in such losses, claims, damages or liabilities, as well as any other relevant equitable considerations. The relative benefits received by the Company on the one hand and the Underwriters on the other shall be deemed to be in the same proportion as the total net proceeds from the offering (before deducting expenses) received by the Company bear to the total underwriting discounts and commissions received by the Underwriters, in each case as set forth in the table on the cover page of the Prospectus. The relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the Company or the Underwriters and the parties' relevant intent, knowledge, access to information and opportunity to correct or prevent such untrue statement or omission. The Company and the Underwriters agree that it would not be just and equitable if contributions pursuant to this subsection (d) were to be determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of

the equitable considerations referred to in the first sentence of this subsection (d). The amount paid by an indemnified party as a result of the losses, claims, damages or liabilities referred to in the first sentence of this subsection (d) shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in connection with preparing, investigating or defending against any action or claim which is the subject of this subsection (d). Notwithstanding the provisions of this subsection (d), in no event shall an Underwriter be required to contribute any amount in excess of the amount by which the total underwriting discounts and commissions received by such Underwriter with respect to the offering of the Securities exceeds the amount of any damages that such Underwriter has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. The Underwriters' obligations in this subsection (e) to contribute are several in proportion to their respective underwriting obligations and not joint.

(e) The obligations of the Company under this Section 6 shall be in addition to any liability which the Company may otherwise have and shall extend, upon the same terms and conditions, to each person, if any, who controls any Underwriter within the meaning of the Act; and the obligations of the Underwriters under this Section 6 shall be in addition to any liability that the respective Underwriters may otherwise have and shall extend, upon the same terms and conditions, to each director of the Company (including any person who, with his consent, is named in the Registration Statement as about to become a director of the Company), to each officer of the Company who has signed the Registration Statement and to each person, if any, who controls the Company within the meaning of the Act.

(f) The Underwriters severally confirm and the Company acknowledges that the statements with respect to the public offering of the Securities by the Underwriters regarding the names and corresponding share amounts set forth in the table of underwriters and paragraphs 2, 12 and 13 under the caption "Underwriting" in the Time of Sale Disclosure Package and in the Prospectus, are correct and constitute the only information concerning such Underwriters furnished in writing to the Company by or on behalf of the Underwriters specifically for inclusion in the Registration Statement, any Preliminary Prospectus, the Time of Sale Disclosure Package, the Prospectus or any Issuer Free Writing Prospectus.

7. ***Representations and Agreements to Survive Delivery*** . All representations, warranties, and agreements of the Company herein or in certificates delivered pursuant hereto, and the agreements of the several Underwriters and the Company contained in Section 6 hereof, shall remain operative and in full force and effect regardless of any investigation made by or on behalf of any Underwriter or any controlling person thereof, or the Company or any of its officers, directors, or controlling persons thereof, and shall survive delivery of, and payment for, the Securities to and by the Underwriters hereunder.

8. ***Substitution of Underwriters***.

(a) If any Underwriter or Underwriters shall fail to take up and pay for the amount of Firm Shares agreed by such Underwriter or Underwriters to be purchased hereunder, upon tender of such Firm Shares in accordance with the terms hereof, and the amount of Firm Shares not purchased does not aggregate more than 10% of the total amount of Firm Shares set forth in Schedule I hereto, the remaining Underwriters shall be obligated to take up and pay for (in proportion to their respective underwriting obligations hereunder as set forth in Schedule I hereto except as may otherwise be determined by you) the Firm Shares that the withdrawing or defaulting Underwriters agreed but failed to purchase.

(b) If any Underwriter or Underwriters shall fail to take up and pay for the amount of Firm Shares agreed by such Underwriter or Underwriters to be purchased hereunder, upon tender of such Firm Shares in accordance with the terms hereof, and the amount of Firm Shares not purchased aggregates more than 10% of the total amount of Firm Shares set forth in Schedule I hereto, and arrangements satisfactory to you for the purchase of such Firm Shares by other persons are not made within 36 hours thereafter, this Agreement shall terminate. In the event of any such termination the Company shall not be under any liability to any Underwriter (except to the extent provided in Section 6 hereof) nor shall any Underwriter (other than an Underwriter who shall have failed, otherwise than for some reason permitted under this Agreement, to purchase the amount of Firm Shares agreed by such Underwriter to be purchased hereunder) be under any liability to the Company (except to the extent provided in Section 6 hereof).

If Firm Shares to which a default relates are to be purchased by the non-defaulting Underwriters or by any other party or parties, the Representatives shall have the right to postpone the First Closing Date for not more than seven business days in order that the necessary changes in the Registration Statement, in the Time of Sale Disclosure Package, in the Prospectus or in any other documents, as well as any other arrangements, may be effected. As used herein, the term "Underwriter" includes any person substituted for an Underwriter under this Section 8.

9. ***Termination***.

(a) You, as Representatives of the several Underwriters, shall have the right to terminate this Agreement by giving notice as hereinafter specified at any time at or prior to the First Closing Date, and the option referred to in Section 3(b), if exercised, may be cancelled at any time prior to the Second Closing Date, if (i) the Company shall have failed, refused or been unable, at or prior to such Closing Date, to perform any agreement on its part to be performed hereunder, (ii) any other condition of the Underwriters' obligations hereunder is not fulfilled, (iii) trading on the NASDAQ Stock Market, New York Stock Exchange or the American Stock Exchange shall have been wholly suspended, (iv) minimum or maximum prices for trading shall have been fixed, or maximum ranges for prices for securities shall have been required, on the NASDAQ Stock Market, New York Stock Exchange or the American Stock Exchange, by such Exchange or by order of the Commission or any other Governmental Authority, (v) a banking moratorium shall have been declared by federal or state authorities, or (vi) there shall have occurred any outbreak or escalation of hostilities or any change in financial markets or any calamity or crisis that, in your judgment, is

material and adverse and makes it impractical or inadvisable to proceed with the completion of the sale of and payment for the Securities. Any such termination shall be without liability of any party to any other party except that the provisions of Section 4(a)(viii) and Section 6 hereof shall at all times be effective.

(b) If you elect to terminate this Agreement as provided in this Section, the Company shall be notified promptly by you by telephone, confirmed by letter.

10. ***Default by the Company***. If the Company shall fail at the First Closing Date to sell and deliver the number of Securities which it is obligated to sell hereunder, then this Agreement shall terminate without any liability on the part of any Underwriter or, except as provided in Section 4(a)(viii) and Section 6 hereof, any non-defaulting party.

No action taken pursuant to this Section shall relieve the Company so defaulting from liability, if any, in respect of such default.

11. ***Notices***. Except as otherwise provided herein, all communications hereunder shall be in writing and, if to the Underwriters, shall be mailed or delivered to the Representatives c/o Piper Jaffray & Co., 800 Nicollet Mall, Minneapolis, Minnesota 55402, except that notices given to an Underwriter pursuant to Section 6 hereof shall be sent to such Underwriter at the address stated in the Underwriters' Questionnaire furnished by such Underwriter in connection with this offering; if to the Company, shall be mailed or delivered to it at AcelRx Pharmaceuticals, Inc., 575 Chesapeake Drive, Redwood City, CA 94063 Attention: Chief Financial Officer, with a copy (which shall not constitute notice hereunder) to Cooley LLP, Five Palo Alto Square, 3000 El Camino Real, Palo Alto, California 94306-2155, Attention: Mark Weeks. Any party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose.

12. ***Persons Entitled to Benefit of Agreement***. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns and the controlling persons, officers and directors referred to in Section 6. Nothing in this Agreement is intended or shall be construed to give to any other person, firm or corporation any legal or equitable remedy or claim under or in respect of this Agreement or any provision herein contained. The term "successors and assigns" as herein used shall not include any purchaser, as such purchaser, of any of the Securities from any of the several Underwriters.

13. ***Absence of Fiduciary Relationship***. The Company acknowledges and agrees that: (a) the Representatives have been retained solely to act as an underwriter in connection with the sale of the Securities and that no fiduciary, advisory or agency relationship between the Company and the Representatives have been created in respect of any of the transactions contemplated by this Agreement, irrespective of whether the Representatives have advised or are advising the Company on other matters; (b) the price and other terms of the Securities set forth in this Agreement were established by the Company following discussions and arms-length negotiations with the Representatives and the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions

contemplated by this Agreement; (c) it has been advised that the Representatives and their affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and that the Representatives have no obligation to disclose such interest and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; (d) it has been advised that the Representatives are acting, in respect of the transactions contemplated by this Agreement, solely for the benefit of the Representatives and the other Underwriters, and not on behalf of the Company; (e) it, he or she waives to the fullest extent permitted by law, any claims it may have against the Representatives for breach of fiduciary duty or alleged breach of fiduciary duty in respect of any of the transactions contemplated by this Agreement and agrees that the Representatives shall have no liability (whether direct or indirect) to the Company in respect of such a fiduciary duty claim on behalf of or in right of the Company, including stockholders, employees or creditors of the Company.

14. ***Governing Law***. This Agreement shall be governed by and construed in accordance with the laws of the State of New York.

15. ***Counterparts***. This Agreement may be executed in one or more counterparts and, if executed in more than one counterpart, the executed counterparts shall each be deemed to be an original and all such counterparts shall together constitute one and the same instrument.

16. ***General Provisions.*** This Agreement constitutes the entire agreement of the parties to this Agreement and supersedes all prior written or oral and all contemporaneous oral agreements, understandings and negotiations with respect to the subject matter hereof. This Agreement may not be amended or modified unless in writing by all of the parties hereto, and no condition herein (express or implied) may be waived unless waived in writing by each party whom the condition is meant to benefit. The Section headings herein are for the convenience of the parties only and shall not affect the construction or interpretation of this Agreement.

[Signature Page Follows]

Please sign and return to the Company the enclosed duplicates of this letter whereupon this letter will become a binding agreement between the Company and the several Underwriters in accordance with its terms.

Very truly yours,

AcelRx Pharmaceuticals, Inc.

By _____

Name: Richard King
Title: Chief Executive Officer

Confirmed as of the date first above mentioned, on behalf of themselves and the other several Underwriters named in Schedule I hereto.

PIPER JAFFRAY & CO.

By _____

Managing Director

SCHEDULE I

Underwriter	Number of Firm Shares (1)
Total	

(1) The Underwriters may purchase up to an additional **[•]** Option Shares, to the extent the option described in Section 3(b) of the Agreement is exercised, in the proportions and in the manner described in the Agreement.

SCHEDULE II

Issuer General Free Writing Prospectuses

SCHEDULE III

Pricing Information

EXHIBIT A

Form of Lock-Up Agreement

EXHIBIT B

Form of Company Counsel Opinion and Negative Assurance Letter

EXHIBIT C

Form of IP Counsel Opinion

Exhibit D

Form of FDA Counsel Opinion

Exhibit E
In-House Counsel Opinion

Exhibit 3.2

AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF ACELRX PHARMACEUTICALS, INC.

AcelRx Pharmaceuticals, Inc., a corporation organized and existing under the General Corporation Law of the State of Delaware, does hereby certify:

FIRST: The name of this corporation is AcelRx Pharmaceuticals, Inc.

SECOND: The original Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on July 13, 2005, under the name "SuRx, Inc."

THIRD: The Certificate of Incorporation of this corporation shall be amended and restated to read in full as follows:

I.

The name of this corporation is AcelRx Pharmaceuticals, Inc.

II.

The address of the registered office of this corporation in the State of Delaware is 2711 Centerville Road, Suite 400, City of Wilmington, County of New Castle, and the name of the registered agent of this corporation in the State of Delaware at such address is CorpAmerica, Inc.

III.

The purpose of this corporation is to engage in any lawful act or activity for which a corporation may be organized under the Delaware General Corporation Law (the "***DGCL***").

IV.

A. This corporation is authorized to issue two classes of stock to be designated, respectively, " ***Common Stock***" and "***Preferred Stock***." The total number of shares which this corporation is authorized to issue is 110,000,000 shares. 100,000,000 shares shall be Common Stock, each having a par value of $0.001. 10,000,000 shares shall be Preferred Stock, each having a par value of $0.001.

B. The Preferred Stock may be issued from time to time in one or more series. The Board of Directors of this corporation (the "***Board of Directors***") is hereby expressly authorized to provide for the issue of all or any of the shares of the Preferred Stock in one or more series, and to fix the number of shares and to determine or alter for each such series, such voting powers, full or limited, or no voting powers, and such designation, preferences, and relative, participating, optional, or other rights and such qualifications, limitations, or restrictions thereof, as shall be stated and expressed in the resolution or resolutions adopted by the Board of Directors providing for the issuance of such shares and as may be permitted by the DGCL. The Board of Directors is also expressly authorized to increase or decrease the number of shares of any series

subsequent to the issuance of shares of that series, but not below the number of shares of such series then outstanding. In case the number of shares of any series shall be decreased in accordance with the foregoing sentence, the shares constituting such decrease shall resume the status that they had prior to the adoption of the resolution originally fixing the number of shares of such series. The number of authorized shares of Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the voting power of the stock of this corporation entitled to vote thereon, without a separate vote of the holders of the Preferred Stock, or of any series thereof, unless a vote of any such holders is required pursuant to the terms of any certificate of designation filed with respect to any series of Preferred Stock.

C. Each outstanding share of Common Stock shall entitle the holder thereof to one vote on each matter properly submitted to the stockholders of this corporation for their vote; *provided, however*, that, except as otherwise required by law, holders of Common Stock shall not be entitled to vote on any amendment to this Amended and Restated Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock) that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together as a class with the holders of one or more other such series, to vote thereon by law or pursuant to this Amended and Restated Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock).

V.

For the management of the business and for the conduct of the affairs of this corporation, and in further definition, limitation and regulation of the powers of this corporation, of its directors and of its stockholders or any class thereof, as the case may be, it is further provided that:

A.

1. MANAGEMENT OF BUSINESS

The management of the business and the conduct of the affairs of this corporation shall be vested in its Board of Directors. The number of directors which shall constitute the Board of Directors shall be fixed exclusively by resolutions adopted by a majority of the authorized number of directors constituting the Board of Directors.

2. BOARD OF DIRECTORS

Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, the directors shall be divided into three classes designated as Class I, Class II and Class III, respectively. The Board of Directors is authorized to assign members of the Board of Directors already in office to such classes at the time the classification becomes effective. At the first annual meeting of stockholders following the initial classification of the Board of Directors, the term of office of the Class I directors shall expire and Class I directors shall be elected for a full term of three years. At the second annual meeting of stockholders following such initial classification, the term of office of the Class II

directors shall expire and Class II directors shall be elected for a full term of three years. At the third annual meeting of stockholders following such initial classification, the term of office of the Class III directors shall expire and Class III directors shall be elected for a full term of three years. At each succeeding annual meeting of stockholders, directors shall be elected for a full term of three years to succeed the directors of the class whose terms expire at such annual meeting.

Notwithstanding the foregoing provisions of this section, each director shall serve until his successor is duly elected and qualified or until his earlier death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

3. REMOVAL OF DIRECTORS

a. Subject to the rights of any series of Preferred Stock to elect additional directors under specified circumstances, neither the Board of Directors nor any individual director may be removed without cause.

b. Subject to any limitation imposed by law, any individual director or directors may be removed with cause by the affirmative vote of the holders of at least 66 2/3% of the voting power of all then-outstanding shares of capital stock of this corporation entitled to vote generally at an election of directors, voting together as a single class.

4. VACANCIES

Subject to the rights of the holders of any series of Preferred Stock, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors, shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by the stockholders, except as otherwise provided by law, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the Board of Directors, and not by the stockholders. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified.

B.

1. BYLAW AMENDMENTS. Subject to the rights of the holders of any series of Preferred Stock that may be designated from time to time, the Board of Directors is expressly empowered to adopt, amend or repeal the Bylaws of this corporation. Any adoption, amendment or repeal of the Bylaws of this corporation by the Board of Directors shall require the approval of a majority of the authorized number of directors. The stockholders shall also have power to adopt, amend or repeal the Bylaws of this corporation; *provided, however,* that, in addition to any vote of the holders of any class or series of stock of this corporation required by law or by this Amended and Restated Certificate of Incorporation, such action by stockholders shall require the affirmative vote of the holders of at least 66 2/3% of the voting power of all of the

then-outstanding shares of the capital stock of this corporation entitled to vote generally in the election of directors, voting together as a single class.

2. The directors of this corporation need not be elected by written ballot unless the Bylaws so provide.

3. No action shall be taken by the stockholders of this corporation except at an annual or special meeting of stockholders called in accordance with the Bylaws. No action shall be taken by the stockholders of this corporation by written consent or electronic transmission.

4. Advance notice of stockholder nominations for the election of directors and of business to be brought by stockholders before any meeting of the stockholders of this corporation shall be given in the manner provided in the Bylaws of this corporation.

VI.

A. The liability of the directors for monetary damages shall be eliminated to the fullest extent under applicable law. If the DGCL is amended to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of this corporation shall be eliminated to the fullest extent permitted by the DGCL, as so amended.

B. Any repeal or modification of this Article VI shall be prospective and shall not affect the rights under this Article VI in effect at the time of the alleged occurrence of any act or omission to act giving rise to liability or indemnification.

VII.

A. This corporation reserves the right to amend, alter, change or repeal any provision contained in this Amended and Restated Certificate of Incorporation, in the manner now or hereafter prescribed by statute, except as provided in paragraph B of this Article VII, and all rights conferred upon the stockholders herein are granted subject to this reservation.

B. Notwithstanding any other provisions of this Amended and Restated Certificate of Incorporation or any provision of law which might otherwise permit a lesser vote or no vote, but in addition to any affirmative vote of the holders of any particular class or series of this corporation required by law or by this Amended and Restated Certificate of Incorporation or any certificate of designation filed with respect to a series of Preferred Stock, the affirmative vote of the holders of at least 66 2/3% of the voting power of all of the then-outstanding shares of capital stock of this corporation entitled to vote generally in the election of directors, voting together as a single class, shall be required to alter, amend or repeal Articles V, VI, and VII.

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FOURTH: This Amended and Restated Certificate of Incorporation has been duly adopted and approved by the Board of Directors of this corporation.

FIFTH: This Amended and Restated Certificate of Incorporation has been duly adopted in accordance with the provisions of Sections 242 and 245 of the DGCL by the Board of Directors and the stockholders of this corporation. This Amended and Restated Certificate of Incorporation was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the DGCL.

[Signature Page Follows]

IN WITNESS WHEREOF, AcelRx Pharmaceuticals, Inc., has caused this Amended and Restated Certificate of Incorporation to be signed by its President and Chief Executive Officer in Redwood City, California this ____day of _____, 2011, who affirms that the statements made herein are true and correct.

ACELRX PHARMACEUTICALS, INC.

By: _____

Richard A. King
President and Chief Executive Officer

Exhibit 3.4

AMENDED AND RESTATED BYLAWS

OF

ACELRX PHARMACEUTICALS, INC.
(A DELAWARE CORPORATION)

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(CONTINUED)

AMENDED AND RESTATED BYLAWS

OF

ACELRX PHARMACEUTICALS, INC.
(A DELAWARE CORPORATION)

ARTICLE I

OFFICES

Section 1. Registered Office. The registered office of the corporation in the State of Delaware shall be in the City of Wilmington, County of New Castle.

Section 2. Other Offices. The corporation shall also have and maintain an office or principal place of business at such place as may be fixed by the Board of Directors, and may also have offices at such other places, both within and without the State of Delaware as the Board of Directors may from time to time determine or the business of the corporation may require.

ARTICLE II

CORPORATE SEAL

Section 3. Corporate Seal. The Board of Directors may adopt a corporate seal. The corporate seal shall consist of a die bearing the name of the corporation and the inscription, "Corporate Seal-Delaware." Said seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

ARTICLE III

STOCKHOLDERS' MEETINGS

Section 4. Place Of Meetings. Meetings of the stockholders of the corporation may be held at such place, either within or without the State of Delaware, as may be determined from time to time by the Board of Directors. The Board of Directors may, in its sole discretion, determine that the meeting shall not be held at any place, but may instead be held solely by means of remote communication as provided under the Delaware General Corporation Law (the "DGCL").

Section 5. Annual Meetings.

(a) The annual meeting of the stockholders of the corporation, for the purpose of election of directors and for such other business as may properly come before it, shall be held on such date and at such time as may be designated from time to time by the Board of Directors. Nominations of persons for election to the Board of Directors of the corporation and the proposal

of business to be considered by the stockholders may be made at an annual meeting of stockholders: (i) pursuant to the corporation's notice of meeting of stockholders (with respect to business other than nominations); (ii) brought specifically by or at the direction of the Board of Directors; or (iii) by any stockholder of the corporation who was a stockholder of record at the time of giving the stockholder's notice provided for in Section 5(b) below, who is entitled to vote at the meeting and who complied with the notice procedures set forth in Section 5. For the avoidance of doubt, clause (iii) above shall be the exclusive means for a stockholder to make nominations and submit other business (other than matters properly included in the corporation's notice of meeting of stockholders and proxy statement under Rule 14a-8 under the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (the "1934 Act")) before an annual meeting of stockholders.

(b) At an annual meeting of the stockholders, only such business shall be conducted as is a proper matter for stockholder action under Delaware law and as shall have been properly brought before the meeting.

(i) For nominations for the election to the Board of Directors to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Amended and Restated Bylaws (the "Bylaws"), the stockholder must deliver written notice to the Secretary at the principal executive offices of the corporation on a timely basis as set forth in Section 5(b)(iii) and must update and supplement such written notice on a timely basis as set forth in Section 5(c). Such stockholder's notice shall set forth: (A) as to each nominee such stockholder proposes to nominate at the meeting: (1) the name, age, business address and residence address of such nominee, (2) the principal occupation or employment of such nominee, (3) the class and number of shares of each class of capital stock of the corporation which are owned of record and beneficially by such nominee, (4) the date or dates on which such shares were acquired and the investment intent of such acquisition, (5) a statement whether such nominee, if elected, intends to tender, promptly following such person's failure to receive the required vote for election or re-election at the next meeting at which such person would face election or re-election**,** an irrevocable resignation effective upon acceptance of such resignation by the Board of Directors, and (6) such other information concerning such nominee as would be required to be disclosed in a proxy statement soliciting proxies for the election of such nominee as a director in an election contest (even if an election contest is not involved), or that is otherwise required to be disclosed pursuant to Section 14 of the 1934 Act and the rules and regulations promulgated thereunder (including such person's written consent to being named as a nominee and to serving as a director if elected); and (B) the information required by Section 5(b)(iv). The corporation may require any proposed nominee to furnish such other information as it may reasonably require to determine the eligibility of such proposed nominee to serve as an independent director of the corporation or that could be material to a reasonable stockholder's understanding of the independence, or lack thereof, of such proposed nominee.

(ii) Other than proposals sought to be included in the corporation's proxy materials pursuant to Rule 14(a)-8 under the 1934 Act, for business other than nominations for the election to the Board of Directors to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Bylaws, the stockholder must deliver written notice to the Secretary at the principal executive offices of the corporation

on a timely basis as set forth in Section 5(b)(iii), and must update and supplement such written notice on a timely basis as set forth in Section 5(c). Such stockholder's notice shall set forth: (A) as to each matter such stockholder proposes to bring before the meeting, a brief description of the business desired to be brought before the meeting, the reasons for conducting such business at the meeting, and any material interest (including any anticipated benefit of such business to any Proponent (as defined below) other than solely as a result of its ownership of the corporation's capital stock, that is material to any Proponent individually, or to the Proponents in the aggregate) in such business of any Proponent; and (B) the information required by Section 5(b)(iv).

(iii) To be timely, the written notice required by Section 5(b)(i) or 5(b)(ii) must be received by the Secretary at the principal executive offices of the corporation not later than the close of business on the ninetieth (90th) day nor earlier than the close of business on the one hundred twentieth (120th) day prior to the first anniversary of the preceding year's annual meeting; *provided, however,* that, subject to the last sentence of this Section 5(b)(iii), in the event that the date of the annual meeting is advanced more than thirty (30) days prior to or delayed by more than thirty (30) days after the anniversary of the preceding year's annual meeting, notice by the stockholder to be timely must be so received not earlier than the close of business on the **o**ne hundred twentieth (120th) day prior to such annual meeting and not later than the close of business on the later of the ninetieth (90th**)** day prior to such annual meeting or the tenth (10th) day following the day on which public announcement of the date of such meeting is first made. In no event shall an adjournment or a postponement of an annual meeting for which notice has been given, or the public announcement thereof has been made, commence a new time period for the giving of a stockholder's notice as described above.

(iv) The written notice required by Section 5(b)(i) or 5(b)(ii) shall also set forth, as of the date of the notice and as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made (each, a "Proponent" and collectively, the "Proponents"): (A) the name and address of each Proponent, as they appear on the corporation's books; (B) the class, series and number of shares of the corporation that are owned beneficially and of record by each Proponent; (C) a description of any agreement, arrangement or understanding (whether oral or in writing) with respect to such nomination or proposal between or among any Proponent and any of its affiliates or associates, and any others (including their names) acting in concert, or otherwise under the agreement, arrangement or understanding, with any of the foregoing; (D) a representation that the Proponents are holders of record or beneficial owners, as the case may be, of shares of the corporation entitled to vote at the meeting and intend to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice (with respect to a notice under Section 5(b)(i)) or to propose the business that is specified in the notice (with respect to a notice under Section 5(b)(ii)); (E) a representation as to whether the Proponents intend to deliver a proxy statement and form of proxy to holders of a sufficient number of holders of the corporation's voting shares to elect such nominee or nominees (with respect to a notice under Section 5(b)(i)) or to carry such proposal (with respect to a notice under Section 5(b)(ii)); (F) to the extent known by any Proponent, the name and address of any other stockholder supporting the proposal on the date of such stockholder's notice; and (G) a description of all Derivative Transactions (as defined below) by each Proponent during the previous twelve (12) month period, including the date of the

transactions and the class, series and number of securities involved in, and the material economic terms of, such Derivative Transactions.

For purposes of Sections 5 and 6, a "Derivative Transaction" means any agreement, arrangement, interest or understanding entered into by, or on behalf or for the benefit of, any Proponent or any of its affiliates or associates, whether record or beneficial:

(w) the value of which is derived in whole or in part from the value of any class or series of shares or other securities of the corporation,

(x) which otherwise provides any direct or indirect opportunity to gain or share in any gain derived from a change in the value of securities of the corporation,

(y) the effect or intent of which is to mitigate loss, manage risk or benefit of security value or price changes, or

(z) which provides the right to vote or increase or decrease the voting power of, such Proponent, or any of its affiliates or associates, with respect to any securities of the corporation,

which agreement, arrangement, interest or understanding may include, without limitation, any option, warrant, debt position, note, bond, convertible security, swap, stock appreciation right, short position, profit interest, hedge, right to dividends, voting agreement, performance-related fee or arrangement to borrow or lend shares (whether or not subject to payment, settlement, exercise or conversion in any such class or series), and any proportionate interest of such Proponent in the securities of the corporation held by any general or limited partnership, or any limited liability company, of which such Proponent is, directly or indirectly, a general partner or managing member.

(c) A stockholder providing written notice required by Section 5(b)(i) or (ii) shall update and supplement such notice in writing, if necessary, so that the information provided or required to be provided in such notice is true and correct in all material respects as of (i) the record date for the meeting and (ii) the date that is five (5) business days prior to the meeting and, in the event of any adjournment or postponement thereof, five (5) business days prior to such adjourned or postponed meeting. In the case of an update and supplement pursuant to clause (i) of this Section 5(c), such update and supplement shall be received by the Secretary at the principal executive offices of the corporation not later than five (5) business days after the record date for the meeting. In the case of an update and supplement pursuant to clause (ii) of this Section 5(c), such update and supplement shall be received by the Secretary at the principal executive offices of the corporation not later than two (2) business days prior to the date for the meeting, and, in the event of any adjournment or postponement thereof, two (2) business days prior to such adjourned or postponed meeting.

(d) Notwithstanding anything in Section 5(b)(iii) to the contrary, in the event that the number of directors in an Expiring Class is increased and there is no public announcement of the appointment of a director to such class, or, if no appointment was made, of the vacancy in such class, made by the corporation at least ten (10) days before the last day a

stockholder may deliver a notice of nomination in accordance with Section 5(b)(iii), a stockholder's notice required by this Section 5 and which complies with the requirements in Section 5(b)(i), other than the timing requirements in Section 5(b)(iii), shall also be considered timely, but only with respect to nominees for any new positions in such Expiring Class created by such increase, if it shall be received by the Secretary at the principal executive offices of the corporation not later than the close of business on the tenth (10th) day following the day on which such public announcement is first made by the corporation. For purposes of this section, an "Expiring Class" shall mean a class of directors whose term shall expire at the next annual meeting of stockholders.

(e) A person shall not be eligible for election or re-election as a director unless the person is nominated either in accordance with clause (ii) of Section 5(a), or in accordance with clause (iii) of Section 5(a). Except as otherwise required by law, the chairman of the meeting shall have the power and duty to determine whether a nomination or any business proposed to be brought before the meeting was made, or proposed, as the case may be, in accordance with the procedures set forth in these Bylaws and, if any proposed nomination or business is not in compliance with these Bylaws, or the Proponent does not act in accordance with the representations in Sections 5(b)(iv)(D) and 5(b)(iv)(E), to declare that such proposal or nomination shall not be presented for stockholder action at the meeting and shall be disregarded, notwithstanding that proxies in respect of such nominations or such business may have been solicited or received.

(f) Notwithstanding the foregoing provisions of this Section 5, in order to include information with respect to a stockholder proposal in the proxy statement and form of proxy for a stockholders' meeting, a stockholder must also comply with all applicable requirements of the 1934 Act and the rules and regulations thereunder. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the corporation's proxy statement pursuant to Rule 14a-8 under the 1934 Act; *provided, however,* that any references in these Bylaws to the 1934 Act or the rules and regulations thereunder are not intended to and shall not limit the requirements applicable to proposals and/or nominations to be considered pursuant to Section 5(a)(iii) of these Bylaws.

(g) For purposes of Sections 5 and 6,

(i) "public announcement" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or comparable national news service or in a document publicly filed by the corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the 1934 Act; and

(ii) "affiliates" and "associates" shall have the meanings set forth in Rule 405 under the Securities Act of 1933, as amended (the "1933 Act").

Section 6. Special Meetings.

(a) Special meetings of the stockholders of the corporation may be called, for any purpose as is a proper matter for stockholder action under Delaware law, only by (i) the Chairman of the Board of Directors, (ii) the Chief Executive Officer, or (iii) the Board of

Directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exist any vacancies in previously authorized directorships at the time any such resolution is presented to the Board of Directors for adoption).

(b) The Board of Directors shall determine the time and place, if any, of such special meeting. Upon determination of the time and place, if any, of the meeting, the Secretary shall cause a notice of meeting to be given to the stockholders entitled to vote, in accordance with the provisions of Section 7 of these Bylaws. No business may be transacted at such special meeting otherwise than specified in the notice of meeting.

(c) Nominations of persons for election to the Board of Directors may be made at a special meeting of stockholders at which directors are to be elected (i) by or at the direction of the Board of Directors or (ii) by any stockholder of the corporation who is a stockholder of record at the time of giving notice provided for in this paragraph, who shall be entitled to vote at the meeting and who delivers written notice to the Secretary of the corporation setting forth the information required by Section 5(b)(i). In the event the corporation calls a special meeting of stockholders for the purpose of electing one or more directors to the Board of Directors, any such stockholder of record may nominate a person or persons (as the case may be), for election to such position(s) as specified in the corporation's notice of meeting, if written notice setting forth the information required by Section 5(b)(i) of these Bylaws shall be received by the Secretary at the principal executive offices of the corporation not later than the close of business on the later of the ninetieth (90th) day prior to such meeting or the tenth (10th) day following the day on which public announcement is first made of the date of the special meeting and of the nominees proposed by the Board of Directors to be elected at such meeting. The stockholder shall also update and supplement such information as required under Section 5(c). In no event shall an adjournment or a postponement of a special meeting for which notice has been given, or the public announcement thereof has been made, commence a new time period for the giving of a stockholder's notice as described above.

(d) Notwithstanding the foregoing provisions of this Section 6, a stockholder must also comply with all applicable requirements of the 1934 Act and the rules and regulations thereunder with respect to matters set forth in this Section 6. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the corporation's proxy statement pursuant to Rule 14a-8 under the 1934 Act; *provided, however,* that any references in these Bylaws to the 1934 Act or the rules and regulations thereunder are not intended to and shall not limit the requirements applicable to nominations for the election to the Board of Directors to be considered pursuant to Section 6(c) of these Bylaws.

Section 7. Notice Of Meetings. Except as otherwise provided by law, notice, given in writing or by electronic transmission, of each meeting of stockholders shall be given not less than ten (10) nor more than sixty (60) days before the date of the meeting to each stockholder entitled to vote at such meeting, such notice to specify the place, if any, date and hour, in the case of special meetings, the purpose or purposes of the meeting, and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at any such meeting. If mailed, notice is given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it

appears on the records of the corporation. Notice of the time, place, if any, and purpose of any meeting of stockholders may be waived in writing, signed by the person entitled to notice thereof, or by electronic transmission by such person, either before or after such meeting, and will be waived by any stockholder by his attendance thereat in person, by remote communication, if applicable, or by proxy, except when the stockholder attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of such meeting shall be bound by the proceedings of any such meeting in all respects as if due notice thereof had been given.

Section 8. Quorum. At all meetings of stockholders, except where otherwise provided by statute or by the corporation's Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation"), or by these Bylaws, the presence, in person, by remote communication, if applicable, or by proxy duly authorized, of the holders of a majority of the outstanding shares of stock entitled to vote shall constitute a quorum for the transaction of business. In the absence of a quorum, any meeting of stockholders may be adjourned, from time to time, either by the chairman of the meeting or by vote of the holders of a majority of the shares represented thereat, but no other business shall be transacted at such meeting. The stockholders present at a duly called or convened meeting, at which a quorum is present, may continue to transact business until adjournment, notwithstanding the withdrawal of enough stockholders to leave less than a quorum. Except as otherwise provided by statute or by applicable stock exchange rules, or by the Certificate of Incorporation or these Bylaws, in all matters other than the election of directors, the affirmative vote of the majority of shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote generally on the subject matter shall be the act of the stockholders. Except as otherwise provided by statute, the Certificate of Incorporation or these Bylaws, directors shall be elected by a plurality of the votes of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote generally on the election of directors. Where a separate vote by a class or classes or series is required, except where otherwise provided by the statute or by the Certificate of Incorporation or these Bylaws, a majority of the outstanding shares of such class or classes or series, present in person, by remote communication, if applicable, or represented by proxy duly authorized, shall constitute a quorum entitled to take action with respect to that vote on that matter. Except where otherwise provided by statute or by the Certificate of Incorporation or these Bylaws, the affirmative vote of the majority (plurality, in the case of the election of directors) of shares of such class or classes or series present in person, by remote communication, if applicable, or represented by proxy at the meeting shall be the act of such class or classes or series.

Section 9. Adjournment And Notice Of Adjourned Meetings. Any meeting of stockholders, whether annual or special, may be adjourned from time to time either by the chairman of the meeting or by the vote of a majority of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting. When a meeting is adjourned to another time or place, if any, notice need not be given of the adjourned meeting if the time and place, if any, thereof are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than thirty (30) days or if

after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

Section 10. Voting Rights. For the purpose of determining those stockholders entitled to vote at any meeting of the stockholders, except as otherwise provided by law, only persons in whose names shares stand on the stock records of the corporation on the record date, as provided in Section 12 of these Bylaws, shall be entitled to vote at any meeting of stockholders. Every person entitled to vote shall have the right to do so either in person, by remote communication, if applicable, or by an agent or agents authorized by a proxy granted in accordance with Delaware law. An agent so appointed need not be a stockholder. No proxy shall be voted after three (3) years from its date of creation unless the proxy provides for a longer period.

Section 11. Joint Owners Of Stock. If shares or other securities having voting power stand of record in the names of two (2) or more persons, whether fiduciaries, members of a partnership, joint tenants, tenants in common, tenants by the entirety, or otherwise, or if two (2) or more persons have the same fiduciary relationship respecting the same shares, unless the Secretary is given written notice to the contrary and is furnished with a copy of the instrument or order appointing them or creating the relationship wherein it is so provided, their acts with respect to voting shall have the following effect: (a) if only one (1) votes, his act binds all; (b) if more than one (1) votes, the act of the majority so voting binds all; (c) if more than one (1) votes, but the vote is evenly split on any particular matter, each faction may vote the securities in question proportionally, or may apply to the Delaware Court of Chancery for relief as provided in the DGCL, Section 217(b). If the instrument filed with the Secretary shows that any such tenancy is held in unequal interests, a majority or even-split for the purpose of subsection (c) shall be a majority or even-split in interest.

Section 12. List Of Stockholders. The Secretary shall prepare and make, at least ten (10) days before every meeting of stockholders, a complete list of the stockholders entitled to vote at said meeting, arranged in alphabetical order, showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, (a) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (b) during ordinary business hours, at the principal place of business of the corporation. In the event that the corporation determines to make the list available on an electronic network, the corporation may take reasonable steps to ensure that such information is available only to stockholders of the corporation. The list shall be open to examination of any stockholder during the time of the meeting as provided by law.

Section 13. Action Without Meeting. No action shall be taken by the stockholders except at an annual or special meeting of stockholders called in accordance with these Bylaws, and no action shall be taken by the stockholders by written consent or by electronic transmission.

Section 14. Organization.

(a) At every meeting of stockholders, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the President, or, if the President is absent,

a chairman of the meeting chosen by a majority in interest of the stockholders entitled to vote, present in person or by proxy, shall act as chairman. The Secretary, or, in his or her absence, an Assistant Secretary directed to do so by the President, shall act as secretary of the meeting.

(b) The Board of Directors of the corporation shall be entitled to make such rules or regulations for the conduct of meetings of stockholders as it shall deem necessary, appropriate or convenient. Subject to such rules and regulations of the Board of Directors, if any, the chairman of the meeting shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are necessary, appropriate or convenient for the proper conduct of the meeting, including, without limitation, establishing an agenda or order of business for the meeting, rules and procedures for maintaining order at the meeting and the safety of those present, limitations on participation in such meeting to stockholders of record of the corporation and their duly authorized and constituted proxies and such other persons as the chairman shall permit, restrictions on entry to the meeting after the time fixed for the commencement thereof, limitations on the time allotted to questions or comments by participants and regulation of the opening and closing of the polls for balloting on matters which are to be voted on by ballot. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with rules of parliamentary procedure.

ARTICLE IV

DIRECTORS

Section 15. Number And Term Of Office. The authorized number of directors of the corporation shall be fixed by resolution of the Board of Directors. Directors need not be stockholders unless so required by the Certificate of Incorporation. If for any cause, the directors shall not have been elected at an annual meeting, they may be elected as soon thereafter as convenient at a special meeting of the stockholders called for that purpose in the manner provided in these Bylaws.

Section 16. Powers. The powers of the corporation shall be exercised, its business conducted and its property controlled by the Board of Directors, except as may be otherwise provided by statute or by the Certificate of Incorporation.

Section 17. Classes of Directors. Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, the directors shall be divided into three classes designated as Class I, Class II and Class III, respectively. The Board of Directors is authorized to assign members of the Board of Directors already in office to such classes at the time the classification becomes effective. At the first annual meeting of stockholders following the initial classification of the Board of Directors, the term of office of the Class I directors shall expire and Class I directors shall be elected for a full term of three years. At the second annual meeting of stockholders following such initial classification, the term of office of the Class II directors shall expire and Class II directors shall be elected for a full term of three years. At the third annual meeting of stockholders following such initial

classification, the term of office of the Class III directors shall expire and Class III directors shall be elected for a full term of three years. At each succeeding annual meeting of stockholders, directors shall be elected for a full term of three years to succeed the directors of the class whose terms expire at such annual meeting.

Notwithstanding the foregoing provisions of this section, each director shall serve until his successor is duly elected and qualified or until his earlier death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

Section 18. Vacancies.

(a) Unless otherwise provided in the Certificate of Incorporation, and subject to the rights of the holders of any series of Preferred Stock, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the Board of Directors, or by a sole remaining director, and not by the stockholders, *provided, however,* that whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of the Certificate of Incorporation, vacancies and newly created directorships of such class or classes or series shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled by a majority of the directors elected by such class or classes or series thereof then in office, or by a sole remaining director so elected, and not by the stockholders. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified. A vacancy in the Board of Directors shall be deemed to exist under this Bylaw in the case of the death, removal or resignation of any director.

Section 19. Resignation. Any director may resign at any time by delivering his or her notice in writing or by electronic transmission to the Secretary, such resignation to specify whether it will be effective at a particular time. If no such specification is made, it shall be deemed effective at the time of delivery to the Secretary. When one or more directors shall resign from the Board of Directors, effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each Director so chosen shall hold office for the unexpired portion of the term of the Director whose place shall be vacated and until his successor shall have been duly elected and qualified.

Section 20. Removal.

(a) Subject to the rights of any series of Preferred Stock to elect additional directors under specified circumstances, neither the Board of Directors nor any individual director may be removed without cause.

(b) Subject to any limitation imposed by law, any individual director or directors may be removed with cause by the affirmative vote of the holders of at least 66 2/3% of the voting power of all then outstanding shares of capital stock of the corporation entitled to vote generally at an election of directors, voting together as a single class.

Section 21. Meetings.

(a) Regular Meetings. Unless otherwise restricted by the Certificate of Incorporation, regular meetings of the Board of Directors may be held at any time or date and at any place within or without the State of Delaware which has been designated by the Board of Directors and publicized among all directors, either orally or in writing, by telephone, including a voice-messaging system or other system designed to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means. No further notice shall be required for regular meetings of the Board of Directors.

(b) Special Meetings. Unless otherwise restricted by the Certificate of Incorporation, special meetings of the Board of Directors may be held at any time and place within or without the State of Delaware whenever called by the Chairman of the Board, the Chief Executive Officer or a majority of the authorized number of directors.

(c) Meetings by Electronic Communications Equipment. Any member of the Board of Directors, or of any committee thereof, may participate in a meeting by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation in a meeting by such means shall constitute presence in person at such meeting.

(d) Notice of Special Meetings. Notice of the time and place of all special meetings of the Board of Directors shall be orally or in writing, by telephone, including a voice messaging system or other system or technology designed to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means, during normal business hours, at least twenty-four (24) hours before the date and time of the meeting. If notice is sent by US mail, it shall be sent by first class mail, charges prepaid, at least three (3) days before the date of the meeting. Notice of any meeting may be waived in writing, or by electronic transmission, at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends the meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened.

(e) Waiver of Notice. The transaction of all business at any meeting of the Board of Directors, or any committee thereof, however called or noticed, or wherever held, shall be as valid as though it had been transacted at a meeting duly held after regular call and notice, if a quorum be present and if, either before or after the meeting, each of the directors not present who did not receive notice shall sign a written waiver of notice or shall waive notice by electronic transmission. All such waivers shall be filed with the corporate records or made a part of the minutes of the meeting.

Section 22. Quorum And Voting.

(a) Unless the Certificate of Incorporation requires a greater number, and except with respect to questions related to indemnification arising under Section 45 for which a quorum shall be one-third of the exact number of directors fixed from time to time, a quorum of the Board of Directors shall consist of a majority of the exact number of directors fixed from time to time by the Board of Directors in accordance with the Certificate of Incorporation; *provided, however,* at any meeting whether a quorum be present or otherwise, a majority of the directors present may adjourn from time to time until the time fixed for the next regular meeting of the Board of Directors, without notice other than by announcement at the meeting.

(b) At each meeting of the Board of Directors at which a quorum is present, all questions and business shall be determined by the affirmative vote of a majority of the directors present, unless a different vote be required by law, the Certificate of Incorporation or these Bylaws.

Section 23. Action Without Meeting. Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent thereto in writing or by electronic transmission, and such writing or writings or transmission or transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

Section 24. Fees And Compensation. Directors shall be entitled to such compensation for their services as may be approved by the Board of Directors, including, if so approved, by resolution of the Board of Directors, a fixed sum and expenses of attendance, if any, for attendance at each regular or special meeting of the Board of Directors and at any meeting of a committee of the Board of Directors. Nothing herein contained shall be construed to preclude any director from serving the corporation in any other capacity as an officer, agent, employee, or otherwise and receiving compensation therefor.

Section 25. Committees.

(a) Executive Committee. The Board of Directors may appoint an Executive Committee to consist of one (1) or more members of the Board of Directors. The Executive Committee, to the extent permitted by law and provided in the resolution of the Board of Directors shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation, and may authorize the seal of the corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to (i) approving or adopting, or recommending to the stockholders, any action or matter (other than the election or removal of directors) expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopting, amending or repealing any Bylaw of the corporation.

(b) Other Committees. The Board of Directors may, from time to time, appoint such other committees as may be permitted by law. Such other committees appointed by the Board of Directors shall consist of one (1) or more members of the Board of Directors and shall have such powers and perform such duties as may be prescribed by the resolution or resolutions creating such committees, but in no event shall any such committee have the powers denied to the Executive Committee in these Bylaws.

(c) Term. The Board of Directors, subject to any requirements of any outstanding series of Preferred Stock and the provisions of subsections (a) or (b) of this Section 25, may at any time increase or decrease the number of members of a committee or terminate the existence of a committee. The membership of a committee member shall terminate on the date of his death or voluntary resignation from the committee or from the Board of Directors. The Board of Directors may at any time for any reason remove any individual committee member and the Board of Directors may fill any committee vacancy created by death, resignation, removal or increase in the number of members of the committee. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee, and, in addition, in the absence or disqualification of any member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not he or they constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member.

(d) Meetings. Unless the Board of Directors shall otherwise provide, regular meetings of the Executive Committee or any other committee appointed pursuant to this Section 25 shall be held at such times and places as are determined by the Board of Directors, or by any such committee, and when notice thereof has been given to each member of such committee, no further notice of such regular meetings need be given thereafter. Special meetings of any such committee may be held at any place which has been determined from time to time by such committee, and may be called by any director who is a member of such committee, upon notice to the members of such committee of the time and place of such special meeting given in the manner provided for the giving of notice to members of the Board of Directors of the time and place of special meetings of the Board of Directors. Notice of any special meeting of any committee may be waived in writing or by electronic transmission at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends such special meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Unless otherwise provided by the Board of Directors in the resolutions authorizing the creation of the committee, a majority of the authorized number of members of any such committee shall constitute a quorum for the transaction of business, and the act of a majority of those present at any meeting at which a quorum is present shall be the act of such committee.

Section 26. Lead Independent Director. The Chairman of the Board of Directors, or if the Chairman is not an independent director, one of the independent directors, may be designated by the Board of Directors as lead independent director to serve until replaced by the Board of Directors ("Lead Independent Director"). The Lead Independent Director will: with the Chairman of the Board of Directors, establish the agenda for regular Board meetings and serve as

chairman of Board of Directors meetings in the absence of the Chairman of the Board of Directors; establish the agenda for meetings of the independent directors; coordinate with the committee chairs regarding meeting agendas and informational requirements; preside over meetings of the independent directors; preside over any portions of meetings of the Board of Directors at which the evaluation or compensation of the Chief Executive Officer is presented or discussed; preside over any portions of meetings of the Board of Directors at which the performance of the Board of Directors is presented or discussed; and perform such other duties as may be established or delegated by the Chairman of the Board of Directors.

Section 27. Organization. At every meeting of the directors, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the Lead Independent Director, or if the Lead Independent Director is absent, the Chief Executive Officer (if a director), or, if a Chief Executive Officer is absent, the President (if a director), or if the President is absent, the most senior Vice President (if a director), or, in the absence of any such person, a chairman of the meeting chosen by a majority of the directors present, shall preside over the meeting. The Secretary, or in his absence, any Assistant Secretary or other officer or director directed to do so by the President, shall act as secretary of the meeting.

Section 28. Duties of Chairman of the Board of Directors. The Chairman of the Board of Directors, when present, shall preside at all meetings of the stockholders and the Board of Directors. The Chairman of the Board of Directors shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

ARTICLE V

OFFICERS

Section 29. Officers Designated. The officers of the corporation shall include, if and when designated by the Board of Directors, the Chief Executive Officer, the President, one or more Vice Presidents, the Secretary, the Chief Financial Officer and the Treasurer. The Board of Directors may also appoint one or more Assistant Secretaries and Assistant Treasurers and such other officers and agents with such powers and duties as it shall deem necessary. The Board of Directors may assign such additional titles to one or more of the officers as it shall deem appropriate. Any one person may hold any number of offices of the corporation at any one time unless specifically prohibited therefrom by law. The salaries and other compensation of the officers of the corporation shall be fixed by or in the manner designated by the Board of Directors.

Section 30. Tenure And Duties Of Officers.

(a) General. All officers shall hold office at the pleasure of the Board of Directors and until their successors shall have been duly elected and qualified, unless sooner removed. Any officer elected or appointed by the Board of Directors may be removed at any time by the Board of Directors. If the office of any officer becomes vacant for any reason, the vacancy may be filled by the Board of Directors.

(b) Duties of Chief Executive Officer. The Chief Executive Officer shall preside at all meetings of the stockholders and at all meetings of the Board of Directors, unless the Chairman of the Board of Directors or the Lead Independent Director has been appointed and is present. Unless an officer has been appointed Chief Executive Officer of the corporation, the President shall be the chief executive officer of the corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the corporation. To the extent that a Chief Executive Officer has been appointed and no President has been appointed, all references in these Bylaws to the President shall be deemed references to the Chief Executive Officer. The Chief Executive Officer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(c) Duties of President. The President shall preside at all meetings of the stockholders and at all meetings of the Board of Directors, unless the Chairman of the Board of Directors, the Lead Independent Director, or the Chief Executive Officer has been appointed and is present. Unless another officer has been appointed Chief Executive Officer of the corporation, the President shall be the chief executive officer of the corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the corporation. The President shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(d) Duties of Vice Presidents. The Vice Presidents may assume and perform the duties of the President in the absence or disability of the President or whenever the office of President is vacant. The Vice Presidents shall perform other duties commonly incident to their office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or, if the Chief Executive Officer has not been appointed or is absent, the President shall designate from time to time.

(e) Duties of Secretary. The Secretary shall attend all meetings of the stockholders and of the Board of Directors and shall record all acts and proceedings thereof in the minute book of the corporation. The Secretary shall give notice in conformity with these Bylaws of all meetings of the stockholders and of all meetings of the Board of Directors and any committee thereof requiring notice. The Secretary shall perform all other duties provided for in these Bylaws and other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time. The President may direct any Assistant Secretary or other officer to assume and perform the duties of the Secretary in the absence or disability of the Secretary, and each Assistant Secretary shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

(f) Duties of Chief Financial Officer. The Chief Financial Officer shall keep or cause to be kept the books of account of the corporation in a thorough and proper manner and shall render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors or the President. The Chief Financial Officer, subject to the

order of the Board of Directors, shall have the custody of all funds and securities of the corporation. The Chief Financial Officer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time. To the extent that a Chief Financial Officer has been appointed and no Treasurer has been appointed, all references in these Bylaws to the Treasurer shall be deemed references to the Chief Financial Officer. The President may direct the Treasurer, if any, or any Assistant Treasurer, or the Controller or any Assistant Controller to assume and perform the duties of the Chief Financial Officer in the absence or disability of the Chief Financial Officer, and each Treasurer and Assistant Treasurer and each Controller and Assistant Controller shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

(g) Duties of Treasurer. Unless another officer has been appointed Chief Financial Officer of the corporation, the Treasurer shall be the chief financial officer of the corporation and shall keep or cause to be kept the books of account of the corporation in a thorough and proper manner and shall render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors or the President, and, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the corporation. The Treasurer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

Section 31. Delegation Of Authority. The Board of Directors may from time to time delegate the powers or duties of any officer to any other officer or agent, notwithstanding any provision hereof.

Section 32. Resignations. Any officer may resign at any time by giving notice in writing or by electronic transmission to the Board of Directors or to the President or to the Secretary. Any such resignation shall be effective when received by the person or persons to whom such notice is given, unless a later time is specified therein, in which event the resignation shall become effective at such later time. Unless otherwise specified in such notice, the acceptance of any such resignation shall not be necessary to make it effective. Any resignation shall be without prejudice to the rights, if any, of the corporation under any contract with the resigning officer.

Section 33. Removal. Any officer may be removed from office at any time, either with or without cause, by the affirmative vote of a majority of the directors in office at the time, or by the unanimous written consent of the directors in office at the time, or by any committee or by the Chief Executive Officer or by other superior officers upon whom such power of removal may have been conferred by the Board of Directors.

ARTICLE VI

EXECUTION OF CORPORATE INSTRUMENTS AND VOTING OF SECURITIES OWNED BY THE CORPORATION

Section 34. Execution Of Corporate Instruments. The Board of Directors may, in its discretion, determine the method and designate the signatory officer or officers, or other person or persons, to execute on behalf of the corporation any corporate instrument or document, or to sign on behalf of the corporation the corporate name without limitation, or to enter into contracts on behalf of the corporation, except where otherwise provided by law or these Bylaws, and such execution or signature shall be binding upon the corporation.

All checks and drafts drawn on banks or other depositaries on funds to the credit of the corporation or in special accounts of the corporation shall be signed by such person or persons as the Board of Directors shall authorize so to do.

Unless authorized or ratified by the Board of Directors or within the agency power of an officer, no officer, agent or employee shall have any power or authority to bind the corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

Section 35. Voting Of Securities Owned By The Corporation. All stock and other securities of other corporations owned or held by the corporation for itself, or for other parties in any capacity, shall be voted, and all proxies with respect thereto shall be executed, by the person authorized so to do by resolution of the Board of Directors, or, in the absence of such authorization, by the Chairman of the Board of Directors, the Chief Executive Officer, the President, or any Vice President.

ARTICLE VII

SHARES OF STOCK

Section 36. Form And Execution Of Certificates. The shares of the corporation shall be represented by certificates, or shall be uncertificated if so provided by resolution or resolutions of the Board of Directors. Certificates for the shares of stock, if any, shall be in such form as is consistent with the Certificate of Incorporation and applicable law. Every holder of stock represented by certificate in the corporation shall be entitled to have a certificate signed by or in the name of the corporation by the Chairman of the Board of Directors or the President or any Vice President and by the Treasurer or Assistant Treasurer or the Secretary or Assistant Secretary, certifying the number of shares owned by him in the corporation. Any or all of the signatures on the certificate may be facsimiles. In case any officer, transfer agent, or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent, or registrar before such certificate is issued, it may be issued with the same effect as if he were such officer, transfer agent, or registrar at the date of issue.

Section 37. Lost Certificates. A new certificate or certificates shall be issued in place of any certificate or certificates theretofore issued by the corporation alleged to have been lost,

stolen, or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen, or destroyed. The corporation may require, as a condition precedent to the issuance of a new certificate or certificates, the owner of such lost, stolen, or destroyed certificate or certificates, or the owner's legal representative, to agree to indemnify the corporation in such manner as it shall require or to give the corporation a surety bond in such form and amount as it may direct as indemnity against any claim that may be made against the corporation with respect to the certificate alleged to have been lost, stolen, or destroyed.

Section 38. Transfers.

(a) Transfers of record of shares of stock of the corporation shall be made only upon its books by the holders thereof, in person or by attorney duly authorized, and, in the case of stock represented by certificate, upon the surrender of a properly endorsed certificate or certificates for a like number of shares.

(b) The corporation shall have power to enter into and perform any agreement with any number of stockholders of any one or more classes of stock of the corporation to restrict the transfer of shares of stock of the corporation of any one or more classes owned by such stockholders in any manner not prohibited by the DGCL.

Section 39. Fixing Record Dates.

(a) In order that the corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall, subject to applicable law, not be more than sixty (60) nor less than ten (10) days before the date of such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however,* that the Board of Directors may fix a new record date for the adjourned meeting.

(b) In order that the corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than sixty (60) days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

Section 40. Registered Stockholders. The corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive

dividends, and to vote as such owner, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

ARTICLE VIII

OTHER SECURITIES OF THE CORPORATION

Section 41. Execution Of Other Securities. All bonds, debentures and other corporate securities of the corporation, other than stock certificates (covered in Section 36), may be signed by the Chairman of the Board of Directors, the President or any Vice President, or such other person as may be authorized by the Board of Directors, and the corporate seal impressed thereon or a facsimile of such seal imprinted thereon and attested by the signature of the Secretary or an Assistant Secretary, or the Chief Financial Officer or Treasurer or an Assistant Treasurer; *provided, however,* that where any such bond, debenture or other corporate security shall be authenticated by the manual signature, or where permissible facsimile signature, of a trustee under an indenture pursuant to which such bond, debenture or other corporate security shall be issued, the signatures of the persons signing and attesting the corporate seal on such bond, debenture or other corporate security may be the imprinted facsimile of the signatures of such persons. Interest coupons appertaining to any such bond, debenture or other corporate security, authenticated by a trustee as aforesaid, shall be signed by the Treasurer or an Assistant Treasurer of the corporation or such other person as may be authorized by the Board of Directors, or bear imprinted thereon the facsimile signature of such person. In case any officer who shall have signed or attested any bond, debenture or other corporate security, or whose facsimile signature shall appear thereon or on any such interest coupon, shall have ceased to be such officer before the bond, debenture or other corporate security so signed or attested shall have been delivered, such bond, debenture or other corporate security nevertheless may be adopted by the corporation and issued and delivered as though the person who signed the same or whose facsimile signature shall have been used thereon had not ceased to be such officer of the corporation.

ARTICLE IX

DIVIDENDS

Section 42. Declaration Of Dividends. Dividends upon the capital stock of the corporation, subject to the provisions of the Certificate of Incorporation and applicable law, if any, may be declared by the Board of Directors pursuant to law at any regular or special meeting. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the Certificate of Incorporation and applicable law.

Section 43. Dividend Reserve. Before payment of any dividend, there may be set aside out of any funds of the corporation available for dividends such sum or sums as the Board of Directors from time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the corporation, or for such other purpose as the Board of Directors shall think conducive to

the interests of the corporation, and the Board of Directors may modify or abolish any such reserve in the manner in which it was created.

ARTICLE X

FISCAL YEAR

Section 44. Fiscal Year. The fiscal year of the corporation shall be fixed by resolution of the Board of Directors.

ARTICLE XI

INDEMNIFICATION

Section 45. Indemnification of Directors, Officers, Employees and Other Agents.

(a) Directors and Officers. The corporation shall indemnify its directors and officers to the extent not prohibited by the DGCL or any other applicable law; *provided, however,* that the corporation may modify the extent of such indemnification by individual contracts with its directors and officers; and, *provided, further,* that the corporation shall not be required to indemnify any director or officer in connection with any proceeding (or part thereof) initiated by such person unless (i) such indemnification is expressly required to be made by law, (ii) the proceeding was authorized by the Board of Directors of the corporation, (iii) such indemnification is provided by the corporation, in its sole discretion, pursuant to the powers vested in the corporation under the DGCL or any other applicable law or (iv) such indemnification is required to be made under subsection (d).

(b) Employees and Other Agents. The corporation shall have power to indemnify its employees and other agents as set forth in the DGCL or any other applicable law. The Board of Directors shall have the power to delegate the determination of whether indemnification shall be given to any such person to such officers or other persons as the Board of Directors shall determine.

(c) Expenses. The corporation shall advance to any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director or officer, of the corporation, or is or was serving at the request of the corporation as a director or officer of another corporation, partnership, joint venture, trust or other enterprise, prior to the final disposition of the proceeding, promptly following request therefor, all expenses incurred by any director or officer in connection with such proceeding provided, however, that if the DGCL requires, an advancement of expenses incurred by a director or officer in his or her capacity as a director or officer (and not in any other capacity in which service was or is rendered by such indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the corporation of an undertaking (hereinafter an "undertaking"), by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no

further right to appeal (hereinafter a "final adjudication") that such indemnitee is not entitled to be indemnified for such expenses under this section or otherwise.

Notwithstanding the foregoing, unless otherwise determined pursuant to paragraph (e) of this section, no advance shall be made by the corporation to an officer of the corporation (except by reason of the fact that such officer is or was a director of the corporation in which event this paragraph shall not apply) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, if a determination is reasonably and promptly made (i) by a majority vote of directors who were not parties to the proceeding, even if not a quorum, or (ii) by a committee of such directors designated by a majority vote of such directors, even though less than a quorum, or (iii) if there are no such directors, or such directors so direct, by independent legal counsel in a written opinion, that the facts known to the decision-making party at the time such determination is made demonstrate clearly and convincingly that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation.

(d) Enforcement. Without the necessity of entering into an express contract, all rights to indemnification and advances to directors and officers under this Bylaw shall be deemed to be contractual rights and be effective to the same extent and as if provided for in a contract between the corporation and the director or officer. Any right to indemnification or advances granted by this section to a director or officer shall be enforceable by or on behalf of the person holding such right in any court of competent jurisdiction if (i) the claim for indemnification or advances is denied, in whole or in part, or (ii) no disposition of such claim is made within ninety (90) days of request therefor. To the extent permitted by law, the claimant in such enforcement action, if successful in whole or in part, shall be entitled to be paid also the expense of prosecuting the claim. In connection with any claim for indemnification, the corporation shall be entitled to raise as a defense to any such action that the claimant has not met the standards of conduct that make it permissible under the DGCL or any other applicable law for the corporation to indemnify the claimant for the amount claimed. In connection with any claim by an officer of the corporation (except in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that such officer is or was a director of the corporation) for advances, the corporation shall be entitled to raise a defense as to any such action clear and convincing evidence that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation, or with respect to any criminal action or proceeding that such person acted without reasonable cause to believe that his conduct was lawful. Neither the failure of the corporation (including its Board of Directors, independent legal counsel or its stockholders) to have made a determination prior to the commencement of such action that indemnification of the claimant is proper in the circumstances because the officer or director has met the applicable standard of conduct set forth in the DGCL or any other applicable law, nor an actual determination by the corporation (including its Board of Directors, independent legal counsel or its stockholders) that the claimant has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that claimant has not met the applicable standard of conduct. In any suit brought by a director or officer to enforce a right to indemnification or to an advancement of expenses hereunder, the burden of proving that the director or officer is not entitled to be indemnified, or to such advancement of expenses, under this section or otherwise shall be on the corporation.

(e) Non-Exclusivity of Rights. The rights conferred on any person by this Bylaw shall not be exclusive of any other right which such person may have or hereafter acquire under any applicable statute, provision of the Certificate of Incorporation, Bylaws, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in such person's official capacity and as to action in another capacity while holding office. The corporation is specifically authorized to enter into individual contracts with any or all of its directors, officers, employees or agents respecting indemnification and advances, to the fullest extent not prohibited by the DGCL, or by any other applicable law.

(f) Survival of Rights. The rights conferred on any person by this Bylaw shall continue as to a person who has ceased to be a director, officer, employee or other agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

(g) Insurance. To the fullest extent permitted by the DGCL or any other applicable law, the corporation, upon approval by the Board of Directors, may purchase insurance on behalf of any person required or permitted to be indemnified pursuant to this section.

(h) Amendments. Any repeal or modification of this section shall only be prospective and shall not affect the rights under this Bylaw in effect at the time of the alleged occurrence of any action or omission to act that is the cause of any proceeding against any agent of the corporation.

(i) Saving Clause. If this Bylaw or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the corporation shall nevertheless indemnify each director and officer to the full extent not prohibited by any applicable portion of this section that shall not have been invalidated, or by any other applicable law. If this section shall be invalid due to the application of the indemnification provisions of another jurisdiction, then the corporation shall indemnify each director and officer to the full extent under any other applicable law.

(j) Certain Definitions. For the purposes of this Bylaw, the following definitions shall apply:

(i) The term "proceeding" shall be broadly construed and shall include, without limitation, the investigation, preparation, prosecution, defense, settlement, arbitration and appeal of, and the giving of testimony in, any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative.

(ii) The term "expenses" shall be broadly construed and shall include, without limitation, court costs, attorneys' fees, witness fees, fines, amounts paid in settlement or judgment and any other costs and expenses of any nature or kind incurred in connection with any proceeding.

(iii) The term the "corporation" shall include, in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have

had power and authority to indemnify its directors, officers, and employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, shall stand in the same position under the provisions of this section with respect to the resulting or surviving corporation as he would have with respect to such constituent corporation if its separate existence had continued.

(iv) References to a "director," "officer," "employee," or "agent" of the corporation shall include, without limitation, situations where such person is serving at the request of the corporation as, respectively, a director, officer, employee, trustee or agent of another corporation, partnership, joint venture, trust or other enterprise.

(v) References to "other enterprises" shall include employee benefit plans; references to "fines" shall include any excise taxes assessed on a person with respect to an employee benefit plan; and references to "serving at the request of the corporation" shall include any service as a director, officer, employee or agent of the corporation which imposes duties on, or involves services by, such director, officer, employee, or agent with respect to an employee benefit plan, its participants, or beneficiaries; and a person who acted in good faith and in a manner such person reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan shall be deemed to have acted in a manner "not opposed to the best interests of the corporation" as referred to in this section.

ARTICLE XII

NOTICES

Section 46. Notices.

(a) Notice To Stockholders. Written notice to stockholders of stockholder meetings shall be given as provided in Section 7 herein. Without limiting the manner by which notice may otherwise be given effectively to stockholders under any agreement or contract with such stockholder, and except as otherwise required by law, written notice to stockholders for purposes other than stockholder meetings may be sent by US mail or nationally recognized overnight courier, or by facsimile, telegraph or telex or by electronic mail or other electronic means.

(b) Notice To Directors. Any notice required to be given to any director may be given by the method stated in subsection (a), as otherwise provided in these Bylaws, or by overnight delivery service, facsimile, telex or telegram, except that such notice other than one which is delivered personally shall be sent to such address as such director shall have filed in writing with the Secretary, or, in the absence of such filing, to the last known post office address of such director.

(c) Affidavit Of Mailing. An affidavit of mailing, executed by a duly authorized and competent employee of the corporation or its transfer agent appointed with respect to the class of stock affected, or other agent, specifying the name and address or the

names and addresses of the stockholder or stockholders, or director or directors, to whom any such notice or notices was or were given, and the time and method of giving the same, shall in the absence of fraud, be prima facie evidence of the facts therein contained.

(d) Methods of Notice. It shall not be necessary that the same method of giving notice be employed in respect of all recipients of notice, but one permissible method may be employed in respect of any one or more, and any other permissible method or methods may be employed in respect of any other or others.

(e) Notice To Person With Whom Communication Is Unlawful. Whenever notice is required to be given, under any provision of law or of the Certificate of Incorporation or Bylaws of the corporation, to any person with whom communication is unlawful, the giving of such notice to such person shall not be required and there shall be no duty to apply to any governmental authority or agency for a license or permit to give such notice to such person. Any action or meeting which shall be taken or held without notice to any such person with whom communication is unlawful shall have the same force and effect as if such notice had been duly given. In the event that the action taken by the corporation is such as to require the filing of a certificate under any provision of the DGCL, the certificate shall state, if such is the fact and if notice is required, that notice was given to all persons entitled to receive notice except such persons with whom communication is unlawful.

(f) Notice to Stockholders Sharing an Address. Except as otherwise prohibited under the DGCL, any notice given under the provisions of the DGCL, the Certificate of Incorporation or the Bylaws shall be effective if given by a single written notice to stockholders who share an address if consented to by the stockholders at that address to whom such notice is given. Such consent shall have been deemed to have been given if such stockholder fails to object in writing to the corporation within sixty (60) days of having been given notice by the corporation of its intention to send the single notice. Any consent shall be revocable by the stockholder by written notice to the corporation.

ARTICLE XIII

AMENDMENTS

Section 47. Subject to the limitations set forth in Section 45(h) of these Bylaws or the provisions of the Certificate of Incorporation, the Board of Directors is expressly empowered to adopt, amend or repeal the Bylaws of the corporation. Any adoption, amendment or repeal of the Bylaws of the corporation by the Board of Directors shall require the approval of a majority of the authorized number of directors. The stockholders also shall have power to adopt, amend or repeal the Bylaws of the corporation; *provided, however,* that, in addition to any vote of the holders of any class or series of stock of the corporation required by law or by the Certificate of Incorporation, such action by stockholders shall require the affirmative vote of the holders of at least 66 2/3% of the voting power of all of the then-outstanding shares of the capital stock of the corporation entitled to vote generally in the election of directors, voting together as a single class.

ARTICLE XIV

LOANS TO OFFICERS OR EMPLOYEES

Section 48. Loans To Officers Or Employees. Except as otherwise prohibited by applicable law, the corporation may lend money to, or guarantee any obligation of, or otherwise assist any officer or other employee of the corporation or of its subsidiaries, including any officer or employee who is a director of the corporation or its subsidiaries, whenever, in the judgment of the Board of Directors, such loan, guarantee or assistance may reasonably be expected to benefit the corporation. The loan, guarantee or other assistance may be with or without interest and may be unsecured, or secured in such manner as the Board of Directors shall approve, including, without limitation, a pledge of shares of stock of the corporation. Nothing in these Bylaws shall be deemed to deny, limit or restrict the powers of guaranty or warranty of the corporation at common law or under any statute.

Exhibit 10.1

ACELRX PHARMACEUTICALS, INC.

INDEMNIFICATION AGREEMENT

This Indemnification Agreement (the "Agreement") is made as of _____, by and between AcelRx Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and _____ (the "Indemnitee").

RECITALS

The Company and Indemnitee recognize the increasing difficulty in obtaining liability insurance for directors, officers and key employees, the significant increases in the cost of such insurance and the general reductions in the coverage of such insurance. The Company and Indemnitee further recognize the substantial increase in corporate litigation in general, subjecting directors, officers and key employees to expensive litigation risks at the same time as the availability and coverage of liability insurance has been severely limited. Indemnitee does not regard the current protection available as adequate under the present circumstances, and Indemnitee and agents of the Company may not be willing to continue to serve as agents of the Company without additional protection. The Company desires to attract and retain the services of highly qualified individuals, such as Indemnitee, and to indemnify its directors, officers and key employees so as to provide them with the maximum protection permitted by law.

AGREEMENT

In consideration of the mutual promises made in this Agreement, and for other good and valuable consideration, receipt of which is hereby acknowledged, the Company and Indemnitee hereby agree as follows:

1. **Indemnification.**

(a) **Third Party Proceedings.** The Company shall indemnify Indemnitee if Indemnitee is or was a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the Company) by reason of the fact that Indemnitee is or was a director, officer, employee or agent of the Company, or any subsidiary of the Company, by reason of any action or inaction on the part of Indemnitee while an officer or director or by reason of the fact that Indemnitee is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement (if such settlement is approved in advance by the Company, which approval shall not be unreasonably withheld) actually and reasonably incurred by Indemnitee in connection with such action, suit or proceeding if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company, and, with respect to any criminal action or proceeding, had no reasonable cause to believe Indemnitee's conduct was unlawful. The termination of any action, suit or proceeding by judgment, order,

settlement, conviction, or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that Indemnitee did not act in good faith and in a manner which Indemnitee reasonably believed to be in or not opposed to the best interests of the Company, or, with respect to any criminal action or proceeding, that Indemnitee had reasonable cause to believe that Indemnitee's conduct was unlawful.

(b) **Proceedings By or in the Right of the Company.** The Company shall indemnify Indemnitee if Indemnitee was or is a party or is threatened to be made a party to any threatened, pending or completed action or proceeding by or in the right of the Company or any subsidiary of the Company to procure a judgment in its favor by reason of the fact that Indemnitee is or was a director, officer, employee or agent of the Company, or any subsidiary of the Company, by reason of any action or inaction on the part of Indemnitee while an officer or director or by reason of the fact that Indemnitee is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees) and, to the fullest extent permitted by law, amounts paid in settlement (if such settlement is approved in advance by the Company, which approval shall not be unreasonably withheld), in each case to the extent actually and reasonably incurred by Indemnitee in connection with the defense or settlement of such action or suit if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company and its stockholders, except that no indemnification shall be made in respect of any claim, issue or matter as to which Indemnitee shall have been finally adjudicated by court order or judgment to be liable to the Company in the performance of Indemnitee's duty to the Company and its stockholders unless and only to the extent that the court in which such action or proceeding is or was pending shall determine upon application that, in view of all the circumstances of the case, Indemnitee is fairly and reasonably entitled to indemnity for such expenses which such court shall deem proper.

(c) **Mandatory Payment of Expenses**. To the extent that Indemnitee has been successful on the merits or otherwise in defense of any action, suit or proceeding referred to in Section 1(a) or Section 1(b) or the defense of any claim, issue or matter therein, Indemnitee shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by Indemnitee in connection therewith.

2. **No Employment Rights**. Nothing contained in this Agreement is intended to create in Indemnitee any right to continued employment.

3. **Expenses; Indemnification Procedure.**

(a) **Advancement of Expenses**. The Company shall advance all expenses incurred by Indemnitee in connection with the investigation, defense, settlement or appeal of any civil or criminal action, suit or proceeding referred to in Section l(a) or Section 1(b) hereof (including amounts actually paid in settlement of any such action, suit or proceeding). Indemnitee hereby undertakes to repay such amounts advanced only if, and to the extent that, it shall ultimately be determined that Indemnitee is not entitled to be indemnified by the Company as authorized hereby.

(b) **Notice/Cooperation by Indemnitee.** Indemnitee shall, as a condition precedent to his or her right to be indemnified under this Agreement, give the Company notice in writing as soon as practicable of any claim made against Indemnitee for which indemnification will or could be sought under this Agreement. Notice to the Company shall be directed to the Chief Executive Officer of the Company and shall be given in accordance with the provisions of Section 12(d) below. In addition, Indemnitee shall give the Company such information and cooperation as it may reasonably require and as shall be within Indemnitee's power.

(c) **Procedure.** Any indemnification and advances provided for in Section 1 and this Section 3 shall be made no later than thirty (30) days after receipt of the written request of Indemnitee. If a claim under this Agreement, under any statute, or under any provision of the Company's Certificate of Incorporation or Bylaws providing for indemnification, is not paid in full by the Company within thirty (30) days after a written request for payment thereof has first been received by the Company, Indemnitee may, but need not, at any time thereafter bring an action against the Company to recover the unpaid amount of the claim and, subject to Section 11 of this Agreement, Indemnitee shall also be entitled to be paid for the expenses (including attorneys' fees) of bringing such action. It shall be a defense to any such action (other than an action brought to enforce a claim for expenses incurred in connection with any action, suit or proceeding in advance of its final disposition) that Indemnitee has not met the standards of conduct which make it permissible under applicable law for the Company to indemnify Indemnitee for the amount claimed, but the burden of proving such defense shall be on the Company and Indemnitee shall be entitled to receive interim payments of expenses pursuant to Section 3(a) unless and until such defense may be finally adjudicated by court order or judgment from which no further right of appeal exists. It is the parties' intention that if the Company contests Indemnitee's right to indemnification, the question of Indemnitee's right to indemnification shall be for the court to decide, and neither the failure of the Company (including its Board of Directors, any committee or subgroup of the Board of Directors, independent legal counsel, or its stockholders) to have made a determination that indemnification of Indemnitee is proper in the circumstances because Indemnitee has met the applicable standard of conduct required by applicable law, nor an actual determination by the Company (including its Board of Directors, any committee or subgroup of the Board of Directors, independent legal counsel, or its stockholders) that Indemnitee has not met such applicable standard of conduct, shall create a presumption that Indemnitee has or has not met the applicable standard of conduct.

(d) **Notice to Insurers.** If, at the time of the receipt of a notice of a claim pursuant to Section 3(b) hereof, the Company has director and officer liability insurance in effect, the Company shall give prompt notice of the commencement of such proceeding to the insurers in accordance with the procedures set forth in the respective policies. The Company shall thereafter take all necessary or desirable action to cause such insurers to pay, on behalf of the Indemnitee, all amounts payable as a result of such proceeding in accordance with the terms of such policies.

(e) **Selection of Counsel.** In the event the Company shall be obligated under Section 3(a) hereof to pay the expenses of any proceeding against Indemnitee, the Company, if appropriate, shall be entitled to assume the defense of such proceeding, with counsel approved by Indemnitee, upon the delivery to Indemnitee of written notice of its election so to do. After

delivery of such notice, approval of such counsel by Indemnitee and the retention of such counsel by the Company, the Company will not be liable to Indemnitee under this Agreement for any fees of counsel subsequently incurred by Indemnitee with respect to the same proceeding, provided that (i) Indemnitee shall have the right to employ counsel in any such proceeding at Indemnitee's expense; and (ii) if (A) the employment of counsel by Indemnitee has been previously authorized by the Company, (B) Indemnitee shall have reasonably concluded that there may be a conflict of interest between the Company and Indemnitee in the conduct of any such defense or (C) the Company shall not, in fact, have employed counsel to assume the defense of such proceeding, then the fees and expenses of Indemnitee's counsel shall be at the expense of the Company.

4. **Additional Indemnification Rights; Nonexclusivity.**

(a) **Scope.** Notwithstanding any other provision of this Agreement, the Company hereby agrees to indemnify the Indemnitee to the fullest extent permitted by law, notwithstanding that such indemnification is not specifically authorized by the other provisions of this Agreement, the Company's Certificate of Incorporation, the Company's Bylaws or by statute. In the event of any change, after the date of this Agreement, in any applicable law, statute, or rule which expands the right of a Delaware corporation to indemnify a member of its board of directors or an officer, such changes shall be deemed to be within the purview of Indemnitee's rights and the Company's obligations under this Agreement. In the event of any change in any applicable law, statute or rule which narrows the right of a Delaware corporation to indemnify a member of its board of directors or an officer, such changes, to the extent not otherwise required by such law, statute or rule to be applied to this Agreement shall have no effect on this Agreement or the parties' rights and obligations hereunder.

(b) **Nonexclusivity.** The indemnification provided by this Agreement shall not be deemed exclusive of any rights to which Indemnitee may be entitled under the Company's Certificate of Incorporation, its Bylaws, any agreement, any vote of stockholders or disinterested members of the Company's Board of Directors, the General Corporation Law of the State of Delaware, or otherwise, both as to action in Indemnitee's official capacity and as to action in another capacity while holding such office. The indemnification provided under this Agreement shall continue as to Indemnitee for any action taken or not taken while serving in an indemnified capacity even though he or she may have ceased to serve in any such capacity at the time of any action, suit or other covered proceeding.

5. **Partial Indemnification.** If Indemnitee is entitled under any provision of this Agreement to indemnification by the Company for some or a portion of the expenses, judgments, fines or penalties actually or reasonably incurred in the investigation, defense, appeal or settlement of any civil or criminal action, suit or proceeding, but not, however, for the total amount thereof, the Company shall nevertheless indemnify Indemnitee for the portion of such expenses, judgments, fines or penalties to which Indemnitee is entitled.

6. **Mutual Acknowledgment.** Both the Company and Indemnitee acknowledge that in certain instances, Federal law or public policy may override applicable state law and prohibit the Company from indemnifying its directors and officers under this Agreement or otherwise. For example, the Company and Indemnitee acknowledge that the Securities and Exchange

Commission (the "SEC") has taken the position that indemnification is not permissible for liabilities arising under certain federal securities laws, and federal legislation prohibits indemnification for certain ERISA violations. Indemnitee understands and acknowledges that the Company has undertaken or may be required in the future to undertake with the SEC to submit the question of indemnification to a court in certain circumstances for a determination of the Company's right under public policy to indemnify Indemnitee.

7. **Officer and Director Liability Insurance.** The Company shall, from time to time, make the good faith determination whether or not it is practicable for the Company to obtain and maintain a policy or policies of insurance with reputable insurance companies providing the officers and directors of the Company with coverage for losses from wrongful acts, or to ensure the Company's performance of its indemnification obligations under this Agreement. Among other considerations, the Company will weigh the costs of obtaining such insurance coverage against the protection afforded by such coverage. In all policies of director and officer liability insurance, Indemnitee shall be named as an insured in such a manner as to provide Indemnitee the same rights and benefits as are accorded to the most favorably insured of the Company's directors, if Indemnitee is a director; or of the Company's officers, if Indemnitee is not a director of the Company but is an officer; or of the Company's key employees, if Indemnitee is not an officer or director but is a key employee. Notwithstanding the foregoing, the Company shall have no obligation to obtain or maintain such insurance if the Company determines in good faith that such insurance is not reasonably available, if the premium costs for such insurance are disproportionate to the amount of coverage provided, if the coverage provided by such insurance is limited by exclusions so as to provide an insufficient benefit, or if Indemnitee is covered by similar insurance maintained by a parent or subsidiary of the Company.

8. **Severability.** Nothing in this Agreement is intended to require or shall be construed as requiring the Company to do or fail to do any act in violation of applicable law. The Company's inability, pursuant to court order, to perform its obligations under this Agreement shall not constitute a breach of this Agreement. The provisions of this Agreement shall be severable as provided in this Section 8. If this Agreement or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the Company shall nevertheless indemnify Indemnitee to the full extent permitted by any applicable portion of this Agreement that shall not have been invalidated, and the balance of this Agreement not so invalidated shall be enforceable in accordance with its terms.

9. **Exceptions.** Any other provision herein to the contrary notwithstanding, the Company shall not be obligated pursuant to the terms of this Agreement:

(a) **Claims Initiated by Indemnitee.** To indemnify or advance expenses to Indemnitee with respect to proceedings or claims initiated or brought voluntarily by Indemnitee and not by way of defense, except with respect to proceedings brought to establish or enforce a right to indemnification under this Agreement or any other statute or law or otherwise as required under Section 145 of the Delaware General Corporation Law, but such indemnification or advancement of expenses may be provided by the Company in specific cases if the Board of Directors finds it to be appropriate;

(b) **Lack of Good Faith.** To indemnify Indemnitee for any expenses incurred by Indemnitee with respect to any proceeding instituted by Indemnitee to enforce or interpret this Agreement, if a court of competent jurisdiction determines that each of the material assertions made by Indemnitee in such proceeding was not made in good faith or was frivolous;

(c) **Insured Claims**. To indemnify Indemnitee for expenses or liabilities of any type whatsoever (including, but not limited to, judgments, fines, ERISA excise taxes or penalties, and amounts paid in settlement) to the extent such expenses or liabilities have been paid directly to Indemnitee by an insurance carrier under a policy of officers' and directors' liability insurance maintained by the Company; or

(d) **Claims under Section 16(b).** To indemnify Indemnitee for expenses or the payment of profits arising from the purchase and sale by Indemnitee of securities in violation of Section 16(b) of the Securities Exchange Act of 1934, as amended, or any similar successor statute.

10. **Construction of Certain Phrases.**

(a) For purposes of this Agreement, references to the "Company" shall include, in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, and employees or agents, so that if Indemnitee is or was a director, officer, employee or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, Indemnitee shall stand in the same position under the provisions of this Agreement with respect to the resulting or surviving corporation as Indemnitee would have with respect to such constituent corporation if its separate existence had continued.

(b) For purposes of this Agreement, references to "other enterprises" shall include employee benefit plans; references to "fines" shall include any excise taxes assessed on Indemnitee with respect to an employee benefit plan; and references to "serving at the request of the Company" shall include any service as a director, officer, employee or agent of the Company which imposes duties on, or involves services by, such director, officer, employee or agent with respect to an employee benefit plan, its participants, or beneficiaries; and if Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan, Indemnitee shall be deemed to have acted in a manner " not opposed to the best interests of the Company" as referred to in this Agreement.

11. **Attorneys' Fees.** In the event that any action is instituted by Indemnitee under this Agreement to enforce or interpret any of the terms hereof, Indemnitee shall be entitled to be paid all court costs and expenses, including reasonable attorneys' fees, incurred by Indemnitee with respect to such action, unless as a part of such action, the court of competent jurisdiction determines that each of the material assertions made by Indemnitee as a basis for such action were not made in good faith or were frivolous. In the event of an action instituted by or in the name of the Company under this Agreement or to enforce or interpret any of the terms of this

Agreement, Indemnitee shall be entitled to be paid all court costs and expenses, including attorneys' fees, incurred by Indemnitee in defense of such action (including with respect to Indemnitee's counterclaims and cross-claims made in such action), unless as a part of such action the court determines that each of Indemnitee's material defenses to such action were made in bad faith or were frivolous.

12. **Miscellaneous.**

(a) **Governing Law.** This Agreement and all acts and transactions pursuant hereto and the rights and obligations of the parties hereto shall be governed, construed and interpreted in accordance with the laws of the State of Delaware, without giving effect to principles of conflict of law.

(b) **Entire Agreement; Enforcement of Rights.** This Agreement sets forth the entire agreement and understanding of the parties relating to the subject matter herein and merges all prior discussions between them. No modification of or amendment to this Agreement, nor any waiver of any rights under this Agreement, shall be effective unless in writing signed by the parties to this Agreement. The failure by either party to enforce any rights under this Agreement shall not be construed as a waiver of any rights of such party.

(c) **Construction.** This Agreement is the result of negotiations between and has been reviewed by each of the parties hereto and their respective counsel, if any; accordingly, this Agreement shall be deemed to be the product of all of the parties hereto, and no ambiguity shall be construed in favor of or against any one of the parties hereto.

(d) **Notices**. Any notice, demand or request required or permitted to be given under this Agreement shall be in writing and shall be deemed sufficient when delivered personally or sent by fax or 48 hours after being sent by nationally-recognized courier or deposited in the U.S. mail, as certified or registered mail, with postage prepaid, and addressed to the party to be notified at such party's address or fax number as set forth below or as subsequently modified by written notice.

(e) **Counterparts.** This Agreement may be executed in two or more counterparts, each of which shall be deemed an original and all of which together shall constitute one instrument.

(f) **Successors and Assigns.** This Agreement shall be binding upon the Company and its successors and assigns, and inure to the benefit of Indemnitee and Indemnitee's heirs, legal representatives and assigns.

(g) **Subrogation**. In the event of payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee, who shall execute all documents required and shall do all acts that may be necessary to secure such rights and to enable the Company to effectively bring suit to enforce such rights.

[Signature Page Follows]

The parties hereto have executed this Agreement as of the day and year set forth on the first page of this Agreement.

AcelRx Pharmaceuticals, Inc.

By: _____

Title: _____

Address: 575 Chesapeake Drive
Redwood City, CA 94063

Fax Number: (650) 216-6500

AGREED TO AND ACCEPTED:

_____
(Print Name)

_____
(Signature)

Address: _____

_____

Fax Number: _____

ACELRX PHARMACEUTICALS, INC.

2011 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: JANUARY 5, 2011
APPROVED BY THE STOCKHOLDERS: JANUARY [__], 2011
TERMINATION DATE: JANUARY 4, 2021

1. GENERAL.

(a) Successor to and Continuation of Prior Plan. The Plan is intended as the successor to and continuation of the AcelRx Pharmaceuticals, Inc. 2006 Stock Plan (the "***Prior Plan***"). Following the Effective Date, no additional stock awards shall be granted under the Prior Plan. Any available shares that are not reserved for issuance pursuant to stock awards issued under the Prior Plan and outstanding as of the Effective Date (the "***Prior Plan's Available Reserve***") shall become available for issuance pursuant to Stock Awards granted hereunder. From and after the Effective Date, all outstanding stock awards granted under the Prior Plan shall remain subject to the terms of the Prior Plan; *provided, however*, any shares subject to outstanding stock awards granted under the Prior Plan that expire or terminate for any reason prior to exercise or settlement or are forfeited because of the failure to meet a contingency or condition required to vest such shares, which shares would otherwise return to the Prior Plan (the " ***Returning Shares***") shall become available for issuance pursuant to Awards granted hereunder. All Awards granted on or after the Effective Date of this Plan shall be subject to the terms of this Plan.

(b) Eligible Award Recipients. The persons eligible to receive Awards are Employees, Directors and Consultants.

(c) Available Awards. The Plan provides for the grant of the following Awards: (i) Incentive Stock Options, (ii) Nonstatutory Stock Options, (iii) Stock Appreciation Rights (iv) Restricted Stock Awards, (v) Restricted Stock Unit Awards, (vi) Performance Stock Awards, (vii) Performance Cash Awards, and (viii) Other Stock Awards.

(d) Purpose. The Company, by means of the Plan, seeks to secure and retain the services of the group of persons eligible to receive Awards as set forth in Section 1(b), to provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate and to provide a means by which such eligible recipients may be given an opportunity to benefit from increases in value of the Common Stock through the granting of Awards.

2. ADMINISTRATION.

(a) Administration by Board. The Board shall administer the Plan unless and until the Board delegates administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) Powers of Board. The Board shall have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine from time to time (A) which of the persons eligible under the Plan shall be granted Awards; (B) when and how each Award shall be granted; (C) what type or combination of types of Award shall be granted; (D) the provisions of each Award granted (which need not be identical), including the time or times when a person shall be permitted to receive cash or Common Stock pursuant to a Stock Award; (E) the number of shares of Common Stock with respect to which a Stock Award shall be granted to each such person; and (F) the Fair Market Value applicable to a Stock Award.

(ii) To construe and interpret the Plan and Awards granted under it, and to establish, amend and revoke rules and regulations for its administration. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan or in any Stock Award Agreement or in the written terms of a Performance Cash Award, in a manner and to the extent it shall deem necessary or expedient to make the Plan or Award fully effective.

(iii) To settle all controversies regarding the Plan and Awards granted under it.

(iv) To accelerate the time at which an Award may first be exercised or the time during which an Award or any part thereof will vest in accordance with the Plan, notwithstanding the provisions in the Award stating the time at which it may first be exercised or the time during which it will vest.

(v) To suspend or terminate the Plan at any time. Suspension or termination of the Plan shall not impair rights and obligations under any Award granted while the Plan is in effect except with the written consent of the affected Participant.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, by adopting amendments relating to Incentive Stock Options and certain nonqualified deferred compensation under Section 409A of the Code and/or to bring the Plan or Awards granted under the Plan into compliance therewith, subject to the limitations, if any, of applicable law. However, except as provided in Section 9(a) relating to Capitalization Adjustments, to the extent required by applicable law or listing requirements, stockholder approval shall be required for any amendment of the Plan that either (A) materially increases the number of shares of Common Stock available for issuance under the Plan, (B) materially expands the class of individuals eligible to receive Awards under the Plan, (C) materially increases the benefits accruing to Participants under the Plan or materially reduces the price at which shares of Common Stock may be issued or purchased under the Plan, (D) materially extends the term of the Plan, or (E) expands the types of Awards available for issuance under the Plan. Except as provided above, rights under any Award granted before amendment of the Plan shall not be impaired by any amendment of the Plan unless (1) the Company requests the consent of the affected Participant, and (2) such Participant consents in writing.

(vii) To submit any amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of (A) Section 162(m) of the Code regarding the exclusion of performance-based compensation from the limit

on corporate deductibility of compensation paid to Covered Employees, (B) Section 422 of the Code regarding "incentive stock options" or (C) Rule 16b-3.

(viii) To approve forms of Award Agreements for use under the Plan and to amend the terms of any one or more Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided however*, that except with respect to amendments that disqualify or impair the status of an Incentive Stock Option, a Participant's rights under any Award shall not be impaired by any such amendment unless (A) the Company requests the consent of the affected Participant, and (B) such Participant consents in writing. Notwithstanding the foregoing, subject to the limitations of applicable law, if any, the Board may amend the terms of any one or more Awards without the affected Participant's consent if necessary to maintain the qualified status of the Award as an Incentive Stock Option or to bring the Award into compliance with Section 409A of the Code.

(ix) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Awards.

(x) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees, Directors or Consultants who are foreign nationals or employed outside the United States.

(xi) To effect, at any time and from time to time, with the consent of any adversely affected Participant, (A) the reduction of the exercise price (or strike price) of any outstanding Option or SAR under the Plan; (B) the cancellation of any outstanding Option or SAR under the Plan and the grant in substitution therefor of (1) a new Option or SAR under the Plan or another equity plan of the Company covering the same or a different number of shares of Common Stock, (2) a Restricted Stock Award, (3) a Restricted Stock Unit Award, (4) an Other Stock Award, (5) cash and/or (6) other valuable consideration (as determined by the Board, in its sole discretion); or (C) any other action that is treated as a repricing under generally accepted accounting principles.

(c) Delegation to Committee.

(i) General. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee shall have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board shall thereafter be to the Committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated.

(ii) Section 162(m) and Rule 16b-3 Compliance. The Committee may consist solely of two or more Outside Directors, in accordance with Section 162(m) of the Code, or solely of two or more Non-Employee Directors, in accordance with Rule 16b-3.

(d) Delegation to an Officer. The Board may delegate to one (1) or more Officers the authority to do one or both of the following (i) designate Employees who are providing Continuous Service to the Company or any of its Subsidiaries who are not Officers to be recipients of Options and Stock Appreciation Rights (and, to the extent permitted by applicable law, other Stock Awards) and the terms thereof, and (ii) determine the number of shares of Common Stock to be subject to such Stock Awards granted to such Employees; *provided, however*, that the Board resolutions regarding such delegation shall specify the total number of shares of Common Stock that may be subject to the Stock Awards granted by such Officer and that such Officer may not grant a Stock Award to himself or herself. Notwithstanding the foregoing, the Board may not delegate authority to an Officer to determine the Fair Market Value pursuant to Section 13(w)(iii) below.

(e) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board in good faith shall not be subject to review by any person and shall be final, binding and conclusive on all persons.

3. SHARES SUBJECT TO THE PLAN.

(a) Share Reserve. Subject to Section 9(a) relating to Capitalization Adjustments, the aggregate number of shares of Common Stock that may be issued pursuant to Stock Awards from and after the Effective Date shall not exceed 7,500,000 shares (the "***Share Reserve***"), which number is the sum of (i) the number of shares subject to the Prior Plan's Available Reserve, (ii) an additional [_____][1] new shares, plus (iii) an additional number of shares in an amount not to exceed [_____][2] shares (which number consists of the Returning Shares, if any, as such shares become available from time to time). In addition, the number of shares of Common Stock available for issuance under the Plan shall automatically increase on January 1st of each year for a period of ten (10) years commencing on January 1, 2012 and ending on (and including) January 1, 2020, in an amount equal to 4% of the total number of shares of Common Stock outstanding on December 31st of the preceding calendar year. Notwithstanding the foregoing, the Board may act prior to the first day of any calendar year, to provide that there shall be no increase in the share reserve for such calendar year or that the increase in the share reserve for such calendar year shall be a lesser number of shares of Common Stock than would otherwise occur pursuant to the preceding sentence. For clarity, the limitation in this Section 3(a) is a limitation on the number of shares of Common Stock that may be issued pursuant to the Plan. Accordingly, this Section 3(a) does not limit the granting of Stock Awards except as provided in Section 7(a). Shares may be issued in connection with a merger or acquisition as permitted by NASDAQ Listing Rule 5635(c) or, if applicable, NYSE Listed Company Manual Section 303A.08, AMEX Company Guide Section 711 or other applicable rule, and such issuance shall not reduce the number of shares available for issuance

[1] TBD on date of effectiveness of plan = 7.5M – returning reserve

[2] TBD on date of effectiveness of plan = # shares subject to awards under '06 Plan on date of effectiveness of 2011 EIP

under the Plan. Furthermore, if a Stock Award or any portion thereof (i) expires or otherwise terminates without all of the shares covered by such Stock Award having been issued or (ii) is settled in cash (*i.e.*, the Participant receives cash rather than stock), such expiration, termination or settlement shall not reduce (or otherwise offset) the number of shares of Common Stock that may be available for issuance under the Plan.

(b) Reversion of Shares to the Share Reserve. If any shares of Common Stock issued pursuant to a Stock Award are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required to vest such shares in the Participant, then the shares that are forfeited or repurchased shall revert to and again become available for issuance under the Plan. Any shares reacquired by the Company pursuant to Section 8(g) or as consideration for the exercise of an Option shall again become available for issuance under the Plan.

(c) Incentive Stock Option Limit. Notwithstanding anything to the contrary in this Section 3 and, subject to the provisions of Section 9(a) relating to Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options shall be 40,000,000 shares of Common Stock.

(d) Section 162(m) Limitation on Annual Grants . Subject to the provisions of Section 9(a) relating to Capitalization Adjustments, at such time as the Company may be subject to the applicable provisions of Section 162(m) of the Code, a maximum of 4,000,000 shares of Common Stock subject to Options, Stock Appreciation Rights and Other Stock Awards whose value is determined by reference to an increase over an exercise or strike price of at least one hundred percent (100%) of the Fair Market Value on the date the Stock Award is granted may be granted to any Participant during any calendar year. Notwithstanding the foregoing, if any additional Options, Stock Appreciation Rights or Other Stock Awards whose value is determined by reference to an increase over an exercise or strike price of at least one hundred (100% percent) of the Fair Market Value on the date the Stock Award are granted to any Participant during any calendar year, compensation attributable to the exercise of such additional Stock Awards shall not satisfy the requirements to be considered "qualified performance-based compensation" under Section 162(m) of the Code unless such additional Stock Awards are approved by the Company's stockholders.

(e) Source of Shares. The stock issuable under the Plan shall be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

4. ELIGIBILITY.

(a) Eligibility for Spec
"parent corporation" or "subsidiary corporation" thereof (as such terms are defined in Sections 424(e) and (f) of the Code). Stock Awards other than Incentive Stock Options may be granted to Employees, Directors and Consultants; *provided, however*, Nonstatutory Stock Options and SARs may not be granted to Employees, Directors and Consultants who are providing Continuous Service only to any "parent" of the Company, as such term is defined in Rule 405, unless the stock underlying such Stock Awards is treated as "service

recipient stock" under Section 409A of the Code because the Stock Awards are granted pursuant to a corporate transaction (such as a spin off transaction) or unless such Stock Awards comply with the distribution requirements of Section 409A of the Code.

(b) Ten Percent Stockholders. A Ten Percent Stockholder shall not be granted an Incentive Stock Option unless the exercise price of such Option is at least one hundred ten percent (110%) of the Fair Market Value on the date of grant and the Option is not exercisable after the expiration of five (5) years from the date of grant.

5. PROVISIONS RELATING TO OPTIONS AND STOCK APPRECIATION RIGHTS.

Each Option or SAR shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. All Options shall be separately designated Incentive Stock Options or Nonstatutory Stock Options at the time of grant, and, if certificates are issued, a separate certificate or certificates shall be issued for shares of Common Stock purchased on exercise of each type of Option. If an Option is not specifically designated as an Incentive Stock Option, then the Option shall be a Nonstatutory Stock Option. The provisions of separate Options or SARs need not be identical; *provided, however*, that each Option Agreement or Stock Appreciation Right Agreement shall conform to (through incorporation of provisions hereof by reference in the applicable Award Agreement or otherwise) the substance of each of the following provisions:

(a) Term. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, no Option or SAR shall be exercisable after the expiration of ten (10) years from the date of its grant or such shorter period specified in the Award Agreement.

(b) Exercise Price. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, the exercise price (or strike price) of each Option or SAR shall be not less than one hundred percent (100%) of the Fair Market Value of the Common Stock subject to the Option or SAR on the date the Option or SAR is granted. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise price (or strike price) lower than one hundred percent (100%) of the Fair Market Value of the Common Stock subject to the Option or SAR if such Option or SAR is granted pursuant to an assumption of or substitution for another option or stock appreciation right pursuant to a Corporate Transaction and in a manner consistent with the provisions of Sections 409A and, if applicable, 424(a) of the Code. Each SAR will be denominated in shares of Common Stock equivalents.

(c) Purchase Price for Options. The purchase price of Common Stock acquired pursuant to the exercise of an Option shall be paid, to the extent permitted by applicable law and as determined by the Board in its sole discretion, by any combination of the methods of payment set forth below. The Board shall have the authority to grant Options that do not permit all of the following methods of payment (or otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to utilize a particular method of payment. The permitted methods of payment are as follows:

(i) by cash, check, bank draft or money order payable to the Company;

(ii) pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds;

(iii) by delivery to the Company (either by actual delivery or attestation) of shares of Common Stock;

(iv) if the option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided, however*, that the Company shall accept a cash or other payment from the Participant to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued; *provided, further,* that shares of Common Stock will no longer be subject to an Option and will not be exercisable thereafter to the extent that (A) shares issuable upon exercise are reduced to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations; or

(v) in any other form of legal consideration that may be acceptable to the Board and specified in the applicable award agreement.

(d) Exercise and Payment of a SAR. To exercise any outstanding Stock Appreciation Right, the Participant must provide written notice of exercise to the Company in compliance with the provisions of the Stock Appreciation Right Agreement evidencing such Stock Appreciation Right. The appreciation distribution payable on the exercise of a Stock Appreciation Right will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the Stock Appreciation Right) of a number of shares of Common Stock equal to the number of Common Stock equivalents in which the Participant is vested under such Stock Appreciation Right, and with respect to which the Participant is exercising the Stock Appreciation Right on such date, over (B) the strike price that will be determined by the Board at the time of grant of the Stock Appreciation Right. The appreciation distribution in respect to a Stock Appreciation Right may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Stock Appreciation Right Agreement evidencing such Stock Appreciation Right.

(e) Transferability of Options and SARs. The Board may, in its sole discretion, impose such limitations on the transferability of Options and SARs as the Board shall determine. In the absence of such a determination by the Board to the contrary, the following restrictions on the transferability of Options and SARs shall apply:

(i) Restrictions on Transfer. An Option or SAR shall not be transferable except by will or by the laws of descent and distribution and shall be exercisable during the lifetime of the Participant only by the Participant; *provided, however*, that the Board may, in its sole discretion, permit transfer of the Option or SAR in a manner that is not prohibited by

applicable tax and securities laws upon the Participant's request. Except as explicitly provided herein, neither an Option nor a SAR may be transferred for consideration.

(ii) Domestic Relations Orders. Notwithstanding the foregoing, an Option or SAR may be transferred pursuant to a domestic relations order; *provided, however*, that if an Option is an Incentive Stock Option, such Option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(iii) Beneficiary Designation. Notwithstanding the foregoing, the Participant may, by delivering written notice to the Company, in a form provided by or otherwise satisfactory to the Company and any broker designated by the Company to effect Option exercises, designate a third party who, in the event of the death of the Participant, shall thereafter be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, the executor or administrator of the Participant's estate shall be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise.

(f) Vesting Generally. The total number of shares of Common Stock subject to an Option or SAR may vest and therefore become exercisable in periodic installments that may or may not be equal. The Option or SAR may be subject to such other terms and conditions on the time or times when it may or may not be exercised (which may be based on the satisfaction of Performance Goals or other criteria) as the Board may deem appropriate. The vesting provisions of individual Options or SARs may vary. The provisions of this Section 5(f) are subject to any Option or SAR provisions governing the minimum number of shares of Common Stock as to which an Option or SAR may be exercised.

(g) Termination of Continuous Service. Except as otherwise provided in the applicable Award Agreement or other agreement between the Participant and the Company, if a Participant's Continuous Service terminates (other than for Cause or upon the Participant's death or Disability), the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Award as of the date of termination of Continuous Service) but only within such period of time ending on the earlier of (i) the date three (3) months following the termination of the Participant's Continuous Service (or such longer or shorter period specified in the applicable Award Agreement), or (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR within the time specified herein or in the Award Agreement (as applicable), the Option or SAR shall terminate.

(h) Extension of Termination Date. If the exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause or upon the Participant's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option or SAR shall terminate on the earlier of (i) the expiration of a total period of three (3) months (that need not be consecutive) after the termination of the Participant's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements, or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement. In addition, unless otherwise provided in a Participant's

Award Agreement, if the sale of any Common Stock received upon exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause) would violate the Company's insider trading policy, then the Option or SAR shall terminate on the earlier of (i) the expiration of a period equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the sale of the Common Stock received upon exercise of the Option or SAR would not be in violation of the Company's insider trading policy, or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement.

(i) Disability of Participant. Except as otherwise provided in the applicable Award Agreement or other agreement between the Participant and the Company, if a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date twelve (12) months following such termination of Continuous Service (or such longer or shorter period specified in the Award Agreement), or (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR within the time specified herein or in the Award Agreement (as applicable), the Option or SAR (as applicable) shall terminate.

(j) Death of Participant. Except as otherwise provided in the applicable Award Agreement or other agreement between the Participant and the Company, if (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) the Participant dies within the period (if any) specified in the Award Agreement after the termination of the Participant's Continuous Service for a reason other than death, then the Option or SAR may be exercised (to the extent the Participant was entitled to exercise such Option or SAR as of the date of death) by the Participant's estate, by a person who acquired the right to exercise the Option or SAR by bequest or inheritance or by a person designated to exercise the Option or SAR upon the Participant's death, but only within the period ending on the earlier of (i) the date eighteen (18) months following the date of death (or such longer or shorter period specified in the Award Agreement), or (ii) the expiration of the term of such Option or SAR as set forth in the Award Agreement. If, after the Participant's death, the Option or SAR is not exercised within the time specified herein or in the Award Agreement (as applicable), the Option or SAR shall terminate.

(k) Termination for Cause. Except as explicitly provided otherwise in a Participant's Award Agreement, if a Participant's Continuous Service is terminated for Cause, the Option or SAR shall terminate upon the date on which the event giving rise to the termination occurred, and the Participant shall be prohibited from exercising his or her Option or SAR from and after the time of such termination of Continuous Service.

(l) Non-Exempt Employees. No Option or SAR granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, shall be first exercisable for any shares of Common Stock until at least six (6) months following the date of grant of the Option or SAR. Notwithstanding the foregoing, consistent with the provisions of the Worker Economic Opportunity Act, (i) in the event of the Participant's death or Disability, (ii) upon a Corporate Transaction in which such Option or SAR is not assumed,

continued, or substituted, (iii) upon a Change in Control, or (iv) upon the Participant's retirement (as such term may be defined in the Participant's Award Agreement or in another applicable agreement or in accordance with the Company's then current employment policies and guidelines), any such vested Options and SARs may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay.

6. PROVISIONS OF STOCK AWARDS OTHER THAN OPTIONS AND SARS.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. To the extent consistent with the Company's Bylaws, at the Board's election, shares of Common Stock may be (x) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse; or (y) evidenced by a certificate, which certificate shall be held in such form and manner as determined by the Board. The terms and conditions of Restricted Stock Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Award Agreements need not be identical; *provided, however*, that each Restricted Stock Award Agreement shall conform to (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash, check, bank draft or money order payable to the Company, (B) past services to the Company or an Affiliate, or (C) any other form of legal consideration (including future services) that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Shares of Common Stock awarded under the Restricted Stock Award Agreement may be subject to forfeiture to the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Participant's Continuous Service. If a Participant's Continuous Service terminates, the Company may receive through a forfeiture condition or a repurchase right any or all of the shares of Common Stock held by the Participant that have not vested as of the date of termination of Continuous Service under the terms of the Restricted Stock Award Agreement.

(iv) Transferability. Rights to acquire shares of Common Stock under the Restricted Stock Award Agreement shall be transferable by the Participant only upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board shall determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement.

(v) Dividends. A Restricted Stock Award Agreement may provide that any dividends paid on Restricted Stock will be subject to the same vesting and forfeiture restrictions as apply to the shares subject to the Restricted Stock Award to which they relate.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. The terms and conditions of Restricted Stock Unit Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical; *provided, however*, that each Restricted Stock Unit Award Agreement shall conform to (through incorporation of the provisions hereof by reference in the Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid by the Participant upon delivery of each share of Common Stock subject to the Restricted Stock Unit Award. The consideration to be paid (if any) by the Participant for each share of Common Stock subject to a Restricted Stock Unit Award may be paid in any form of legal consideration that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. At the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions on or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to a Restricted Stock Unit Award to a time after the vesting of such Restricted Stock Unit Award.

(v) Dividend Equivalents. Dividend equivalents may be credited in respect of shares of Common Stock covered by a Restricted Stock Unit Award, as determined by the Board and contained in the Restricted Stock Unit Award Agreement. At the sole discretion of the Board, such dividend equivalents may be converted into additional shares of Common Stock covered by the Restricted Stock Unit Award in such manner as determined by the Board. Any additional shares covered by the Restricted Stock Unit Award credited by reason of such dividend equivalents will be subject to all of the same terms and conditions of the underlying Restricted Stock Unit Award Agreement to which they relate.

(vi) Termination of Participant's Continuous Service. Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement, such portion of the Restricted Stock Unit Award that has not vested will be forfeited upon the Participant's termination of Continuous Service.

(c) Performance Awards.

(i) Performance Stock Awards. A Performance Stock Award is a Stock Award that may vest or may be exercised contingent upon the attainment during a Performance Period of certain Performance Goals. A Performance Stock Award may, but need not, require

the completion of a specified period of Continuous Service. The length of any Performance Period, the Performance Goals to be achieved during the Performance Period, and the measure of whether and to what degree such Performance Goals have been attained shall be conclusively determined by the Committee, in its sole discretion. The maximum number of shares covered by an Award that may be granted to any Participant in a calendar year attributable to Stock Awards described in this Section 6(c)(i) (whether the grant, vesting or exercise is contingent upon the attainment during a Performance Period of the Performance Goals) shall not exceed 3,000,000 shares of Common Stock. The Board may provide for or, subject to such terms and conditions as the Board may specify, may permit a Participant to elect for, the payment of any Performance Stock Award to be deferred to a specified date or event. In addition, to the extent permitted by applicable law and the applicable Award Agreement, the Board may determine that cash may be used in payment of Performance Stock Awards.

(ii) Performance Cash Awards. A Performance Cash Award is a cash award that may be paid contingent upon the attainment during a Performance Period of certain Performance Goals. A Performance Cash Award may also require the completion of a specified period of Continuous Service. At the time of grant of a Performance Cash Award, the length of any Performance Period, the Performance Goals to be achieved during the Performance Period, and the measure of whether and to what degree such Performance Goals have been attained shall be conclusively determined by the Committee, in its sole discretion. In any calendar year, the Committee may not grant a Performance Cash Award that has a maximum value that may be paid to any Participant in excess of $1,000,000. The Board may provide for or, subject to such terms and conditions as the Board may specify, may permit a Participant to elect for, the payment of any Performance Cash Award to be deferred to a specified date or event. The Board may specify the form of payment of Performance Cash Awards, which may be cash or other property, or may provide for a Participant to have the option for his or her Performance Cash Award, or such portion thereof as the Board may specify, to be paid in whole or in part in cash or other property.

(iii) Section 162(m) Compliance. Unless otherwise permitted in compliance with the requirements of Section 162(m) of the Code with respect to an Award intended to qualify as "performance-based compensation" thereunder, the Committee shall establish the Performance Goals applicable to, and the formula for calculating the amount payable under, the Award no later than the earlier of (a) the date ninety (90) days after the commencement of the applicable Performance Period, or (b) the date on which twenty-five percent (25%) of the Performance Period has elapsed, and in any event at a time when the achievement of the applicable Performance Goals remains substantially uncertain. Prior to the payment of any compensation under an Award intended to qualify as "performance-based compensation" under Section 162(m) of the Code, the Committee shall certify the extent to which any Performance Goals and any other material terms under such Award have been satisfied (other than in cases where such relate solely to the increase in the value of the Common Stock). Notwithstanding satisfaction of any completion of any Performance Goals, to the extent specified at the time of grant of an Award to "covered employees" within the meaning of Section 162(m) of the Code, the number of shares of Common Stock, Options, cash or other benefits granted, issued, retainable and/or vested under an Award on account of satisfaction of such Performance Goals may be reduced by the Committee on the basis of such further considerations as the Committee, in its sole discretion, shall determine.

(d) Other Stock Awards. Other forms of Stock Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof may be granted either alone or in addition to Stock Awards provided for under Section 5 and the preceding provisions of this Section 6. Subject to the provisions of the Plan, the Board shall have sole and complete authority to determine the persons to whom and the time or times at which such Other Stock Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Stock Awards and all other terms and conditions of such Other Stock Awards.

7. COVENANTS OF THE COMPANY.

(a) Availability of Shares. During the terms of the Stock Awards, the Company shall keep available at all times the number of shares of Common Stock reasonably required to satisfy such Stock Awards.

(b) Securities Law Compliance. The Company shall seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Stock Awards and to issue and sell shares of Common Stock upon exercise of the Stock Awards; *provided, however*, that this undertaking shall not require the Company to register under the Securities Act the Plan, any Stock Award or any Common Stock issued or issuable pursuant to any such Stock Award. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company shall be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Stock Awards unless and until such authority is obtained. A Participant shall not be eligible for the grant of a Stock Award or the subsequent issuance of Common Stock pursuant to the Stock Award if such grant or issuance would be in violation of any applicable securities law.

(c) No Obligation to Notify or Minimize Taxes. The Company shall have no duty or obligation to any Participant to advise such holder as to the time or manner of exercising such Stock Award. Furthermore, the Company shall have no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of a Stock Award or a possible period in which the Stock Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of a Stock Award to the holder of such Stock Award.

8. MISCELLANEOUS.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock pursuant to Stock Awards shall constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Stock Awards. Corporate action constituting a grant by the Company of a Stock Award to any Participant shall be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Stock Award is communicated to, or actually received or accepted by, the Participant.

(c) Stockholder Rights. No Participant shall be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to such Stock Award unless and until (i) such Participant has satisfied all requirements for exercise of the Stock Award pursuant to its terms, if applicable, and (ii) the issuance of the Common Stock subject to such Stock Award has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Stock Award Agreement or any other instrument executed thereunder or in connection with any Award granted pursuant thereto shall confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Stock Award was granted or shall affect the right of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the Bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Incentive Stock Option $100,000 Limitation. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and any Affiliates) exceeds one hundred thousand dollars ($100,000), the Options or portions thereof that exceed such limit (according to the order in which they were granted) shall be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(f) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Stock Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Stock Award; and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Stock Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, shall be inoperative if (A) the issuance of the shares upon the exercise or acquisition of Common Stock under the Stock Award has been registered under a then currently effective registration statement under the Securities Act, or (B) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(g) Withholding Obligations. Unless prohibited by the terms of a Stock Award Agreement, the Company may, in its sole discretion, satisfy any federal, state or local tax withholding obligation relating to an Award by any of the following means or by a combination

of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Award; *provided, however*, that no shares of Common Stock are withheld with a value exceeding the minimum amount of tax required to be withheld by law (or such lesser amount as may be necessary to avoid classification of the Stock Award as a liability for financial accounting purposes); (iii) withholding cash from an Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; or (v) by such other method as may be set forth in the Award Agreement.

(h) Electronic Delivery. Any reference herein to a "written" agreement or document shall include any agreement or document delivered electronically, filed publicly with at www.sec.gov (or any successor website thereto) or posted on the Company's intranet.

(i) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in accordance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee or otherwise providing services to the Company. The Board is authorized to make deferrals of Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of Continuous Service, and implement such other terms and conditions consistent with the provisions of the Plan and in accordance with applicable law.

(j) Compliance with Section 409A. To the extent that the Board determines that any Award granted hereunder is subject to Section 409A of the Code, the Award Agreement evidencing such Award shall incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code. To the extent applicable, the Plan and Award Agreements shall be interpreted in accordance with Section 409A of the Code. Notwithstanding anything to the contrary in this Plan (and unless the Award Agreement specifically provides otherwise), if the shares of Common Stock are publicly traded and a Participant holding an Award that constitutes "deferred compensation" under Section 409A of the Code is a "specified employee" for purposes of Section 409A of the Code, no distribution or payment of any amount shall be made upon a "separation from service" before a date that is six (6) months following the date of such Participant's "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) or, if earlier, the date of the Participant's death, unless such distribution or payment can be made in a manner that complies with Section 409A of the Code.

9. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; OTHER CORPORATE EVENTS.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board shall appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 3(c), (iii) the class(es) and maximum number of securities that may be awarded to any

person pursuant to Sections 3(d) and 6(c)(i), and (iv) the class(es) and number of securities and price per share of stock subject to outstanding Stock Awards. The Board shall make such adjustments, and its determination shall be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the Stock Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Stock Awards (other than Stock Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) shall terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company notwithstanding the fact that the holder of such Stock Award is providing Continuous Service, *provided, however*, that the Board may, in its sole discretion, cause some or all Stock Awards to become fully vested, exercisable and/or no longer subject to repurchase or forfeiture (to the extent such Stock Awards have not previously expired or terminated) before the dissolution or liquidation is completed but contingent on its completion.

(c) Corporate Transaction. The following provisions shall apply to Stock Awards in the event of a Corporate Transaction unless otherwise provided in the instrument evidencing the Stock Award or any other written agreement between the Company or any Affiliate and the holder of the Stock Award or unless otherwise expressly provided by the Board at the time of grant of a Stock Award. In the event of a Corporate Transaction, then, notwithstanding any other provision of the Plan, the Board shall take one or more of the following actions with respect to Stock Awards, contingent upon the closing or completion of the Corporate Transaction:

(i) arrange for the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) to assume or continue the Stock Award or to substitute a similar stock award for the Stock Award (including, but not limited to, an award to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction);

(ii) arrange for the assignment of any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to the Stock Award to the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company);

(iii) accelerate the vesting of the Stock Award (and, if applicable, the time at which the Stock Award may be exercised) to a date prior to the effective time of such Corporate Transaction as the Board shall determine (or, if the Board shall not determine such a date, to the date that is five (5) days prior to the effective date of the Corporate Transaction), with such Stock Award terminating if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction;

(iv) arrange for the lapse of any reacquisition or repurchase rights held by the Company with respect to the Stock Award;

(v) cancel or arrange for the cancellation of the Stock Award, to the extent not vested or not exercised prior to the effective time of the Corporate Transaction, in exchange for such cash consideration, if any, as the Board, in its sole discretion, may consider appropriate; and

(vi) make a payment, in such form as may be determined by the Board equal to the excess, if any, of (A) the value of the property the Participant would have received upon the exercise of the Stock Award immediately prior to the effective time of the Corporate Transaction, over (B) any exercise price payable by such holder in connection with such exercise.

The Board need not take the same action or actions with respect to all Stock Awards or portions thereof or with respect to all Participants.

(d) Change in Control. A Stock Award may be subject to additional acceleration of vesting and exercisability upon or after a Change in Control as may be provided in the Stock Award Agreement for such Stock Award or as may be provided in any other written agreement between the Company or any Affiliate and the Participant.

(e) Parachute Payments. Unless otherwise provided in an agreement between a Participant and the Company, if any payment or benefit the Participant would receive pursuant to a Change in Control from the Company or otherwise (" ***Payment***") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "***Excise Tax***"), then such Payment shall be equal to the Reduced Amount. The "***Reduced Amount***" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in the Participant's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction shall occur in the following order: reduction of cash payments; cancellation of accelerated vesting of Stock Awards other than Options; cancellation of accelerated vesting of Options; and reduction of employee benefits. In the event that acceleration of vesting of Stock Award compensation is to be reduced, such acceleration of vesting shall be cancelled in the reverse order of the date of grant of the Participant's applicable type of Stock Awards (*i.e.*, earliest granted Stock Award cancelled last).

The accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Change in Control shall perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company shall appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The accounting firm engaged to make the determinations hereunder shall provide its calculations, together with detailed supporting documentation, to the Participant and the Company within fifteen (15) calendar days after the date on which the

Participant's right to a Payment is triggered (if requested at that time by the Participant or the Company) or such other time as requested by the Participant or the Company. If the accounting firm determines that no Excise Tax is payable with respect to a Payment, either before or after the application of the Reduced Amount, it shall furnish the Participant and the Company with an opinion that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the accounting firm made hereunder shall be final, binding and conclusive upon the Participant and the Company.

10. TERMINATION OR SUSPENSION OF THE PLAN.

(a) Plan Term. The Board may suspend or terminate the Plan at any time. Unless terminated sooner by the Board, the Plan shall automatically terminate on the day before the tenth (10th) anniversary of the earlier of (i) the date the Plan is adopted by the Board, or (ii) the date the Plan is approved by the stockholders of the Company. No Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) No Impairment of Rights. Suspension or termination of the Plan shall not impair rights and obligations under any Award granted while the Plan is in effect except with the written consent of the affected Participant.

11. EFFECTIVE DATE OF PLAN.

The Plan shall become effective on the IPO Date, but no Stock Award shall be exercised (or, in the case of a Restricted Stock Award, Restricted Stock Unit Award, Performance Stock Award, or Other Stock Award, shall be granted and no Performance Cash Award shall be settled) unless and until the Plan has been approved by the stockholders of the Company, which approval shall be within twelve (12) months after the date the Plan is adopted by the Board.

12. CHOICE OF LAW.

The law of the State of Delaware shall govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. DEFINITIONS. As used in the Plan, the following definitions shall apply to the capitalized terms indicated below:

(a) "***Affiliate***" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405 of the Securities Act. The Board shall have the authority to determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

(b) "***Award***" means a Stock Award or a Performance Cash Award.

(c) "***Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of an Award.

(d) "***Board***" means the Board of Directors of the Company.

(e) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Stock Award after the Effective Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards No. 123 (revised). Notwithstanding the foregoing, the conversion of any convertible securities of the Company shall not be treated as a Capitalization Adjustment.

(f) "***Cause***" shall have the meaning ascribed to such term in any written agreement between the Participant and the Company defining such term and, in the absence of such agreement, such term shall mean, with respect to a Participant, the occurrence of any of the following events: (i) the Participant's theft, dishonesty, willful misconduct, breach of fiduciary duty for personal profit, or falsification of any Company or Affiliate documents or records; (ii) the Participant's material failure to abide by the code of conduct or other policies (including, without limitation, policies relating to confidentiality and reasonable workplace conduct) of the Company or an Affiliate; (iii) the Participant's unauthorized use, misappropriation, destruction or diversion of any tangible or intangible asset or corporate opportunity of a the Company or an Affiliate (including, without limitation, the Participant's improper use or disclosure of confidential or proprietary information of the Company or an Affiliate); (iv) any intentional act by the Participant which has a material detrimental effect on the reputation or business of the Company or an Affiliate; (v) the Participant's repeated failure or inability to perform any reasonable assigned duties after written notice from the Company or an Affiliate, and a reasonable opportunity to cure, such failure or inability; (vi) any material breach by the Participant of any employment or service agreement between the Participant and the Company or an Affiliate, which breach is not cured pursuant to the terms of such agreement; or (vii) the Participant's conviction (including any plea of guilty or nolo contendere) of any criminal act involving fraud, dishonesty, misappropriation or moral turpitude, or which impairs the Participant's ability to perform his or her duties. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Awards held by such Participant shall have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose.

(g) "***Change in Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control shall not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities, or (C) solely because the level of Ownership held by any Exchange Act Person (the " *Subject Person*") exceeds the

designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control shall be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities representing more than fifty percent (50%) of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than fifty percent (50%) of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction;

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than fifty percent (50%) of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; or

(iv) individuals who, on the date the Plan is adopted by the Board, are members of the Board (the " ***Incumbent Board***") cease for any reason to constitute at least a majority of the members of the Board; *provided, however*, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member shall, for purposes of this Plan, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing or any other provision of this Plan, (A) the term Change in Control shall not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company, and (B) the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant shall supersede the foregoing definition with respect to Awards subject to such agreement; *provided, however*, that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the foregoing definition shall apply.

(h) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(i) "***Committee***" means a committee of one (1) or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(j) "***Common Stock***" means the common stock of the Company.

(k) "***Company***" means AcelRx Pharmaceuticals, Inc., a Delaware corporation.

(l) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, shall not cause a Director to be considered a "Consultant" for purposes of the Plan. Notwithstanding the foregoing, a person is treated as a Consultant under this Plan only if a Form S-8 Registration Statement under the Securities Act is available to register either the offer or the sale of the Company's securities to such person.

(m) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Consultant or Director or a change in the entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, shall not terminate a Participant's Continuous Service; *provided, however,* if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board, in its sole discretion, such Participant's Continuous Service shall be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service shall be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate, or their successors. Notwithstanding the foregoing, a leave of absence shall be treated as Continuous Service for purposes of vesting in an Award only to such extent as may be provided in the Company's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law.

(n) "***Corporate Transaction***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) the consummation of a sale or other disposition of all or substantially all, as determined by the Board, in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) the consummation of a sale or other disposition of at least ninety percent (90%) of the outstanding securities of the Company;

(iii) the consummation of a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) the consummation of a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(o) "***Covered Employee***" shall have the meaning provided in Section 162(m)(3) of the Code.

(p) "***Director***" means a member of the Board.

(q) "***Disability***" means, with respect to a Participant, the inability of such Participant to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than twelve (12) months, as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code, and shall be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(r) "***Effective Date***" means the effective date of the Plan as set forth in Section 11.

(s) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, shall not cause a Director to be considered an "Employee" for purposes of the Plan.

(t) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(u) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(v) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" shall not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the Effective Date, is the Owner, directly or indirectly, of securities of the Company representing more than fifty percent (50%) of the combined voting power of the Company's then outstanding securities.

(w) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value of a share of Common Stock shall be, unless

otherwise determined by the Board, the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in a source the Board deems reliable.

(ii) Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value shall be the closing selling price on the last preceding date for which such quotation exists.

(iii) In the absence of such markets for the Common Stock, the Fair Market Value shall be determined by the Board in good faith and in a manner that complies with Sections 409A and 422 of the Code.

(x) "***Incentive Stock Option***" means an option granted pursuant to Section 5 of the Plan that is intended to be, and qualifies as, an "incentive stock option" within the meaning of Section 422 of the Code.

(y) "***IPO Date***" means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(z) "***Non-Employee Director***" means a Director who either (i) is not a current employee or officer of the Company or an Affiliate, does not receive compensation, either directly or indirectly, from the Company or an Affiliate for services rendered as a consultant or in any capacity other than as a Director (except for an amount as to which disclosure would not be required under Item 404(a) of Regulation S-K promulgated pursuant to the Securities Act ("***Regulation S-K***")), does not possess an interest in any other transaction for which disclosure would be required under Item 404(a) of Regulation S-K, and is not engaged in a business relationship for which disclosure would be required pursuant to Item 404(b) of Regulation S-K; or (ii) is otherwise considered a "non-employee director" for purposes of Rule 16b-3.

(aa) "***Nonstatutory Stock Option***" means any option granted pursuant to Section 5 of the Plan that does not qualify as an Incentive Stock Option.

(bb) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act.

(cc) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(dd) "***Option Agreement***" means a written agreement between the Company and an Optionholder evidencing the terms and conditions of an Option grant. Each Option Agreement shall be subject to the terms and conditions of the Plan.

(ee) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(ff) "***Other Stock Award***" means an award based in whole or in part by reference to the Common Stock which is granted pursuant to the terms and conditions of Section 6(d).

(gg) "***Other Stock Award Agreement***" means a written agreement between the Company and a holder of an Other Stock Award evidencing the terms and conditions of an Other Stock Award grant. Each Other Stock Award Agreement shall be subject to the terms and conditions of the Plan.

(hh) "***Outside Director***" means a Director who either (i) is not a current employee of the Company or an "affiliated corporation" (within the meaning of Treasury Regulations promulgated under Section 162(m) of the Code), is not a former employee of the Company or an "affiliated corporation" who receives compensation for prior services (other than benefits under a tax-qualified retirement plan) during the taxable year, has not been an officer of the Company or an "affiliated corporation," and does not receive remuneration from the Company or an "affiliated corporation," either directly or indirectly, in any capacity other than as a Director, or (ii) is otherwise considered an "outside director" for purposes of Section 162(m) of the Code.

(ii) "***Own,***" "***Owned,***" "***Owner,***" "***Ownership***" A person or Entity shall be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(jj) "***Participant***" means a person to whom an Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Stock Award.

(kk) "***Performance Cash Award***" means an award of cash granted pursuant to the terms and conditions of Section 6(c)(ii).

(ll) "***Performance Criteria***" means the one or more criteria that the Board shall select for purposes of establishing the Performance Goals for a Performance Period. The Performance Criteria that shall be used to establish such Performance Goals may be based on any one of, or combination of, the following as determined by the Board: (i) earnings (including earnings per share and net earnings); (ii) earnings before interest, taxes and depreciation; (iii) earnings before interest, taxes, depreciation and amortization; (iv) total stockholder return; (v) return on equity or average stockholder's equity; (vi) return on assets, investment, or capital employed; (vii) stock price; (viii) margin (including gross margin); (ix) income (before or after taxes); (x) operating income; (xi) operating income after taxes; (xii) pre-tax profit; (xiii) operating cash flow; (xiv) sales or revenue targets; (xv) increases in revenue or product revenue; (xvi) expenses and cost reduction goals; (xvii) improvement in or attainment of working capital levels; (xiii) economic value added (or an equivalent metric); (xix) market share; (xx) cash flow; (xxi) cash flow per share; (xxii) share price performance; (xxiii) debt reduction; (xxiv) implementation or completion of projects or processes; (xxv) customer satisfaction; (xxvi) stockholders' equity; (xxvii) capital expenditures; (xxiii) debt levels; (xxix) operating profit or net operating profit; (xxx) workforce diversity; (xxxi) growth of net income or operating income; (xxxii) billings; and (xxxiii) to the extent that an Award is not intended to comply with Section 162(m) of the Code, other measures of performance selected by the Board.

(mm) "***Performance Goals***" means, for a Performance Period, the one or more goals established by the Board for the Performance Period based upon the Performance Criteria.

Performance Goals may be based on a Company-wide basis, with respect to one or more business units, divisions, Affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise by the Board (i) in the Award Agreement at the time the Award is granted or (ii) in such other document setting forth the Performance Goals at the time the Performance Goals are established, the Board shall appropriately make adjustments in the method of calculating the attainment of Performance Goals for a Performance Period as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects, as applicable, for non-U.S. dollar denominated Performance Goals; (3) to exclude the effects of changes to generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of any "extraordinary items" as determined under generally accepted accounting principles, (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any business divested by the Company achieved performance objectives at targeted levels during the balance of a Performance Period following such divestiture; (8) to exclude the effect of any change in the outstanding shares of common stock of the Company by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common shareholders other than regular cash dividends; (9) to exclude the effects of stock based compensation and/or the award of bonuses under the Company's bonus plans and (10) to exclude the effect of any other unusual, non-recurring gain or loss or other extraordinary item. In addition, the Board retains the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of Performance Goals and to define the manner of calculating the Performance Criteria it selects to use for such Performance Period. Partial achievement of the specified criteria may result in the payment or vesting corresponding to the degree of achievement as specified in the Stock Award Agreement or the written terms of a Performance Cash Award.

(nn) "***Performance Period***" means the period of time selected by the Board over which the attainment of one or more Performance Goals will be measured for the purpose of determining a Participant's right to and the payment of a Stock Award or a Performance Cash Award. Performance Periods may be of varying and overlapping duration, at the sole discretion of the Board.

(oo) "***Performance Stock Award***" means a Stock Award granted under the terms and conditions of Section 6(c)(i).

(pp) "***Plan***" means this AcelRx Pharmaceuticals, Inc. 2011 Equity Incentive Plan.

(qq) "***Resignation for Good Reason***" means voluntary termination by a Participant from all positions he or she then holds with the Company, which resignation results in a "separation from service" with the Company within the meaning of Treasury Regulation Section 1.409A-1(h), effective within a period of ninety (90) days after the Participant provides written notice to the Company after the initial occurrence of one of the following actions taken without his or her written consent, which written notice must be provided within thirty (30) days after the initial occurrence of one of the following actions, and must reasonably specify the particulars of the action; *provided, however*, that following the receipt of notice by the Company, the Company

shall have a period of thirty (30) days during which to remedy the action giving rise to a Resignation for Good Reason and if such action is materially remedied by the Company during such period, no event giving rise to a right for a Resignation for Good Reason shall be deemed to have occurred:

(i) the assignment to the Participant of any duties or responsibilities that results in a material diminution in the Participant's employment role in the Company as in effect immediately prior to the date of such actions; *provided, however,* that mere changes in the Participant's title or reporting relationships alone shall not constitute a basis for Resignation for Good Reason;

(ii) a greater than twenty percent (20%) aggregate reduction by the Company in the Participant's annual base salary (that is, a material reduction in base compensation), as in effect immediately prior to the date of such actions; or

(iii) a non-temporary relocation of the Participant's business office to a location that increases Participant's one way commute by more than thirty-five (35) miles from the location at which the Participant performs duties as of immediately prior to the date of such action.

(rr) "***Restricted Stock Award***" means an award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(a).

(ss) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. Each Restricted Stock Award Agreement shall be subject to the terms and conditions of the Plan.

(tt) "***Restricted Stock Unit Award***" means a right to receive shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(b).

(uu) "***Restricted Stock Unit Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement shall be subject to the terms and conditions of the Plan.

(vv) "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act or any successor to Rule 16b-3, as in effect from time to time.

(ww) "***Securities Act***" means the Securities Act of 1933, as amended.

(xx) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 5.

(yy) "***Stock Appreciation Right Agreement***" means a written agreement between the Company and a holder of a Stock Appreciation Right evidencing the terms and conditions of a Stock Appreciation Right grant. Each Stock Appreciation Right Agreement shall be subject to the terms and conditions of the Plan.

(zz) "***Stock Award***" means any right to receive Common Stock granted under the Plan, including an Incentive Stock Option, a Nonstatutory Stock Option, a Restricted Stock Award, a Restricted Stock Unit Award, a Stock Appreciation Right, a Performance Stock Award or any Other Stock Award.

(aaa) "***Stock Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of a Stock Award grant. Each Stock Award Agreement shall be subject to the terms and conditions of the Plan.

(bbb) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than fifty percent (50%) of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation shall have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than fifty percent (50%).

(ccc) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Affiliate.

Exhibit 10.5

ACELRX PHARMACEUTICALS, INC.
STOCK OPTION GRANT NOTICE
(2011 EQUITY INCENTIVE PLAN)

AcelRx Pharmaceuticals, Inc. (the "***Company***"), pursuant to its 2011 Equity Incentive Plan (the "***Plan***"), hereby grants to Optionholder an option to purchase the number of shares of the Company's Common Stock set forth below. This option is subject to all of the terms and conditions as set forth herein and in the Option Agreement, the Plan, and the Notice of Exercise, all of which are attached hereto and incorporated herein in their entirety.

Optionholder:	
Date of Grant:	
Vesting Commencement Date:	
Number of Shares Subject to Option:	
Exercise Price (Per Share):	
Total Exercise Price:	
Expiration Date:	

Type of Grant: ☐ Incentive Stock Option ☐ Nonstatutory Stock Option

Exercise Schedule: ☐ Same as Vesting Schedule

Vesting Schedule: Subject to Continuous Service on each vesting date, **[**1/4th of the shares vest one year after the Vesting Commencement Date; the balance of the shares vest in a series of thirty-six (36) successive equal monthly installments measured from the first anniversary of the Vesting Commencement Date.**]**

Payment: By one or a combination of the following items (described in the Option Agreement):

☒ By cash or check
☒ By bank draft or money order payable to the Company
☒ Pursuant to a Regulation T Program if the Shares are publicly traded
☒ By delivery of already-owned shares if the Shares are publicly traded
☒ If and only to the extent this option is a Nonstatutory Stock Option, and subject to the Company's consent at the time of exercise, by a "net exercise" arrangement

Additional Terms/Acknowledgements: The undersigned Optionholder acknowledges receipt of, and understands and agrees to, this Stock Option Grant Notice, the Option Agreement and the Plan. Optionholder further acknowledges that as of the Date of Grant, this Stock Option Grant Notice, the Option Agreement, and the Plan set forth the entire understanding between Optionholder and the Company regarding the acquisition of stock in the Company and supersede all prior oral and written agreements on that subject with the exception of (i) options previously granted and delivered to Optionholder by the Company under the Plan or the Company's 2006 Stock Plan, and (ii) the following agreements only:

OTHER AGREEMENTS: _____

_____

ACELRX PHARMACEUTICALS, INC.

By: _____
Signature

Title: _____

Date: _____

OPTIONHOLDER:

_____
Signature

Date: _____

ATTACHMENTS: Option Agreement, 2011 Equity Incentive Plan and Notice of Exercise

ATTACHMENT I

ACELRX PHARMACEUTICALS, INC.
2011 EQUITY INCENTIVE PLAN

OPTION AGREEMENT
(INCENTIVE STOCK OPTION OR NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice ("***Grant Notice***") and this Option Agreement, AcelRx Pharmaceuticals, Inc. (the "***Company***") has granted you an option under its 2011 Equity Incentive Plan (the "***Plan***") to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. Defined terms not explicitly defined in this Option Agreement but defined in the Plan shall have the same definitions as in the Plan.

The details of your option are as follows:

1. VESTING. Subject to the limitations contained herein and the potential vesting acceleration provisions set forth in Section 9 of the Plan, your option will vest as provided in your Grant Notice, provided that vesting will cease upon the termination of your Continuous Service.

2. NUMBER OF SHARES AND EXERCISE PRICE. The number of shares of Common Stock subject to your option and your exercise price per share referenced in your Grant Notice may be adjusted from time to time for Capitalization Adjustments.

3. EXERCISE RESTRICTION FOR NON-EXEMPT EMPLOYEES. In the event that you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (*i.e.*, a "***Non-Exempt Employee***"), and except as otherwise provided in the Plan, you may not exercise your option until you have completed at least six (6) months of Continuous Service measured from the Date of Grant specified in your Grant Notice, notwithstanding any other provision of your option.

4. EXERCISE PRIOR TO VESTING ("EARLY EXERCISE"). If permitted in your Grant Notice (*i.e.*, the "Exercise Schedule" indicates "Early Exercise Permitted") and subject to the provisions of your option, you may elect at any time that is both (i) during the period of your Continuous Service and (ii) during the term of your option, to exercise all or part of your option, including the unvested portion of your option; *provided, however*, that:

(a) a partial exercise of your option shall be deemed to cover first vested shares of Common Stock and then the earliest vesting installment of unvested shares of Common Stock;

(b) any shares of Common Stock so purchased from installments that have not vested as of the date of exercise shall be subject to the purchase option in favor of the Company as described in the Company's form of Early Exercise Stock Purchase Agreement;

(c) you shall enter into the Company's form of Early Exercise Stock Purchase Agreement with a vesting schedule that will result in the same vesting as if no early exercise had occurred; and

(d) if your option is an Incentive Stock Option, then, to the extent that the aggregate Fair Market Value (determined at the time of grant) of the shares of Common Stock with respect to which your option plus all other Incentive Stock Options you hold are exercisable for the first time by you during any calendar year (under all plans of the Company and its Affiliates) exceeds one hundred thousand dollars ($100,000), your option(s) or portions thereof that exceed such limit (according to the order in which they were granted) shall be treated as Nonstatutory Stock Options.

5. METHOD OF PAYMENT. Payment of the exercise price is due in full upon exercise of all or any part of your option. You may elect to make payment of the exercise price in cash or by check or in any other manner ***permitted by your Grant Notice,*** which may include one or more of the following:

(a) Provided that at the time of exercise the Common Stock is publicly traded, pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds.

(b) Provided that at the time of exercise the Common Stock is publicly traded, by delivery to the Company (either by actual delivery or attestation) of already-owned shares of Common Stock that are owned free and clear of any liens, claims, encumbrances or security interests, and that are valued at Fair Market Value on the date of exercise. "Delivery" for these purposes, in the sole discretion of the Company at the time you exercise your option, shall include delivery to the Company of your attestation of ownership of such shares of Common Stock in a form approved by the Company. Notwithstanding the foregoing, you may not exercise your option by tender to the Company of Common Stock to the extent such tender would violate the provisions of any law, regulation or agreement restricting the redemption of the Company's stock.

(c) If the Option is a Nonstatutory Stock Option, ***subject to the consent of the Company at the time of exercise*** , by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issued upon exercise of your option by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided, however*, that the Company shall accept a cash or other payment from you to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued; provided further, however, that shares of Common Stock will no longer be outstanding under your option and will not be exercisable thereafter to the extent that (1) shares are used to pay the exercise price pursuant to the "net exercise," (2) shares are delivered to you as a result of such exercise, and (3) shares are withheld to satisfy tax withholding obligations.

6. WHOLE SHARES. You may exercise your option only for whole shares of Common Stock.

7. SECURITIES LAW COMPLIANCE. Notwithstanding anything to the contrary contained herein, you may not exercise your option unless the shares of Common Stock issuable upon such exercise are then registered under the Securities Act or, if such shares of Common Stock are not then so registered, the Company has determined that such exercise and issuance would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations.

8. TERM. You may not exercise your option before the commencement or after the expiration of its term. The term of your option commences on the Date of Grant and expires, subject to the provisions of Section 5(h) of the Plan, upon the earliest of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) three (3) months after the termination of your Continuous Service for any reason other than Cause, your Disability or death (except as otherwise provided in (d) below), provided that if during any part of such three (3) month period your option is not exercisable solely because of the condition set forth in the section above relating to "Securities Law Compliance," your option shall not expire until the earlier of the Expiration Date or until it shall have been exercisable for an aggregate period of three (3) months after the termination of your Continuous Service; and if (i) you are a Non-Exempt Employee, (ii) your Continuous Service terminates within six (6) months after the Date of Grant specified in your Grant Notice, and (iii) you have vested in a portion of your option at the time of your termination of Continuous Service, your option shall not expire until the earlier of (x) the later of (A) the date that is seven (7) months after the Date of Grant specified in your Grant Notice or (B) the date that is three (3) months after the termination of your Continuous Service, or (y) the Expiration Date;

(c) twelve (12) months after the termination of your Continuous Service due to your Disability;

(d) eighteen (18) months after your death if you die either during your Continuous Service or within three (3) months after your Continuous Service terminates for any reason other than Cause;

(e) the Expiration Date indicated in your Grant Notice; or

(f) the day before the tenth (10th) anniversary of the Date of Grant.

If your option is an Incentive Stock Option, note that to obtain the federal income tax advantages associated with an Incentive Stock Option, the Code requires that at all times beginning on the date of grant of your option and ending on the day three (3) months before the date of your option's exercise, you must be an employee of the Company or an Affiliate, except in the event of your death or Disability. The Company has provided for extended exercisability of your option under certain circumstances for your benefit but cannot guarantee that your option

will necessarily be treated as an Incentive Stock Option if you continue to provide services to the Company or an Affiliate as a Consultant or Director after your employment terminates or if you otherwise exercise your option more than three (3) months after the date your employment with the Company or an Affiliate terminates.

9. EXERCISE.

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so permits) during its term by delivering a Notice of Exercise (in a form designated by the Company) together with the exercise price to the Secretary of the Company, or to such other person as the Company may designate, during regular business hours, together with such additional documents as the Company may then require.

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (1) the exercise of your option, (2) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (3) the disposition of shares of Common Stock acquired upon such exercise.

(c) If your option is an Incentive Stock Option, by exercising your option you agree that you will notify the Company in writing within fifteen (15) days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your option that occurs within two (2) years after the date of your option grant or within one (1) year after such shares of Common Stock are transferred upon exercise of your option.

10. TRANSFERABILITY. Except as otherwise provided in this Section 10, your option is not transferable, except by will or by the laws of descent and distribution, and is exercisable during your life only by you.

(a) Certain Trusts. Upon receiving written permission from the Board or its duly authorized designee, you may transfer your option to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the option is held in the trust, provided that you and the trustee enter into transfer and other agreements required by the Company.

(b) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized designee, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your option pursuant to a domestic relations order that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this option with the Company prior to finalizing the domestic relations order to help ensure the required information is contained within the domestic relations order. If this option is an Incentive Stock Option, this option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(c) Beneficiary Designation. Upon receiving written permission from the Board or its duly authorized designee, you may, by delivering written notice to the Company, in

a form provided by or otherwise satisfactory to the Company and any broker designated by the Company to effect option exercises, designate a third party who, in the event of your death, shall thereafter be entitled to exercise this option and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, your executor or administrator of your estate shall be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise.

11. OPTION NOT A SERVICE CONTRACT. Your option is not an employment or service contract, and nothing in your option shall be deemed to create in any way whatsoever any obligation on your part to continue in the employ of the Company or an Affiliate, or of the Company or an Affiliate to continue your employment. In addition, nothing in your option shall obligate the Company or an Affiliate, their respective stockholders, Boards of Directors, Officers or Employees to continue any relationship that you might have as a Director or Consultant for the Company or an Affiliate.

12. WITHHOLDING OBLIGATIONS.

(a) At the time you exercise your option, in whole or in part, or at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "cashless exercise" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) Upon your request and subject to approval by the Company, in its sole discretion, and in compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). If the date of determination of any tax withholding obligation is deferred to a date later than the date of exercise of your option, share withholding pursuant to the preceding sentence shall not be permitted unless you make a proper and timely election under Section 83(b) of the Code, covering the aggregate number of shares of Common Stock acquired upon such exercise with respect to which such determination is otherwise deferred, to accelerate the determination of such tax withholding obligation to the date of exercise of your option. Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company shall have no

obligation to issue a certificate for such shares of Common Stock unless such obligations are satisfied.

13. TAX CONSEQUENCES. You hereby agree that the Company does not have a duty to design or administer the Plan or its other compensation programs in a manner that minimizes your tax liabilities. You shall not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates related to tax liabilities arising from your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the "fair market value" per share of the Common Stock on the Date of Grant and there is no other impermissible deferral of compensation associated with the option.

14. NOTICES. Any notices provided for in your option or the Plan shall be given in writing and shall be deemed effectively given upon receipt or, in the case of notices delivered by mail by the Company to you, five (5) days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company.

15. GOVERNING PLAN DOCUMENT. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the provisions of your option and those of the Plan, the provisions of the Plan shall control.

ATTACHMENT II

2011 EQUITY INCENTIVE PLAN

ATTACHMENT III

NOTICE OF EXERCISE

Exhibit 10.6

ACELRX PHARMACEUTICALS, INC.
RESTRICTED STOCK UNIT GRANT NOTICE
2011 EQUITY INCENTIVE PLAN

AcelRx Pharmaceuticals, Inc. (the "***Company***"), pursuant to its 2011 Equity Incentive Plan (the "***Plan***"), hereby awards to Participant a Restricted Stock Unit award for the number of shares of the Company's Common Stock set forth below (the "***Award***"). The Award is subject to all of the terms and conditions as set forth herein and in the Plan and the Restricted Stock Unit Agreement (the "***Award Agreement***"), both of which are attached hereto and incorporated herein in their entirety. Capitalized terms not otherwise defined herein shall have the meanings set forth in the Plan or the Award Agreement. In the event of any conflict between the terms in the Award and the Plan, the terms of the Plan shall control.

Participant:	_____
Date of Grant:	_____
Vesting Commencement Date:	_____
Number of Restricted Stock Units:	_____
Consideration:	Participant's past services

Vesting Schedule: [_____].
Notwithstanding the foregoing, vesting shall terminate upon the Participant's termination of Continuous Service (as defined in the Award Agreement).

Issuance Schedule: The shares will be issued in accordance with the issuance schedule set forth in Section 6 of the Award Agreement, but in all cases not later than the date that is the 15th day of the third calendar month of the year following the year in which the shares of Common Stock under this Award are no longer subject to a "substantial risk of forfeiture" within the meaning of Treasury Regulation Section 1.409A-1(d) such that this Award is exempt under Treasury Regulation Section 1.409A-1(b)(4) as a short term deferral. Each installment of Restricted Stock Units that vests hereunder is intended to constitute a "separate payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2).

Additional Terms/Acknowledgements: The undersigned Participant acknowledges receipt of, and understands and agrees to, this Restricted Stock Unit Grant Notice, the Award Agreement and the Plan. Participant further acknowledges that as of the Date of Grant, this Restricted Stock Unit Grant Notice, the Award Agreement and the Plan set forth the entire understanding between Participant and the Company regarding the award of Restricted Stock Units and supersedes all prior oral and written agreements on that subject, with the exception of (i) awards previously granted and delivered to Participant under the Plan and the Company's 2006 Stock Plan, and (ii) the following agreements only:

OTHER AGREEMENTS: _____

_____

ACELRX PHARMACEUTICALS, INC.

By: _____
Signature

Title:

Date:

PARTICIPANT:

_____
Signature

Date: _____

ATTACHMENTS: Award Agreement, 2011 Equity Incentive Plan

ATTACHMENT I

ACELRX PHARMACEUTICALS, INC.
2011 EQUITY INCENTIVE PLAN

RESTRICTED STOCK UNIT AGREEMENT

Pursuant to the Restricted Stock Unit Grant Notice (the "***Grant Notice***") and this Restricted Stock Unit Agreement (the "***Agreement***") and in consideration of your services, AcelRx Pharmaceuticals, Inc. (the "***Company***") has awarded you a Restricted Stock Unit award (the "***Award***") under its 2011 Equity Incentive Plan (the "***Plan***") for the number of Restricted Stock Units indicated in the Grant Notice. Defined terms not explicitly defined in this Agreement or in the Grant Notice shall have the same meanings given to them in the Plan. In the event of any conflict between the terms in this Agreement and the Plan, the terms of the Plan shall control. The details of your Award, in addition to those set forth in the Grant Notice and the Plan, are as follows.

1. GRANT OF THE AWARD. Subject to adjustment and the terms and conditions as provided herein and in the Plan, this Award represents the right to be issued on a future date one share of the Company's Common Stock for each Restricted Stock Unit that vests. This Award was granted in consideration of your services to the Company. Except as otherwise provided herein, you will not be required to make any payment to the Company (other than past and future services to the Company) with respect to your receipt of the Award, the vesting of the shares or the delivery of the underlying Common Stock.

2. VESTING. Subject to the limitations contained herein, your Award shall vest as provided in the Grant Notice, provided that vesting shall cease upon the termination of your Continuous Service. Any Restricted Stock Units that have not vested shall be forfeited upon the termination of your Continuous Service.

3. NUMBER OF RESTRICTED STOCK UNITS & SHARES OF COMMON STOCK.

(a) The Restricted Stock Units subject to your Award may be adjusted from time to time for Capitalization Adjustments, as provided in the Plan.

(b) Any additional Restricted Stock Units and any shares, cash or other property that become subject to the Award pursuant to this Section 3 shall be subject, in a manner determined by the Board, to the same forfeiture restrictions, restrictions on transferability, and time and manner of delivery as applicable to the other Restricted Stock Units and shares covered by your Award.

(c) Notwithstanding the provisions of this Section 3, no fractional shares or rights for fractional shares of Common Stock shall be created pursuant to this Section 3. Any fraction of a share will be rounded down to the nearest whole share.

4. SECURITIES LAW COMPLIANCE. You may not be issued any Common Stock or other shares under your Award unless either (i) the shares are registered under the Securities Act; or (ii) the Company has determined that such issuance would be exempt from the registration requirements of the Securities Act. Your Award also must comply with other applicable laws and regulations governing the Award, and you will not receive such shares if the Company determines that such receipt would not be in material compliance with such laws and regulations.

5. TRANSFERABILITY. Prior to the time that shares of Common Stock have been delivered to you, you may not transfer, pledge, sell or otherwise dispose of the shares in respect of your Award. For example, you may not use shares that may be issued in respect of your Restricted Stock Units as security for a loan, nor may you transfer, pledge, sell or otherwise dispose of such shares. This restriction on transfer will lapse upon delivery to you of shares in respect of your vested Restricted Stock Units.

(a) Death. Your Award is not transferable by will and by the laws of descent and distribution. In addition, upon receiving written permission from the Board or its duly authorized designee, you may, by delivering written notice to the Company, in a form provided by or otherwise satisfactory to the Company and any broker designated by the Company to effect transactions under the Plan, designate a third party who, in the event of your death, shall thereafter be entitled to receive any distribution of Common Stock or other consideration to which you were entitled at the time of your death pursuant to this Agreement. In the absence of such a designation, your executor or administrator of your estate shall be entitled to receive, on behalf of your estate, such Common Stock or other consideration.

(b) Certain Trusts. Upon receiving written permission from the Board or its duly authorized designee, you may transfer your Award to a trust if you are considered to be the sole beneficial owner (determined under Section 671 of the Code and applicable state law) while the Award is held in the trust, provided that you and the trustee enter into transfer and other agreements required by the Company.

(c) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized designee, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your Award or your right to receive the distribution of Common Stock or other consideration thereunder, pursuant to a domestic relations order that contains the information required by the Company to effectuate the transfer. You are encouraged to discuss the proposed terms of any division of this Award with the Company prior to finalizing the domestic relations order to help ensure the required information is contained within the domestic relations order.

6. DATE OF ISSUANCE.

(a) Issuance of shares under this Award is intended to comply with U.S. Treasury Regulation Section 1.409A-1(b)(4) and shall be construed and administered in such a manner.

(b) Subject to the satisfaction of the withholding obligations set forth in Section 12 of this Agreement, in the event one or more Restricted Stock Units vests, the

Company shall issue to you one (1) share of Common Stock for each Restricted Stock Unit that vests on the applicable vesting date(s). The issuance date determined by this paragraph is referred to as the "***Original Issuance Date***". If the Original Issuance Date falls on a date that is not a business day, delivery shall instead occur on the next following business day.

(c) Notwithstanding the foregoing, if (i) the Original Issuance Date does not occur (1) during an "open window period" applicable to you, as determined by the Company in accordance with the Company's then-effective policy on trading in Company securities, or (2) on a date when you are otherwise permitted to sell shares of Common Stock on an established stock exchange or stock market, and (ii) the Company elects, prior to the Original Issuance Date, (1) not to satisfy the tax withholding obligations described in Section 12 by withholding shares of Common Stock from the shares otherwise due, on the Original Issuance Date, to you under this Award, and (2) not to permit you to enter into a "same day sale" commitment with a broker-dealer pursuant to Section 12 of this Agreement (including but not limited to a commitment under a previously established Company-approved 10b5-1 trading plan), then such shares shall not be delivered on such Original Issuance Date and shall instead be delivered on the first business day of the next occurring open window period applicable to you or the next business day when you are not prohibited from selling shares of the Company's Common Stock in the open public market, but in no event later than December 31 of the calendar year in which the Original Issuance Date occurs (that is, the last day of your taxable year in which the Original Issuance Date occurs), or, if permitted in a manner that complies with Treasury Regulation Section 1.409A-1(b)(4), in no event later than the date that is the 15th day of the third calendar month of the year following the year in which the the shares of Common Stock under this Award are no longer subject to a "substantial risk of forfeiture" within the meaning of Treasury Regulation Section 1.409A-1(d).

7. DIVIDENDS. You shall receive no benefit or adjustment to your Award with respect to any cash dividend, stock dividend or other distribution except as provided in the Plan with respect to a Capitalization Adjustment; *provided, however*, that this sentence shall not apply with respect to any shares of Common Stock that are delivered to you in connection with your Award after such shares have been delivered to you.

8. RESTRICTIVE LEGENDS. The Common Stock issued under your Award shall be endorsed with appropriate legends determined by the Company.

9. AWARD NOT A SERVICE CONTRACT. Your Continuous Service is not for any specified term and may be terminated by you or by the Company or an Affiliate at any time, for any reason, with or without cause and with or without notice. Nothing in this Agreement (including, but not limited to, the vesting of your Award or the issuance of the shares subject to your Award), the Plan or any covenant of good faith and fair dealing that may be found implicit in this Agreement or the Plan shall: (i) confer upon you any right to continue in the employ or service of, or affiliation with, the Company or an Affiliate; (ii) constitute any promise or commitment by the Company or an Affiliate regarding the fact or nature of future positions, future work assignments, future compensation or any other term or condition of employment or affiliation; (iii) confer any right or benefit under this Agreement or the Plan unless such right or benefit has specifically accrued under the terms of this Agreement or Plan; or (iv) deprive the

Company of the right to terminate you at will and without regard to any future vesting opportunity that you may have.

10. WITHHOLDING OBLIGATIONS.

(a) On each vesting date, and on or before the time you receive a distribution of the shares subject to your Award, or at any time as reasonably requested by the Company in accordance with applicable tax laws, you hereby authorize any required withholding from the Common Stock issuable to you and otherwise agree to make adequate provision in cash for any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or any Affiliate which arise in connection with your Award (the "***Withholding Taxes***"). Additionally, the Company or an Affiliate may, in its sole discretion, satisfy all or any portion of the Withholding Taxes obligation relating to your Award by any of the following means or by a combination of such means: (i) withholding from any compensation otherwise payable to you by the Company or an Affiliate; (ii) causing you to tender a cash payment; (iii) permitting you to enter into a "same day sale" commitment with a broker-dealer that is a member of the Financial Industry Regulatory Authority (a "***FINRA Dealer***") whereby you irrevocably elect to sell a portion of the shares to be delivered under the Award to satisfy the Withholding Taxes and whereby the FINRA Dealer irrevocably commits to forward the proceeds necessary to satisfy the Withholding Taxes directly to the Company and/or its Affiliates or (iv) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to you in connection with the Award with a Fair Market Value (measured as of the date shares of Common Stock are issued to you) equal to the amount of such Withholding Taxes; *provided, however*, that the number of such shares of Common Stock so withheld shall not exceed the amount necessary to satisfy the Company's required tax withholding obligations using the minimum statutory withholding rates for federal, state, local and foreign tax purposes, including payroll taxes, that are applicable to supplemental taxable income.

(b) Unless the tax withholding obligations of the Company and/or any Affiliate are satisfied, the Company shall have no obligation to deliver to you any Common Stock.

(c) In the event the Company's obligation to withhold arises prior to the delivery to you of Common Stock or it is determined after the delivery of Common Stock to you that the amount of the Company's withholding obligation was greater than the amount withheld by the Company, you agree to indemnify and hold the Company harmless from any failure by the Company to withhold the proper amount.

11. UNSECURED OBLIGATION. Your Award is unfunded, and as a holder of a vested Award, you shall be considered an unsecured creditor of the Company with respect to the Company's obligation, if any, to issue shares or other property pursuant to this Agreement. You shall not have voting or any other rights as a stockholder of the Company with respect to the shares to be issued pursuant to this Agreement until such shares are issued to you. Upon such issuance, you will obtain full voting and other rights as a stockholder of the Company. Nothing contained in this Agreement, and no action taken pursuant to its provisions, shall create or be construed to create a trust of any kind or a fiduciary relationship between you and the Company or any other person.

12. OTHER DOCUMENTS. You hereby acknowledge receipt or the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Plan prospectus. In addition, you acknowledge receipt of the Company's policy permitting certain individuals to sell shares only during certain "window" periods and the Company's insider trading policy, in effect from time to time.

13. NOTICES. Any notices provided for in your Award or the Plan shall be given in writing and shall be deemed effectively given upon receipt or, in the case of notices delivered by the Company to you, five (5) days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company. Notwithstanding the foregoing, the Company may, in its sole discretion, decide to deliver any documents related to participation in the Plan and this Award by electronic means or to request your consent to participate in the Plan by electronic means. You hereby consent to receive such documents by electronic delivery and, if requested, to agree to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company.

14. MISCELLANEOUS.

(a) The rights and obligations of the Company under your Award shall be transferable to any one (1) or more persons or entities, and all covenants and agreements hereunder shall inure to the benefit of, and be enforceable by the Company's successors and assigns. Your rights and obligations under your Award may only be assigned with the prior written consent of the Company.

(b) You agree upon request to execute any further documents or instruments necessary or desirable in the sole determination of the Company to carry out the purposes or intent of your Award.

(c) You acknowledge and agree that you have reviewed your Award in its entirety, have had an opportunity to obtain the advice of counsel prior to executing and accepting your Award, and fully understand all provisions of your Award.

(d) This Agreement shall be subject to all applicable laws, rules, and regulations, and to such approvals by any governmental agencies or national securities exchanges as may be required.

(e) All obligations of the Company under the Plan and this Agreement shall be binding on any successor to the Company, whether the existence of such successor is the result of a direct or indirect purchase, merger, consolidation, or otherwise, of all or substantially all of the business and/or assets of the Company.

15. GOVERNING PLAN DOCUMENT. Your Award is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your Award, and is further subject to all interpretations, amendments, rules and regulations which may from time to time be promulgated and adopted pursuant to the Plan. Except as expressly provided herein, in the event of any conflict between the provisions of your Award and those of the Plan, the provisions of the Plan shall control.

16. SEVERABILITY. If all or any part of this Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity shall not invalidate any portion of this Agreement or the Plan not declared to be unlawful or invalid. Any Section of this Agreement (or part of such a Section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid.

17. EFFECT ON OTHER EMPLOYEE BENEFIT PLANS. The value of the Award subject to this Agreement shall not be included as compensation, earnings, salaries, or other similar terms used when calculating the Employee's benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

18. CHOICE OF LAW. The interpretation, performance and enforcement of this Agreement will be governed by the law of the state of Delaware without regard to such state's conflicts of laws rules.

19. AMENDMENT. This Agreement may not be modified, amended or terminated except by an instrument in writing, signed by you and by a duly authorized representative of the Company. Notwithstanding the foregoing, this Agreement may be amended solely by the Board by a writing which specifically states that it is amending this Agreement, so long as a copy of such amendment is delivered to you, and provided that, except as otherwise expressly provided in the Plan, no such amendment adversely affecting your rights hereunder may be made without your written consent. Without limiting the foregoing, the Board reserves the right to change, by written notice to you, the provisions of this Agreement in any way it may deem necessary or advisable to carry out the purpose of the grant as a result of any change in applicable laws or regulations or any future law, regulation, ruling, or judicial decision, provided that any such change shall be applicable only to rights relating to that portion of the Award which is then subject to restrictions as provided herein.

20. COMPLIANCE WITH SECTION 409A OF THE CODE. This Award is intended to comply with the "short-term deferral" rule set forth in Treasury Regulation Section 1.409A-1(b)(4). Notwithstanding the foregoing, if it is determined that the Award fails to satisfy the requirements of the short-term deferral rule and is otherwise not exempt from and therefore deemed to be deferred compensation subject to Section 409A, and if you are a "Specified Employee" (within the meaning set forth Section 409A(a)(2)(B)(i) of the Code) as of the date of your separation from service (within the meaning of Treasury Regulation Section 1.409A-1(h)), then the issuance of any shares that would otherwise be made upon the date of the separation from service or within the first six (6) months thereafter will not be made on the originally scheduled date(s) and will instead be issued in a lump sum on the date that is six (6) months and one day after the date of the separation from service, with the balance of the shares issued thereafter in accordance with the original vesting and issuance schedule set forth above, but if and only if such delay in the issuance of the shares is necessary to avoid the imposition of taxation on you in respect of the shares under Section 409A of the Code. Each installment of shares that vests is intended to constitute a "separate payment" for purposes of Treasury Regulation Section 1.409A-2(b)(2).

21. NO OBLIGATION TO MINIMIZE TAXES. The Company has no duty or obligation to minimize the tax consequences to you of this Award and shall not be liable to you for any adverse tax consequences to you arising in connection with this Award. You are hereby advised to consult with your own personal tax, financial and/or legal advisors regarding the tax consequences of this Award and by signing the Grant Notice, you have agreed that you have done so or knowingly and voluntarily declined to do so.

ATTACHMENT II

ACELRX PHARMACEUTICALS, INC.
2011 EQUITY INCENTIVE PLAN

Exhibit 10.7

ACELRx PHARMACEUTICALS, INC.

2011 EMPLOYEE STOCK PURCHASE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: JANUARY 5, 2011
APPROVED BY THE STOCKHOLDERS: JANUARY [__], 2021

1. GENERAL.

(a) The purpose of the Plan is to provide a means by which Eligible Employees of the Company and certain designated Related Corporations may be given an opportunity to purchase shares of Common Stock. The Plan is intended to permit the Company to grant a series of Purchase Rights to Eligible Employees under an Employee Stock Purchase Plan.

(b) The Company, by means of the Plan, seeks to retain the services of such Employees, to secure and retain the services of new Employees and to provide incentives for such persons to exert maximum efforts for the success of the Company and its Related Corporations.

2. ADMINISTRATION.

(a) The Board shall administer the Plan unless and until the Board delegates administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) The Board shall have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine how and when Purchase Rights to purchase shares of Common Stock shall be granted and the provisions of each Offering of such Purchase Rights (which need not be identical).

(ii) To designate from time to time which Related Corporations of the Company shall be eligible to participate in the Plan.

(iii) To construe and interpret the Plan and Purchase Rights, and to establish, amend and revoke rules and regulations for its administration. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan, in a manner and to the extent it shall deem necessary or expedient to make the Plan fully effective.

(iv) To settle all controversies regarding the Plan and Purchase Rights granted under it.

(v) To suspend or terminate the Plan at any time as provided in Section 12.

(vi) To amend the Plan at any time as provided in Section 12.

(vii) Generally, to exercise such powers and to perform such acts as it deems necessary or expedient to promote the best interests of the Company and its Related Corporations and to carry out the intent that the Plan be treated as an Employee Stock Purchase Plan.

(viii) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees who are foreign nationals or employed outside the United States.

(c) The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration is delegated to a Committee, the Committee shall have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board shall thereafter be to the Committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated. Whether or not the Board has delegated administration of the Plan to a Committee, the Board shall have the final power to determine all questions of policy and expediency that may arise in the administration of the Plan.

(d) All determinations, interpretations and constructions made by the Board in good faith shall not be subject to review by any person and shall be final, binding and conclusive on all persons.

3. SHARES OF COMMON STOCK SUBJECT TO THE PLAN.

(a) Subject to the provisions of Section 11(a) relating to Capitalization Adjustments, the shares of Common Stock that may be sold pursuant to Purchase Rights shall not exceed in the aggregate 1,000,000 shares of Common Stock. In addition, the number of shares of Common Stock available for issuance under the Plan shall automatically increase on January 1st of each year, commencing on January 1, 2012 and ending on (and including) January 1, 2020, in an amount equal 2% of the total number of shares of Common Stock outstanding on December 31st of the preceding calendar year. Notwithstanding the foregoing, the Board may act prior to the first day of any calendar year, to provide that there shall be no increase in the share reserve for such calendar year or that the increase in the share reserve for such calendar year shall be a lesser number of shares of Common Stock than would otherwise occur pursuant to the preceding sentence.

(b) If any Purchase Right granted under the Plan shall for any reason terminate without having been exercised, the shares of Common Stock not purchased under such Purchase Right shall again become available for issuance under the Plan.

(c) The stock purchasable under the Plan shall be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market.

4. GRANT OF PURCHASE RIGHTS; OFFERING.

(a) The Board may from time to time grant or provide for the grant of Purchase Rights to purchase shares of Common Stock under the Plan to Eligible Employees in an Offering (consisting of one or more Purchase Periods) on an Offering Date or Offering Dates selected by the Board. Each Offering shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate, which shall comply with the requirement of Section 423(b)(5) of the Code that all Employees granted Purchase Rights shall have the same rights and privileges. The terms and conditions of an Offering shall be incorporated by reference into the Plan and treated as part of the Plan. The provisions of separate Offerings need not be identical, but each Offering shall include (through incorporation of the provisions of this Plan by reference in the document comprising the Offering or otherwise) the period during which the Offering shall be effective, which period shall not exceed twenty-seven (27) months beginning with the Offering Date, and the substance of the provisions contained in Sections 5 through 8, inclusive.

(b) If a Participant has more than one Purchase Right outstanding under the Plan, unless he or she otherwise indicates in agreements or notices delivered hereunder: (i) each agreement or notice delivered by that Participant shall be deemed to apply to all of his or her Purchase Rights under the Plan, and (ii) a Purchase Right with a lower exercise price (or an earlier-granted Purchase Right, if different Purchase Rights have identical exercise prices) shall be exercised to the fullest possible extent before a Purchase Right with a higher exercise price (or a later-granted Purchase Right if different Purchase Rights have identical exercise prices) shall be exercised.

(c) The Board shall have the discretion to structure an Offering so that if the Fair Market Value of the shares of Common Stock on the first day of a new Purchase Period within that Offering is less than or equal to the Fair Market Value of the shares of Common Stock on the Offering Date, then (i) that Offering shall terminate immediately, and (ii) the Participants in such terminated Offering shall be automatically enrolled in a new Offering beginning on the first day of such new Purchase Period.

5. ELIGIBILITY.

(a) Purchase Rights may be granted only to Employees of the Company or, as the Board may designate as provided in Section 2(b), to Employees of a Related Corporation. Except as provided in Section 5(b), an Employee shall not be eligible to be granted Purchase Rights under the Plan unless, on the Offering Date, such Employee has been in the employ of the Company or the Related Corporation, as the case may be, for such continuous period preceding such Offering Date as the Board may require, but in no event shall the required period of continuous employment be greater than two (2) years. In addition, the Board may provide that no Employee shall be eligible to be granted Purchase Rights under the Plan unless, on the Offering Date, such Employee's customary employment with the Company or the Related Corporation is more than twenty (20) hours per week and more than five (5) months per calendar year or such other criteria as the Board may determine consistent with Section 423 of the Code.

(b) The Board may provide that each person who, during the course of an Offering, first becomes an Eligible Employee shall, on a date or dates specified in the Offering which

coincides with the day on which such person becomes an Eligible Employee or which occurs thereafter, receive a Purchase Right under that Offering, which Purchase Right shall thereafter be deemed to be a part of that Offering. Such Purchase Right shall have the same characteristics as any Purchase Rights originally granted under that Offering, as described herein, except that:

(i) the date on which such Purchase Right is granted shall be the "Offering Date" of such Purchase Right for all purposes, including determination of the exercise price of such Purchase Right;

(ii) the period of the Offering with respect to such Purchase Right shall begin on its Offering Date and end coincident with the end of such Offering; and

(iii) the Board may provide that if such person first becomes an Eligible Employee within a specified period of time before the end of the Offering, he or she shall not receive any Purchase Right under that Offering.

(c) No Employee shall be eligible for the grant of any Purchase Rights under the Plan if, immediately after any such Purchase Rights are granted, such Employee owns stock possessing five percent (5%) or more of the total combined voting power or value of all classes of stock of the Company or of any Related Corporation. For purposes of this Section 5(c), the rules of Section 424(d) of the Code shall apply in determining the stock ownership of any Employee, and stock which such Employee may purchase under all outstanding Purchase Rights and options shall be treated as stock owned by such Employee.

(d) As specified by Section 423(b)(8) of the Code, an Eligible Employee may be granted Purchase Rights under the Plan only if such Purchase Rights, together with any other rights granted under all Employee Stock Purchase Plans of the Company and any Related Corporations, do not permit such Eligible Employee's rights to purchase stock of the Company or any Related Corporation to accrue at a rate which exceeds twenty five thousand dollars ($25,000) of Fair Market Value of such stock (determined at the time such rights are granted, and which, with respect to the Plan, shall be determined as of their respective Offering Dates) for each calendar year in which such rights are outstanding at any time.

(e) Officers of the Company and any designated Related Corporation, if they are otherwise Eligible Employees, shall be eligible to participate in Offerings under the Plan. Notwithstanding the foregoing, the Board may provide in an Offering that Employees who are highly compensated Employees within the meaning of Section 423(b)(4)(D) of the Code shall not be eligible to participate.

6. PURCHASE RIGHTS; PURCHASE PRICE.

(a) On each Offering Date, each Eligible Employee, pursuant to an Offering made under the Plan, shall be granted a Purchase Right to purchase up to that number of shares of Common Stock purchasable either with a percentage or with a maximum dollar amount, as designated by the Board, but in either case not exceeding fifteen percent (15%) of such Employee's earnings (as defined by the Board in each Offering) during the period that begins on the Offering Date (or such later date as the Board determines for a particular Offering) and ends on the date stated in the Offering, which date shall be no later than the end of the Offering.

(b) The Board shall establish one (1) or more Purchase Dates during an Offering as of which Purchase Rights granted pursuant to that Offering shall be exercised and purchases of shares of Common Stock shall be carried out in accordance with such Offering.

(c) In connection with each Offering made under the Plan, the Board may specify a maximum number of shares of Common Stock that may be purchased by any Participant on any Purchase Date during such Offering. In connection with each Offering made under the Plan, the Board may specify a maximum aggregate number of shares of Common Stock that may be purchased by all Participants pursuant to such Offering. In addition, in connection with each Offering that contains more than one Purchase Date, the Board may specify a maximum aggregate number of shares of Common Stock that may be purchased by all Participants on any Purchase Date under the Offering. If the aggregate purchase of shares of Common Stock issuable upon exercise of Purchase Rights granted under the Offering would exceed any such maximum aggregate number, then, in the absence of any Board action otherwise, a pro rata (based on each Participant's accumulated earnings contributions) allocation of the shares of Common Stock available shall be made in as nearly a uniform manner as shall be practicable and equitable.

(d) The purchase price of shares of Common Stock acquired pursuant to Purchase Rights shall be not less than the lesser of:

(i) an amount equal to eighty-five percent (85%) of the Fair Market Value of the shares of Common Stock on the Offering Date; or

(ii) an amount equal to eighty-five percent (85%) of the Fair Market Value of the shares of Common Stock on the applicable Purchase Date.

7. PARTICIPATION; WITHDRAWAL; TERMINATION.

(a) An Eligible Employee may elect to authorize payroll deductions pursuant to an Offering under the Plan by completing and delivering to the Company, within the time specified in the Offering, an enrollment form (in such form as the Company may provide). Each such enrollment form shall authorize an amount of Contributions expressed as a percentage of the submitting Participant's earnings (as defined in each Offering) during the Offering (not to exceed the maximum percentage specified by the Board). Each Participant's Contributions shall be credited to a bookkeeping account for such Participant under the Plan and shall be deposited with the general funds of the Company except where applicable law requires that Contributions be deposited with a third party. To the extent provided in the Offering, a Participant may begin such Contributions with the first payroll occurring on or after the beginning of the Offering. To the extent provided in the Offering, a Participant may thereafter reduce (including to zero) or increase his or her Contributions. To the extent specifically provided in the Offering, in addition to making Contributions by payroll deductions, a Participant may make Contributions through the payment by cash or check prior to each Purchase Date of the Offering.

(b) During an Offering, a Participant may cease making Contributions and withdraw from the Offering by delivering to the Company a notice of withdrawal in such form as the Company may provide. Such withdrawal may be elected at any time prior to the end of the

Offering, except as provided otherwise in the Offering. Upon such withdrawal from the Offering by a Participant, the Company shall distribute to such Participant all of his or her accumulated Contributions (reduced to the extent, if any, such Contributions have been used to acquire shares of Common Stock for the Participant) under the Offering, and such Participant's Purchase Right in that Offering shall thereupon terminate. A Participant's withdrawal from an Offering shall have no effect upon such Participant's eligibility to participate in any other Offerings under the Plan, but such Participant shall be required to deliver a new enrollment form in order to participate in subsequent Offerings.

(c) Purchase Rights granted pursuant to any Offering under the Plan shall terminate immediately upon a Participant ceasing to be an Employee for any reason or for no reason (subject to any post-employment participation period required by law) or other lack of eligibility. The Company shall distribute to such terminated or otherwise ineligible Employee all of his or her accumulated Contributions (reduced to the extent, if any, such Contributions have been used to acquire shares of Common Stock for the terminated or otherwise ineligible Employee) under the Offering.

(d) Purchase Rights shall not be transferable by a Participant except by will, the laws of descent and distribution, or by a beneficiary designation as provided in Section 10. During a Participant's lifetime, Purchase Rights shall be exercisable only by such Participant.

(e) Unless otherwise specified in an Offering, the Company shall have no obligation to pay interest on Contributions.

8. EXERCISE OF PURCHASE RIGHTS.

(a) On each Purchase Date during an Offering, each Participant's accumulated Contributions shall be applied to the purchase of shares of Common Stock up to the maximum number of shares of Common Stock permitted pursuant to the terms of the Plan and the applicable Offering, at the purchase price specified in the Offering. No fractional shares shall be issued upon the exercise of Purchase Rights unless specifically provided for in the Offering.

(b) If any amount of accumulated Contributions remains in a Participant's account after the purchase of shares of Common Stock, then such remaining amount shall be distributed in full to such Participant at the end of the Offering without interest.

(c) No Purchase Rights may be exercised to any extent unless the shares of Common Stock to be issued upon such exercise under the Plan are covered by an effective registration statement pursuant to the Securities Act and the Plan is in material compliance with all applicable federal, state, foreign and other securities and other laws applicable to the Plan. If on a Purchase Date during any Offering hereunder the shares of Common Stock are not so registered or the Plan is not in such compliance, no Purchase Rights or any Offering shall be exercised on such Purchase Date, and the Purchase Date shall be delayed until the shares of Common Stock are subject to such an effective registration statement and the Plan is in such compliance, except that the Purchase Date shall not be delayed more than twelve (12) months and the Purchase Date shall in no event be more than twenty-seven (27) months from the Offering Date. If, on the Purchase Date under any Offering hereunder, as delayed to the

maximum extent permissible, the shares of Common Stock are not registered and the Plan is not in such compliance, no Purchase Rights shall be exercised and all Contributions accumulated during the Offering (reduced to the extent, if any, such Contributions have been used to acquire shares of Common Stock) shall be distributed to the Participants without interest.

9. COVENANTS OF THE COMPANY.

The Company shall seek to obtain from each federal, state, foreign or other regulatory commission or agency having jurisdiction over the Plan such authority as may be required to issue and sell shares of Common Stock upon exercise of the Purchase Rights. If, after commercially reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, and at a commercially reasonable cost, the Company shall be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Purchase Rights unless and until such authority is obtained.

10. DESIGNATION OF BENEFICIARY.

(a) A Participant may file a written designation of a beneficiary who is to receive any shares of Common Stock and/or cash, if any, from the Participant's account under the Plan in the event of such Participant's death subsequent to the end of an Offering but prior to delivery to the Participant of such shares of Common Stock or cash. In addition, a Participant may file a written designation of a beneficiary who is to receive any cash from the Participant's account under the Plan in the event of such Participant's death during an Offering. Any such designation shall be on a form provided by or otherwise acceptable to the Company.

(b) The Participant may change such designation of beneficiary at any time by written notice to the Company. In the event of the death of a Participant and in the absence of a beneficiary validly designated under the Plan who is living at the time of such Participant's death, the Company shall deliver such shares of Common Stock and/or cash to the executor or administrator of the estate of the Participant, or if no such executor or administrator has been appointed (to the knowledge of the Company), the Company, in its sole discretion, may deliver such shares of Common Stock and/or cash to the spouse or to any one or more dependents or relatives of the Participant, or if no spouse, dependent or relative is known to the Company, then to such other person as the Company may designate.

11. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; CORPORATE TRANSACTIONS.

(a) In the event of a Capitalization Adjustment, the Board shall appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities by which the share reserve is to increase automatically each year pursuant to Section 3(a), (iii) the class(es) and number of securities subject to, and the purchase price applicable to outstanding Offerings and Purchase Rights, and (iv) the class(es) and number of securities that are the subject of the purchase limits under each ongoing Offering. The Board shall make such adjustments, and its determination shall be final, binding and conclusive.

(b) In the event of a Corporate Transaction, then: (i) any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue Purchase Rights outstanding under the Plan or may substitute similar rights (including a right to acquire the same consideration paid to the stockholders in the Corporate Transaction) for those outstanding under the Plan; or (ii) if any surviving or acquiring corporation (or its parent company) does not assume or continue such Purchase Rights or does not substitute similar rights for Purchase Rights outstanding under the Plan, then the Participants' accumulated Contributions shall be used to purchase shares of Common Stock within ten (10) business days prior to the Corporate Transaction under any ongoing Offerings, and the Participants' Purchase Rights under the ongoing Offerings shall terminate immediately after such purchase.

12. AMENDMENT, TERMINATION OR SUSPENSION OF THE PLAN.

(i) The Board may amend the Plan at any time in any respect the Board deems necessary or advisable. However, except as provided in Section 11(a) relating to Capitalization Adjustments, stockholder approval shall be required for any amendment of the Plan for which stockholder approval is required by applicable law or listing requirements, including any amendment that either (i) materially increases the number of shares of Common Stock available for issuance under the Plan, (ii) materially expands the class of individuals eligible to become Participants and receive Purchase Rights under the Plan, (iii) materially increases the benefits accruing to Participants under the Plan or materially reduces the price at which shares of Common Stock may be purchased under the Plan, (iv) materially extends the term of the Plan, or (v) expands the types of awards available for issuance under the Plan, but in each of (i) through (v) above only to the extent stockholder approval is required by applicable law or listing requirements.

(b) The Board may suspend or terminate the Plan at any time. No Purchase Rights may be granted under the Plan while the Plan is suspended or after it is terminated.

(c) Any benefits, privileges, entitlements and obligations under any outstanding Purchase Rights granted before an amendment, suspension or termination of the Plan shall not be impaired by any such amendment, suspension or termination except (i) with the consent of the person to whom such Purchase Rights were granted, (ii) as necessary to comply with any laws, listing requirements, or governmental regulations (including, without limitation, the provisions of Section 423 of the Code and the regulations and other interpretive guidance issued thereunder relating to Employee Stock Purchase Plans) including without limitation any such regulations or other guidance that may be issued or amended after the Effective Date, or (iii) as necessary to obtain or maintain favorable tax, listing, or regulatory treatment.

13. EFFECTIVE DATE OF PLAN.

The Plan shall become effective on the IPO Date, but no Purchase Rights shall be exercised unless and until the Plan has been approved by the stockholders of the Company, which approval shall be within twelve (12) months before or after the date the Plan is adopted by the Board.

14. MISCELLANEOUS PROVISIONS.

(a) Proceeds from the sale of shares of Common Stock pursuant to Purchase Rights shall constitute general funds of the Company.

(b) A Participant shall not be deemed to be the holder of, or to have any of the rights of a holder with respect to, shares of Common Stock subject to Purchase Rights unless and until the Participant's shares of Common Stock acquired upon exercise of Purchase Rights are recorded in the books of the Company (or its transfer agent).

(c) The Plan and Offering do not constitute an employment contract. Nothing in the Plan or in the Offering shall in any way alter the at will nature of a Participant's employment or be deemed to create in any way whatsoever any obligation on the part of any Participant to continue in the employ of the Company or a Related Corporation, or on the part of the Company or a Related Corporation to continue the employment of a Participant.

(d) The provisions of the Plan shall be governed by the laws of the State of California without resort to that state's conflicts of laws rules.

15. DEFINITIONS.

As used in the Plan, the following definitions shall apply to the capitalized terms indicated below:

(a) ***"Board"*** means the Board of Directors of the Company.

(b) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Purchase Right after the Effective Date without the receipt of consideration by the Company (through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or other similar transaction). Notwithstanding the foregoing, the conversion of any convertible securities of the Company shall not be treated as a Capitalization Adjustment.

(c) ***"Code"*** means the Internal Revenue Code of 1986, as amended.

(d) ***"Committee"*** means a committee of one (1) or more members of the Board to whom authority has been delegated by the Board in accordance with Section 2(c).

(e) ***"Common Stock"*** means the common stock of the Company.

(f) ***"Company"*** means AcelRx Pharmaceuticals, Inc., a Delaware corporation.

(g) ***"Contributions"*** means the payroll deductions and other additional payments specifically provided for in the Offering, that a Participant contributes to fund the exercise of a Purchase Right. A Participant may make additional payments into his or her account, if

specifically provided for in the Offering, and then only if the Participant has not already had the maximum permitted amount withheld during the Offering through payroll deductions.

(h) ***"Corporate Transaction"*** means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) the consummation of a sale or other disposition of all or substantially all, as determined by the Board in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) the consummation of a sale or other disposition of at least ninety percent (90%) of the outstanding securities of the Company;

(iii) the consummation of a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) the consummation of a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(i) ***"Director"*** means a member of the Board.

(j) ***"Eligible Employee"*** means an Employee who meets the requirements set forth in the Offering for eligibility to participate in the Offering, provided that such Employee also meets the requirements for eligibility to participate set forth in the Plan.

(k) ***"Employee"*** means any person, including Officers and Directors, who is employed for purposes of Section 423(b)(4) of the Code by the Company or a Related Corporation. However, service solely as a Director, or payment of a fee for such services, shall not cause a Director to be considered an "Employee" for purposes of the Plan.

(l) ***"Employee Stock Purchase Plan"*** means a plan that grants Purchase Rights intended to be options issued under an "employee stock purchase plan," as that term is defined in Section 423(b) of the Code.

(m) ***"Exchange Act"*** means the Securities Exchange Act of 1934, as amended.

(n) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value of a share of Common Stock shall be the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in such source as the Board deems reliable. Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the

Fair Market Value shall be the closing sales price on the last preceding date for which such quotation exists.

(ii) In the absence of such markets for the Common Stock, the Fair Market Value shall be determined by the Board in good faith.

(iii) Notwithstanding the foregoing, for any Offering that commences on the IPO Date, the Fair Market Value of the shares of Common Stock at the time when the Offering commences shall be the price per share at which shares are first sold to the public in the Company's initial public offering as specified in the final prospectus for that initial public offering.

(o) ***"IPO Date"*** means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(p) ***"Offering"*** means the grant of Purchase Rights to purchase shares of Common Stock under the Plan to Eligible Employees.

(q) ***"Offering Date"*** means a date selected by the Board for an Offering to commence.

(r) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.

(s) ***"Participant"*** means an Eligible Employee who holds an outstanding Purchase Right granted pursuant to the Plan.

(t) ***"Plan"*** means this AcelRx Pharmaceuticals, Inc. 2011 Employee Stock Purchase Plan.

(u) ***"Purchase Date"*** means one or more dates during an Offering established by the Board on which Purchase Rights shall be exercised and as of which purchases of shares of Common Stock shall be carried out in accordance with such Offering.

(v) ***"Purchase Period"*** means a period of time specified within an Offering beginning on the Offering Date or on the next day following a Purchase Date within an Offering and ending on a Purchase Date. An Offering may consist of one or more Purchase Periods.

(w) ***"Purchase Right"*** means an option to purchase shares of Common Stock granted pursuant to the Plan.

(x) ***"Related Corporation"*** means any "parent corporation" or "subsidiary corporation" of the Company whether now or subsequently established, as those terms are defined in Sections 424(e) and (f), respectively, of the Code.

(y) ***"Securities Act"*** means the Securities Act of 1933, as amended.

(z) "***Trading Day***" means any day on which the exchange(s) or market(s) on which shares of Common Stock are listed, including the NYSE, Nasdaq Global Select Market, the Nasdaq Global Market, or the Nasdaq Capital Market, is open for trading.

Exhibit 10.11

FOUNDER'S VESTING AGREEMENT

THIS FOUNDER'S VESTING AGREEMENT (this "Agreement") is made as of the 15th day of August, 2006 by and between AcelRx Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and Pamela Palmer ("Founder").

WHEREAS, Founder holds 1,000,000 shares of the common stock of the Company (the "Founder Shares").

WHEREAS, the Company intends to sell shares of preferred stock to outside investors and such investors require as a condition to such transaction that the Founder accept certain restrictions with respect to the Shares as set forth herein;

NOW, THEREFORE, in consideration for the mutual promises and covenants set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto hereby agree as follows:

1. Unvested Share Repurchase Option. Upon the termination of the Founder's service to the Company as an employee or consultant, for any reason, or no reason, with or without Cause, including Involuntary Termination, death or temporary or permanent disability, the Company shall have a right (but not an obligation) (the "Unvested Share Repurchase Option") to repurchase any shares of Stock to the extent they have not vested pursuant to subsections 1(a) and (b) ("Unvested Shares") under the terms set forth below.

(a) Vesting of Unvested Shares. Fifty percent (50%) of the Founder Shares initially shall be Unvested Shares. 1/48 of the initial number of Unvested Shares will vest September 15, 2006 and 1/48 of the initial number of Unvested Shares shall vest on the 15th day of each month thereafter subject to the Founder's continuous service to the Company as an employee or consultant providing services at least three (3) days per week, and 1/96 of the initial number of Unvested Shares shall vest on the 15th day of each month thereafter subject Founder's continuous service to the Company has an employee or consultant providing services at least one (1) day per week but less than three (3) days per week.

(b) Acceleration of Vesting. The other provisions of this Section 1 notwithstanding, if Founders' service as an employee or consultant with the Company terminates as a result of an Involuntary Termination or termination without Cause at any time within eighteen (18) months after a Change of Control, and the Founder signs a general release of claims against the Company, the Unvested Shares shall become fully vested upon such termination. For purposes of this Agreement:

(i) "Change of Control" shall mean (i) a merger or consolidation or the sale, or exchange by the stockholders of the Company of all or substantially all of the capital stock of the Company, where the stockholders of the Company immediately before such transaction do not obtain or retain, directly or indirectly, at least a majority of the beneficial interest in the voting stock or other voting equity of the surviving or acquiring corporation or other surviving or acquiring entity, in substantially the same proportion as before such transaction, or (ii) the sale or exchange of all or substantially all of the Company's assets (other

than a sale or transfer to a subsidiary of the Company as defined in section 424(f) of the Internal Revenue Code of 1986, as amended (the "Code")) where the stockholders of the Company immediately before such sale or exchange do not obtain or retain, directly or indirectly, at least a majority of the beneficial interest in the voting stock or other voting equity of the corporation or other entity acquiring the Company's assets, in substantially the same proportion as before such transaction;

(ii) "Cause" shall mean (i) Founder's violation of any applicable law or regulation with respect to the Company's business; or (ii) Founder's commission of a felony or commission of a crime involving moral turpitude; or (iii) conduct by Founder involving willful misconduct, fraud, gross negligence, or embezzlement with respect to the Company; or (iv) a good faith finding by the Board of Directors of the Company of repeated and willful failure of the Founder after written notice to perform his assigned duties for the Company, gross negligence or misconduct (where such gross negligence or misconduct is materially adverse to the Company); and

(iii) "Involuntary Termination" shall mean Founder's termination of Service with the Company within thirty (30) days following the occurrence of any of the following without Founder's consent: (i) a material reduction or change in job duties, reporting relationships, responsibilities and requirements inconsistent with Founder's position with the Company and prior duties, reporting relationships, responsibilities and requirements prior to the Change in Control, provided that neither a mere change in title alone nor reassignment following a Change of Control to a position that is substantially similar to the position held prior to the Change of Control in terms of job duties, responsibilities or requirements shall constitute a material reduction in job responsibilities; (ii) a reduction in Founder's then-current base salary by at least 20%, provided that an across-the-board reduction in the salary level of all other senior executives by the same percentage amount as part of a general salary level reduction shall not constitute such a salary reduction or (iii) Founder's refusal to relocate the principal place for performance of Company duties to a location more than thirty (30) miles from the Company's then current location at the time of the Change in Control.

(c) Exercise of Unvested Share Repurchase Option. The Company may exercise the Unvested Share Repurchase Option by written notice to Founder or the Founder's legal representative within sixty (60) days after such termination.

(d) Payment for Stock and Return of Stock. Payment by the Company to the Founder or the Founder's legal representative shall be made in cash or by check within sixty (60) days after the date of the mailing of the written notice of exercise of the Unvested Share Repurchase Option. For purposes of the foregoing, cancellation of any promissory note of the Founder to the Company shall be treated as payment to the Founder in cash to the extent of the unpaid principal and any accrued interest canceled. The purchase price per share for the shares being repurchased by the Company shall be equal to the original purchase price for such shares, as appropriately adjusted for any stock split, reverse stock split, recapitalization or the like. If not otherwise held in escrow by the Company pursuant to Section 1(g) below, within thirty (30) days after payment by the Company, the Founder shall deliver to the Company for cancellation the shares of Stock that the Company has repurchased. If the Company holds any vested shares in escrow, such shares will be promptly delivered to Founder following the Company's exercise

of its right to repurchase any unvested shares. Upon delivery of notice and payment of the purchase price in any of the ways described above, the Company shall become the legal and beneficial owner of the Shares being repurchased and all rights and interest therein or related thereto, and the Company shall have the right to transfer to its own name the number of Shares being repurchased by the Company, without further action by Founder.

(e) Transfers Not Subject to the Unvested Share Repurchase Option . The Unvested Share Repurchase Option shall not apply to a transfer to the Founder's ancestors, descendants or spouse or to a trustee for their benefit or the benefit of the Founder, provided that such transferee agrees in writing (in a form satisfactory to the Company) to take the Stock subject to all the terms and conditions of this Section 1. All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement. In the event of any purchase by the Company hereunder where the Shares or interest are held by a transferee, the transferee shall be obligated, if requested by the Company, to transfer the Shares or interest to the Founder for consideration equal to the amount to be paid by the Company hereunder. In the event the Repurchase Option is exercised by the Company pursuant to Section 1 hereof, the Company may deem any transferee to have transferred the Shares or interest to Founder prior to their purchase by the Company, and payment of the purchase price by the Company to such transferee shall be deemed to satisfy Founder's obligation to pay such transferee for such Shares or interest and also to satisfy the Company's obligation to pay Founder for such Shares or interest. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(f) Legends. The Company may place a legend referencing the Unvested Share Repurchase Option on any certificate representing Stock subject to the Unvested Share Repurchase Option.

(g) Escrow. As security for the Founder's faithful performance of the terms of this Agreement and to insure the availability for delivery of the Shares upon exercise of the Unvested Share Repurchase Option herein provided for, the Founder agrees to deliver to and deposit with DLA Piper Rudnick Gray Cary US LLP, counsel to the Company (the "Escrow Agent"), as Escrow Agent in this transaction, two Stock Assignments duly endorsed (with date and number of shares blank) in the form attached hereto as Exhibit A, together with the certificate or certificates evidencing the Shares; such documents are to be held by the Escrow Agent pursuant to the Joint Escrow Instructions of the Company and the Founder set forth in Exhibit B attached hereto and incorporated by this reference, which instructions shall also be delivered to the Escrow Agent at the closing hereunder.

2. Legends. All certificates representing any shares of Stock subject to the provisions of this Agreement shall have endorsed thereon the following legends:

(a) "THE TRANSFER OF THE SHARES REPRESENTED BY THIS CERTIFICATE ARE RESTRICTED PURSUANT TO AN AGREEMENT BETWEEN THE COMPANY AND THE HOLDER OF THESE SHARES, OR HIS OR HER PREDECESSOR IN INTEREST, A COPY OF WHICH IS ON FILE AT THE PRINCIPAL OFFICE OF THIS COMPANY."

(b) "THE SECURITIES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, AND MAY NOT BE SOLD, TRANSFERRED, ASSIGNED OR HYPOTHECATED UNLESS THERE IS AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT COVERING SUCH SECURITIES, THE SALE IS MADE IN ACCORDANCE WITH RULE 144 UNDER THE ACT, OR THE COMPANY RECEIVES AN OPINION OF COUNSEL FOR THE HOLDER OF THESE SECURITIES REASONABLY SATISFACTORY TO THE COMPANY, STATING THAT SUCH SALE, TRANSFER, ASSIGNMENT OR HYPOTHECATION IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SUCH ACT."

(c) Any legend required to be placed thereon under applicable state securities laws.

3. Miscellaneous.

(a) Further Instruments. The parties agree to execute such further instruments and to take such further action as may reasonably be necessary to carry out the intent of this Agreement.

(b) Notice. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given (i) upon personal delivery, (ii) when sent by confirmed facsimile, if sent during normal business hours of recipient, or if not, then on the next business day, or (iii) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the party to be notified at the address as set forth on the signature pages hereof or at such other address as such party may designate by ten (10) days advance written notice to the other parties hereto.

(c) Successors and Assigns. This Agreement shall inure to the benefit of the successors and assigns of the Company and, subject to the restrictions on transfer herein set forth, be binding upon the Founder, the Founder's heirs, executors, administrators, successors and assigns.

(d) Applicable Law; Entire Agreement; Amendments. This Agreement, together with the exhibits hereto, shall be governed by and construed in accordance with the laws of the State of California as it applies to agreements between California residents, entered into and to be performed entirely within California and constitutes the entire agreement of the parties with respect to the subject matter hereof superseding all prior written or oral agreements, and no amendment or addition hereto shall be deemed effective unless agreed to in writing by the parties hereto.

(e) Right to Specific Performance. The Founder agrees that the Company shall be entitled to a decree of specific performance of the terms hereof or an injunction restraining violation of this Agreement, said right to be in addition to any other remedies available to the Company.

(f) Severability. If any provision of this Agreement is held by a court to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force and effect without being impaired or invalidated in any way and shall be construed in accordance with the purposes and tenor and effect of this Agreement.

(g) Arbitration. Any dispute or claim arising out of this agreement will be subject to final and binding arbitration. One arbitrator who is a member of the American Arbitration Association ("AAA"), and will be governed by the Commercial Arbitration Rules of the AAA will conduct the arbitration. The arbitration will be held in San Francisco, California, and the arbitrator will apply California substantive law in all respects. The arbitrator shall have all authority to determine the arbitrability of any claim and enter a final, binding judgment at the conclusion of any proceedings. Any final judgment only may be appealed on the grounds of improper bias or improper conduct of the arbitrator. The party prevailing in the resolution of any claim will be entitled, in addition to such other relief as may be granted, to an award of all attorneys' fees and costs incurred in the claim, without regard to any statute, schedule, or rule of court purported to restrict such award.

(h) Counterparts. This Agreement may be executed in counterparts, each of which shall be an original, but all of which together shall constitute one instrument.

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

"COMPANY"	"FOUNDER"
ACELRX PHARMACEUTICALS, INC., a Delaware corporation	
By: /s/ THOMAS A SCHRECK	/s/ PAMELA PALMER
Title: CEO	PAMELA PALMER
Address: _____	Address:

EXHIBIT A

ASSIGNMENT SEPARATE FROM CERTIFICATE

FOR VALUE RECEIVED, _____, hereby sells, assigns and transfers unto _____ _____ shares of the Common Stock of AcelRx Pharmaceuticals, Inc., a Delaware corporation (the "Company"), standing in the undersigned's name on the books of said Company represented by Certificate No. _____ herewith, and does hereby irrevocably constitute and appoint _____ attorney to transfer the said stock on the books of the said Company with full power of substitution in the premises.

Dated: _____

_____

Name of Purchaser: _____

***Instruction*: Please sign but do not fill in any other blanks. The purpose of this assignment is to enable the Company to exercise its repurchase rights as set forth in the Agreement without requiring additional signatures on the part of the Stockholder.**

EXHIBIT A

ASSIGNMENT SEPARATE FROM CERTIFICATE

FOR VALUE RECEIVED, _____, hereby sells, assigns and transfers unto _____ _____ shares of the Common Stock of AcelRx Pharmaceuticals, Inc., a Delaware corporation (the "Company"), standing in the undersigned's name on the books of said Company represented by Certificate No. _____ herewith, and does hereby irrevocably constitute and appoint _____ attorney to transfer the said stock on the books of the said Company with full power of substitution in the premises.

Dated: _____

_____

Name of Purchaser: _____

***Instruction*: Please sign but do not fill in any other blanks. The purpose of this assignment is to enable the Company to exercise its repurchase rights as set forth in the Agreement without requiring additional signatures on the part of the Stockholder.**

EXHIBIT B

JOINT ESCROW INSTRUCTIONS

August 15, 2006

DLA Piper Rudnick Gray Cary US LLP
153 Townsend Street, Suite 800
San Francisco, CA 94107

Ladies and Gentlemen:

As Escrow Agent for both AcelRx Pharmaceuticals, Inc., a Delaware corporation (" Company"), and the undersigned purchaser of Stock (the "Stock") of the Company ("Purchaser"), you are hereby authorized and directed to hold the documents delivered to you pursuant to the terms of that certain Common Stock Purchase Agreement (" Agreement"), dated as of the date hereof, to which a copy of these Joint Escrow Instructions is attached as Exhibit B, in accordance with the following instructions:

1. In the event the Company and/or any assignee of the Company (referred to collectively for convenience herein as the "Company") shall elect to exercise the Unvested Share Repurchase Option set forth in the Agreement, the Company shall give to Purchaser and you a written notice specifying the number of shares of Stock to be purchased, the purchase price, and the time for a closing hereunder at the principal office of the Company. Purchaser and the Company hereby irrevocably authorize and direct you to close the transaction contemplated by such notice in accordance with the terms of such notice.

2. At the closing of a transaction pursuant to Paragraph 1, you are directed (a) to date the stock assignments necessary for the transfer in question, (b) to fill in the number of shares of Stock being transferred, and (c) to deliver same, together with the certificates evidencing the shares of Stock to be transferred, to the Company against the simultaneous delivery to you of the purchase price (by check) for the number of shares of Stock being purchased pursuant to the exercise of the Unvested Share Repurchase Option.

3. Purchaser irrevocably authorizes the Company to deposit with you any certificates evidencing shares of Stock to be held by you hereunder and any additions and substitutions to said shares as defined in the Agreement. Purchaser does hereby irrevocably constitute and appoint you as the Purchaser's attorney-in-fact and agent for the term of this escrow to execute with respect to such securities all stock certificates, stock assignments, or other documents necessary or appropriate to make such securities negotiable and complete any transaction herein contemplated. Subject to the provisions of this paragraph 3, Purchaser shall exercise all rights and privileges of a stockholder of the Company while the Stock is held by you.

4. This escrow shall terminate at such time as there are no longer any shares of stock subject to the Unvested Share Repurchase Option.

5. If at the time of termination of this escrow you should have in your possession any documents, securities, or other property belonging to Purchaser, you shall deliver all of it to Purchaser and shall be discharged of all further obligations hereunder.

6. Your duties hereunder may be altered, amended, modified or revoked only by writing signed by all of the parties hereto.

7. You shall be obligated only for the performance of such duties as are specifically set forth herein and may rely and shall be protected in relying or refraining from acting on any instrument reasonably believed by you to be genuine and to have been signed or presented by the proper party or parties. You shall not be personally liable for any act you may do or omit to do hereunder as Escrow Agent or as attorney-in-fact for Purchaser while acting in good faith and in the exercise of your own good judgment, and any act done or omitted by you pursuant to the advice of your own attorneys shall be conclusive evidence to such good faith.

8. You are hereby expressly authorized to disregard any and all warnings given by any of the parties hereto or by any other person or Company, excepting only orders or process of courts of law, and are hereby expressly authorized to comply with and obey orders, judgments or decrees of any court. In case you obey or comply with any such order, judgment or decree of any court, you shall not be liable to any of the parties hereto or to any other person, firm or Company by reason of such compliance, notwithstanding any such order, judgment or decree being subsequently reversed, modified, annulled, set aside, vacated or found to have been entered without jurisdiction.

9. You shall not be liable in any respect on account of the identity, authorities or rights of the parties executing or delivering or purporting to execute or deliver the Agreement or any documents or papers deposited or called for hereunder.

10. You shall not be liable for the outlawing of any rights under the statute of limitations with respect to these Joint Escrow Instructions or any documents deposited with you.

11. You shall be entitled to employ such legal counsel and other experts as you may deem necessary or proper to advise you in connection with your obligations hereunder, may rely upon the advice of such counsel, and may pay such counsel reasonable compensation therefor.

12. Your responsibilities as Escrow Agent hereunder shall terminate if you shall cease to be counsel to the Company or if you shall resign by written notice to each party. In the event of any such termination, the Company shall appoint a successor Escrow Agent.

13. If you reasonably require other or further instructions in connection with these Joint Escrow Instructions or obligations in respect hereto, the necessary parties hereto shall join in furnishing such instruments.

14. It is understood and agreed that should any dispute arise with respect to the delivery and/or ownership or rights of possession of the securities held by you hereunder, you are authorized and directed to retain in your possession without liability to any one all or any part of said securities until such dispute shall have been settled either by mutual written agreement of the parties concerned or by a final order, decree, or judgment of a court of competent jurisdiction

after the time for appeal has expired and no appeal has been perfected, but you shall be under no duty whatsoever to institute or defend any such proceedings.

15. Any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given (i) upon personal delivery, (ii) when sent by confirmed facsimile, if sent during normal business hours of recipient, or if not, then on the next business day, or (iii) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the party to be notified at the following address or at such other address as such party may designate by ten (10) days advance written notice to the other parties hereto.

Company:	AcelRx Pharmaceuticals, Inc. 10201 Bubb Road Cupertino, California 95014 Attn: Thomas A. Schreck, President
Purchasers:	For each Purchaser, the addresses shown on the signature page of the Agreement.
Escrow Agent:	DLA Piper Rudnick Gray Cary US LLP 153 Townsend Street, Suite 800 San Francisco, CA 94107 Attn.: Robb A. Scott

16. By signing these Joint Escrow Instructions, you become a party hereto only for the purpose of said Joint Escrow Instructions; you do not become a party to the Agreement.

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17. This instrument shall be binding upon and inure to the benefit of the parties hereto, and their respective successors and permitted assigns.

Very truly yours,

AcelRx Pharmaceuticals, Inc.,
a Delaware corporation

By: /s/ Thomas A. Schreck
Thomas A. Schreck, President

"FOUNDER"

/s/ PAMELA PALMER
PAMELA PALMER

Address:

Accepted and agreed as of the date set forth above:

DLA PIPER RUDNICK GRAY CARY US LLP

By: /s/ Robb A. Scott
Robb A. Scott, Partner

Exhibit 10.12

FOUNDER'S VESTING AGREEMENT

THIS FOUNDER' S VESTING AGREEMENT (this "Agreement") is made as of the 15th day of August, 2006 by and between AcelRx Pharmaceuticals, Inc., a Delaware corporation (the " Company"), and Thomas A. Schreck ("Founder").

WHEREAS, Founder holds 1,000,000 shares of the common stock of the Company (the "Founder Shares").

WHEREAS, the Company intends to sell shares of preferred stock to outside investors and such investors require as a condition to such transaction that the Founder accept certain restrictions with respect to the Shares as set forth herein;

NOW, THEREFORE, in consideration for the mutual promises and covenants set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto hereby agree as follows:

1. Unvested Share Repurchase Option. Upon the termination of the Founder's service to the Company as an employee or consultant, for any reason, or no reason, with or without Cause, including Involuntary Termination (as defined in the Employment Agreement between the Company and Founder dated August __, 2006 (the "Employment Agreement")), death or temporary or permanent disability, the Company shall have a right (but not an obligation) (the " Unvested Share Repurchase Option") to repurchase any shares of Stock to the extent they have not vested pursuant to subsections 1(a) and (b) (" Unvested Shares") under the terms set forth below.

(a) Vesting of Unvested Shares. Fifty percent (50%) of the Founder Shares initially shall be Unvested Shares. 1/48 of the initial number of Unvested Shares will vest September 15, 2006 and 1/48 of the initial number of Unvested Shares shall vest on the 15th day of each month thereafter, subject to the Founder's continuous service to the Company as an employee or consultant. Acceleration of vesting for the Founder's shares is as set forth in the Employment Agreement.

(b) Exercise of Unvested Share Repurchase Option. The Company may exercise the Unvested Share Repurchase Option by written notice to Founder or the Founder's legal representative within sixty (60) days after such termination.

(c) Payment for Stock and Return of Stock. Payment by the Company to the Founder or the Founder's legal representative shall be made in cash or by check within sixty (60) days after the date of the mailing of the written notice of exercise of the Unvested Share Repurchase Option. For purposes of the foregoing, cancellation of any promissory note of the Founder to the Company shall be treated as payment to the Founder in cash to the extent of the unpaid principal and any accrued interest canceled. The purchase price per share for the shares being repurchased by the Company shall be equal to the original purchase price for such shares, as appropriately adjusted for any stock split, reverse stock split, recapitalization or the like. If not otherwise held in escrow by the Company pursuant to Section 1(g) below, within thirty (30) days after payment by the Company, the Founder shall deliver to the Company for cancellation

the shares of Stock that the Company has repurchased. If the Company holds any vested shares in escrow, such shares will be promptly delivered to Founder following the Company's exercise of its right to repurchase any unvested shares. Upon delivery of notice and payment of the purchase price in any of the ways described above, the Company shall become the legal and beneficial owner of the Shares being repurchased and all rights and interest therein or related thereto, and the Company shall have the right to transfer to its own name the number of Shares being repurchased by the Company, without further action by Founder.

(d) Transfers Not Subject to the Unvested Share Repurchase Option . The Unvested Share Repurchase Option shall not apply to a transfer to the Founder's ancestors, descendants or spouse or to a trustee for their benefit or the benefit of the Founder, provided that such transferee agrees in writing (in a form satisfactory to the Company) to take the Stock subject to all the terms and conditions of this Section 1. All transferees of Shares or any interest therein will receive and hold such Shares or interest subject to the provisions of this Agreement. In the event of any purchase by the Company hereunder where the Shares or interest are held by a transferee, the transferee shall be obligated, if requested by the Company, to transfer the Shares or interest to the Founder for consideration equal to the amount to be paid by the Company hereunder. In the event the Repurchase Option is exercised by the Company pursuant to Section 1 hereof, the Company may deem any transferee to have transferred the Shares or interest to Founder prior to their purchase by the Company, and payment of the purchase price by the Company to such transferee shall be deemed to satisfy Founder's obligation to pay such transferee for such Shares or interest and also to satisfy the Company's obligation to pay Founder for such Shares or interest. Any sale or transfer of the Shares shall be void unless the provisions of this Agreement are satisfied.

(e) Legends. The Company may place a legend referencing the Unvested Share Repurchase Option on any certificate representing Stock subject to the Unvested Share Repurchase Option.

(g) Escrow. As security for the Founder's faithful performance of the terms of this Agreement and to insure the availability for delivery of the Shares upon exercise of the Unvested Share Repurchase Option herein provided for, the Founder agrees to deliver to and deposit with DLA Piper Rudnick Gray Cary US LLP, counsel to the Company (the "Escrow Agent"), as Escrow Agent in this transaction, two Stock Assignments duly endorsed (with date and number of shares blank) in the form attached hereto as Exhibit A, together with the certificate or certificates evidencing the Shares; such documents are to be held by the Escrow Agent pursuant to the Joint Escrow Instructions of the Company and the Founder set forth in Exhibit B attached hereto and incorporated by this reference, which instructions shall also be delivered to the Escrow Agent at the closing hereunder.

2. Legends. All certificates representing any shares of Stock subject to the provisions of this Agreement shall have endorsed thereon the following legends:

(a) "THE TRANSFER OF THE SHARES REPRESENTED BY THIS CERTIFICATE ARE RESTRICTED PURSUANT TO AN AGREEMENT BETWEEN THE COMPANY AND THE HOLDER OF THESE SHARES, OR HIS OR HER PREDECESSOR IN INTEREST, A COPY OF WHICH IS ON FILE AT THE PRINCIPAL OFFICE OF THIS COMPANY."

(b) "THE SECURITIES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, AND MAY NOT BE SOLD, TRANSFERRED, ASSIGNED OR HYPOTHECATED UNLESS THERE IS AN EFFECTIVE REGISTRATION STATEMENT UNDER SUCH ACT COVERING SUCH SECURITIES, THE SALE IS MADE IN ACCORDANCE WITH RULE 144 UNDER THE ACT, OR THE COMPANY RECEIVES AN OPINION OF COUNSEL FOR THE HOLDER OF THESE SECURITIES REASONABLY SATISFACTORY TO THE COMPANY, STATING THAT SUCH SALE, TRANSFER, ASSIGNMENT OR HYPOTHECATION IS EXEMPT FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SUCH ACT."

(c) Any legend required to be placed thereon under applicable state securities laws.

3. Miscellaneous.

(a) Further Instruments. The parties agree to execute such further instruments and to take such further action as may reasonably be necessary to carry out the intent of this Agreement.

(b) Notice. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given (i) upon personal delivery, (ii) when sent by confirmed facsimile, if sent during normal business hours of recipient, or if not, then on the next business day, or (iii) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the party to be notified at the address as set forth on the signature pages hereof or at such other address as such party may designate by ten (10) days advance written notice to the other parties hereto.

(c) Successors and Assigns. This Agreement shall inure to the benefit of the successors and assigns of the Company and, subject to the restrictions on transfer herein set forth, be binding upon the Founder, the Founder's heirs, executors, administrators, successors and assigns.

(d) Applicable Law; Entire Agreement; Amendments. This Agreement, together with the exhibits hereto, shall be governed by and construed in accordance with the laws of the State of California as it applies to agreements between California residents, entered into and to be performed entirely within California and constitutes the entire agreement of the parties with respect to the subject matter hereof superseding all prior written or oral agreements, and no amendment or addition hereto shall be deemed effective unless agreed to in writing by the parties hereto.

(e) Right to Specific Performance. The Founder agrees that the Company shall be entitled to a decree of specific performance of the terms hereof or an injunction restraining violation of this Agreement, said right to be in addition to any other remedies available to the Company.

(f) Severability. If any provision of this Agreement is held by a court to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force and effect without being impaired or invalidated in any way and shall be construed in accordance with the purposes and tenor and effect of this Agreement.

(g) Arbitration. Any dispute or claim arising out of this agreement will be subject to final and binding arbitration. One arbitrator who is a member of the American Arbitration Association ("AAA"), and will be governed by the Commercial Arbitration Rules of the AAA will conduct the arbitration. The arbitration will be held in San Francisco, California, and the arbitrator will apply California substantive law in all respects. The arbitrator shall have all authority to determine the arbitrability of any claim and enter a final, binding judgment at the conclusion of any proceedings. Any final judgment only may be appealed on the grounds of improper bias or improper conduct of the arbitrator. The party prevailing in the resolution of any claim will be entitled, in addition to such other relief as may be granted, to an award of all attorneys' fees and costs incurred in the claim, without regard to any statute, schedule, or rule of court purported to restrict such award.

(h) Counterparts. This Agreement may be executed in counterparts, each of which shall be an original, but all of which together shall constitute one instrument.

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

"COMPANY"	"FOUNDER"
ACELRX PHARMACEUTICALS, INC., a Delaware corporation	
By: /s/ THOMAS A. SCHRECK	/s/ THOMAS A. SCHRECK
Title: CEO	THOMAS A. SCHRECK
Address:	Address:

SIGNATURE PAGE
FOUNDER'S VESTING AGREEMENT

EXHIBIT A

ASSIGNMENT SEPARATE FROM CERTIFICATE

FOR VALUE RECEIVED, _____, hereby sells, assigns and transfers unto _____ _____ shares of the Common Stock of AcelRx Pharmaceuticals, Inc., a Delaware corporation (the "Company"), standing in the undersigned's name on the books of said Company represented by Certificate No. _____ herewith, and does hereby irrevocably constitute and appoint _____ attorney to transfer the said stock on the books of the said Company with full power of substitution in the premises.

Dated: _____

_____

Name of Purchaser: _____

***Instruction*: Please sign but do not fill in any other blanks. The purpose of this assignment is to enable the Company to exercise its repurchase rights as set forth in the Agreement without requiring additional signatures on the part of the Stockholder.**

EXHIBIT A

ASSIGNMENT SEPARATE FROM CERTIFICATE

FOR VALUE RECEIVED, _____, hereby sells, assigns and transfers unto _____ _____ shares of the Common Stock of AcelRx Pharmaceuticals, Inc., a Delaware corporation (the "Company"), standing in the undersigned's name on the books of said Company represented by Certificate No. _____ herewith, and does hereby irrevocably constitute and appoint _____ attorney to transfer the said stock on the books of the said Company with full power of substitution in the premises.

Dated: _____

_____

_____

Name of Purchaser: _____

***Instruction*: Please sign but do not fill in any other blanks. The purpose of this assignment is to enable the Company to exercise its repurchase rights as set forth in the Agreement without requiring additional signatures on the part of the Stockholder.**

EXHIBIT B

JOINT ESCROW INSTRUCTIONS

August 15, 2006

DLA Piper Rudnick Gray Cary US LLP
153 Townsend Street, Suite 800
San Francisco, CA 94107

Ladies and Gentlemen:

As Escrow Agent for both AcelRx Pharmaceuticals, Inc., a Delaware corporation (" Company"), and the undersigned purchaser of Stock (the "Stock") of the Company ("Purchaser"), you are hereby authorized and directed to hold the documents delivered to you pursuant to the terms of that certain Common Stock Purchase Agreement (" Agreement"), dated as of the date hereof, to which a copy of these Joint Escrow Instructions is attached as Exhibit B, in accordance with the following instructions:

1. In the event the Company and/or any assignee of the Company (referred to collectively for convenience herein as the "Company") shall elect to exercise the Unvested Share Repurchase Option set forth in the Agreement, the Company shall give to Purchaser and you a written notice specifying the number of shares of Stock to be purchased, the purchase price, and the time for a closing hereunder at the principal office of the Company. Purchaser and the Company hereby irrevocably authorize and direct you to close the transaction contemplated by such notice in accordance with the terms of such notice.

2. At the closing of a transaction pursuant to Paragraph 1, you are directed (a) to date the stock assignments necessary for the transfer in question, (b) to fill in the number of shares of Stock being transferred, and (c) to deliver same, together with the certificates evidencing the shares of Stock to be transferred, to the Company against the simultaneous delivery to you of the purchase price (by check) for the number of shares of Stock being purchased pursuant to the exercise of the Unvested Share Repurchase Option.

3. Purchaser irrevocably authorizes the Company to deposit with you any certificates evidencing shares of Stock to be held by you hereunder and any additions and substitutions to said shares as defined in the Agreement. Purchaser does hereby irrevocably constitute and appoint you as the Purchaser's attorney-in-fact and agent for the term of this escrow to execute with respect to such securities all stock certificates, stock assignments, or other documents necessary or appropriate to make such securities negotiable and complete any transaction herein contemplated. Subject to the provisions of this paragraph 3, Purchaser shall exercise all rights and privileges of a stockholder of the Company while the Stock is held by you.

SIGNATURE PAGE
FOUNDER'S VESTING AGREEMENT

4. This escrow shall terminate at such time as there are no longer any shares of stock subject to the Unvested Share Repurchase Option.

5. If at the time of termination of this escrow you should have in your possession any documents, securities, or other property belonging to Purchaser, you shall deliver all of it to Purchaser and shall be discharged of all further obligations hereunder.

6. Your duties hereunder may be altered, amended, modified or revoked only by writing signed by all of the parties hereto.

7. You shall be obligated only for the performance of such duties as are specifically set forth herein and may rely and shall be protected in relying or refraining from acting on any instrument reasonably believed by you to be genuine and to have been signed or presented by the proper party or parties. You shall not be personally liable for any act you may do or omit to do hereunder as Escrow Agent or as attorney-in-fact for Purchaser while acting in good faith and in the exercise of your own good judgment, and any act done or omitted by you pursuant to the advice of your own attorneys shall be conclusive evidence to such good faith.

8. You are hereby expressly authorized to disregard any and all warnings given by any of the parties hereto or by any other person or Company, excepting only orders or process of courts of law, and are hereby expressly authorized to comply with and obey orders, judgments or decrees of any court. In case you obey or comply with any such order, judgment or decree of any court, you shall not be liable to any of the parties hereto or to any other person, firm or Company by reason of such compliance, notwithstanding any such order, judgment or decree being subsequently reversed, modified, annulled, set aside, vacated or found to have been entered without jurisdiction.

9. You shall not be liable in any respect on account of the identity, authorities or rights of the parties executing or delivering or purporting to execute or deliver the Agreement or any documents or papers deposited or called for hereunder.

10. You shall not be liable for the outlawing of any rights under the statute of limitations with respect to these Joint Escrow Instructions or any documents deposited with you.

11. You shall be entitled to employ such legal counsel and other experts as you may deem necessary or proper to advise you in connection with your obligations hereunder, may rely upon the advice of such counsel, and may pay such counsel reasonable compensation therefor.

12. Your responsibilities as Escrow Agent hereunder shall terminate if you shall cease to be counsel to the Company or if you shall resign by written notice to each party. In the event of any such termination, the Company shall appoint a successor Escrow Agent.

13. If you reasonably require other or further instructions in connection with these Joint Escrow Instructions or obligations in respect hereto, the necessary parties hereto shall join in furnishing such instruments.

14. It is understood and agreed that should any dispute arise with respect to the delivery and/or ownership or rights of possession of the securities held by you hereunder, you are

authorized and directed to retain in your possession without liability to any one all or any part of said securities until such dispute shall have been settled either by mutual written agreement of the parties concerned or by a final order, decree, or judgment of a court of competent jurisdiction after the time for appeal has expired and no appeal has been perfected, but you shall be under no duty whatsoever to institute or defend any such proceedings.

15. Any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given (i) upon personal delivery, (ii) when sent by confirmed facsimile, if sent during normal business hours of recipient, or if not, then on the next business day, or (iii) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the party to be notified at the following address or at such other address as such party may designate by ten (10) days advance written notice to the other parties hereto.

Company:	AcelRx Pharmaceuticals, Inc. 10201 Bubb Road Cupertino, California 95014 Attn: Thomas A. Schreck, President
Purchasers:	For each Purchaser, the addresses shown on the signature page of the Agreement.
Escrow Agent:	DLA Piper Rudnick Gray Cary US LLP 153 Townsend Street, Suite 800 San Francisco, CA 94107 Attn.: Robb A. Scott

16. By signing these Joint Escrow Instructions, you become a party hereto only for the purpose of said Joint Escrow Instructions; you do not become a party to the Agreement.

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17. This instrument shall be binding upon and inure to the benefit of the parties hereto, and their respective successors and permitted assigns.

Very truly yours,

AcelRx Pharmaceuticals, Inc.,
a Delaware corporation

By: /s/ Thomas A. Schreck
Thomas A. Schreck, President

"FOUNDER"

/s/ THOMAS A. SCHRECK
THOMAS A. SCHRECK

Address:

Accepted and agreed as of the date set forth above:

DLA PIPER RUDNICK GRAY CARY US LLP

By: /s/ Robb A. Scott
Robb A. Scott, Partner

Exhibit 10.13

ACELRX PHARMACEUTICALS, INC.

EMPLOYMENT AGREEMENT

This Employment Agreement (the "Agreement") is made and entered into effective as of August 15, 2006 (the "Effective Date"), by and between Thomas A. Schreck (the "Employee") and AcelRx Pharmaceuticals, Inc., a Delaware corporation (the "Company"). Certain capitalized terms used in this Agreement are defined in Section 1 below.

RECITALS

A. Employee is a founder of the Company and the Company's Chief Executive Officer. The Company is raising $20 million through the sale of Series A Preferred Stock to venture capital investors.

B. As a condition to such investment, the Company, the investors and Mr. Schreck have agreed to enter into this Employment Agreement to provide Mr. Schreck enhanced financial security and sufficient encouragement to remain with the Company notwithstanding the possibility of a Change of Control, and to provide Mr. Schreck with certain benefits in the event of his termination from the Company, either before or after a Change of Control.

AGREEMENT

In consideration of the mutual covenants herein contained and the continued employment of Employee by the Company, the parties agree as follows:

1. Definition of Terms. The following terms referred to in this Agreement shall have the following meanings:

(a) Cause. "Cause" shall mean (i) Employee's gross negligence or willful failure substantially to perform his or her duties and responsibilities to the Company or deliberate violation of a Company policy; (ii) Employee's commission of any act of fraud, embezzlement, dishonesty or any other willful misconduct that has caused or is reasonably expected to result in material injury to the Company; (iii) unauthorized use or disclosure by Employee of any proprietary information or trade secrets of the Company or any other party to whom the Employee owes an obligation of nondisclosure as a result of his or her relationship with the Company; (iv) Employee's willful breach of any of his or her obligations under any written agreement or covenant with the Company, which if capable of being cured shall not have been cured within thirty (30) days after the Company shall have advised Employee in writing of its intention to terminate Employee's employment for Cause (such notice which shall contain the grounds for such termination with reasonable particularity) or (v) Employee's commission of a felony or commission of a crime of moral turpitude. The determination as to whether an

Employee is being terminated for Cause shall be made in good faith by the Company's Board of Directors and shall be final and binding on the Employee.

(b) Change of Control. "Change of Control" shall mean the occurrence of any of the following events:

(i) a merger or consolidation of the Company with any other corporation, other than a merger or consolidation which would result in the voting securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) more than fifty percent (50%) of the total voting power represented by the voting securities of the Company or such surviving entity outstanding immediately after such merger or consolidation; or

(ii) the approval by the stockholders of the Company of a plan of complete liquidation of the Company or an agreement for the sale or disposition by the Company of all or substantially all of the Company's assets.

(c) "Involuntary Termination" shall mean Employee's voluntary termination of employment with the Company within thirty (30) days following the occurrence of any of the following without Employee's consent: (i) a material reduction or change in job duties, reporting relationships, responsibilities and requirements inconsistent with Employee's position with the Company and prior duties, reporting relationships, responsibilities and requirements prior to the Change in Control, provided that neither a mere change in title alone nor reassignment following a Change of Control to a position that is substantially similar to the position held prior to the Change of Control in terms of job duties, responsibilities or requirements shall constitute a material reduction in job responsibilities; (ii) a reduction in Employee's then-current base salary by at least 20%, provided that an across-the-board reduction in the salary level of all other senior executives by the same percentage amount as part of a general salary level reduction shall not constitute such a salary reduction or (iii) Employee's refusal to relocate the principal place for performance of Company duties to a location more than thirty (30) miles from the Company's then current location at the time of the Change in Control.

(d) Termination Date. "Termination Date" shall mean the effective date of any notice of termination delivered by one party to the other hereunder.

2. 2. Compensation and Term of Agreement.

(a) As compensation for the services to be rendered by Employee hereunder, the Company agrees to pay Employee, and Employee agrees to accept, a base salary ("Base Salary") during employment hereunder at the annual rate of $250,000. The Base Salary shall be payable in equal installments by the Company according to its normal payroll practices. In addition, Employee may be eligible to receive from time to time during the Term hereof, bonus compensation as determined by the Company's Board of Directors or the Compensation Committee of the Board of Directors.

(b) This Agreement shall terminate upon the earlier of (i) two (2) years after a Change of Control, or (ii) the date that all obligations of the parties hereto under this Agreement have been satisfied.

3. At-Will Employment. The Company and the Employee acknowledge that the Employee's employment is and shall continue to be at-will, as defined under applicable law. If the Employee's employment terminates for any reason, the Employee shall not be entitled to any payments, benefits, damages, awards or compensation other than as provided by this Agreement, or as may otherwise be established under the Company's then existing employee benefit plans or policies at the time of termination.

4. Severance Benefits.

(a) Termination Following a Change of Control. If the Employee's employment with the Company terminates as a result of an Involuntary Termination or termination without Cause at any time within eighteen (18) months after a Change of Control, and the Employee signs a general release of claims against the Company, Employee shall be entitled to the following severance benefits:

(1) Six months of Employee's base salary as in effect as of the date of the Termination Date less applicable withholding, payable in a lump sum within thirty (30) days of the Involuntary Termination or termination without Cause;

(2) all stock options and other equity compensation granted under the Company's 2006 Stock Plan to the Employee prior to the Change of Control shall accelerate and become vested under the applicable award agreements to the extent such awards are outstanding and, if applicable, unexercisable at the time of such termination and all stock subject to a right of repurchase by the Company (or its successor) that was purchased prior to the Change of Control shall have such right of repurchase lapse; and

(3) the same level of Company-paid health (i.e., medical, vision and dental) coverage and benefits for such coverage as in effect for the Employee (and any eligible dependents) on the day immediately preceding the Employee's Termination Date; provided, however, that (i) the Employee constitutes a qualified beneficiary, as defined in Section 4980B(g)(1) of the Internal Revenue Code of 1986, as amended; and (ii) Employee elects continuation coverage pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA"), within the time period prescribed pursuant to COBRA. The Company shall continue to provide Employee with such Company-paid coverage until the earlier of (i) the date Employee (and his/her eligible dependents) is no longer eligible to receive continuation coverage pursuant to COBRA, or (ii) six (6) months from the Termination Date.

(b) Termination Apart from a Change of Control. If the Employee's employment with the Company is terminated without Cause before a Change of Control, and the Employee signs a general release of claims against the Company, the Employee shall be entitled to severance benefits as set forth in Sections 4(a)(1) and 4(a)(3) above.

(c) Accrued Wages and Vacation, Expenses. Without regard to the reason for, or the timing of, Employee's termination of employment: (i) the Company shall pay the Employee any unpaid base salary due for periods prior to the Termination Date; (ii) the Company shall pay the Employee all of the Employee's accrued and unused vacation through the Termination Date; and (iii) following submission of proper expense reports by the Employee, the Company shall reimburse the-Employee for all expenses reasonably and necessarily incurred by the Employee in connection with the business of the Company prior to the Termination Date. These payments shall be made promptly upon termination and within the period of time mandated by law.

5. Limitation on Payments. In the event that the severance and other benefits provided for in this Agreement or otherwise payable to the Employee (i) constitute "parachute payments" within the meaning of Section 280G of the Code, and (ii) would be subject to the excise tax imposed by Section 4999 of the Code (the "Excise Tax"), then Employee's benefits under this Agreement shall be either

(a) delivered in full, or

(b) delivered as to such lesser extent which would result in no portion of such benefits being subject to the Excise Tax,

whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the Excise Tax, results in the receipt by Employee on an after-tax basis, of the greatest amount of benefits, notwithstanding that all or some portion of such benefits may be taxable under Section 4999 of the Code.

Unless the Company and the Employee otherwise agree in writing, any determination required under this Section shall be made in- writing by the Company's independent public accountants (the "Accountants"), whose determination shall be conclusive and binding upon the Employee and the Company for all purposes. For purposes of making the calculations required by this Section, the Accountants may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of Section 280G and 4999 of the Code. The Company and the Employee shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make a determination under this Section. The Company shall bear all costs the Accountants may reasonably incur in connection with any calculations contemplated by this Section.

The Company shall prepare a proposal to be voted on by the stockholders of the Company in accordance with the terms of Section 280G(b)(5)(B) of the Code (the "280G Proposal") so as to render the parachute payment provisions of Section 280G of the Code inapplicable to such payment, an shall seek to obtain such stockholders approval in a manner which satisfies all applicable requirements of such Section 280G(b)(5)(B) of the Code and the Treasury Regulations thereunder, including Q-7 of Section 1.280G-1 of such Treasury Regulations.

6. Successors.

(a) Company's Successors. Any successor to the Company (whether direct or indirect and whether by purchase, lease, merger, consolidation, liquidation or otherwise) to all or substantially all of the Company's business and/or assets shall assume the Company's obligations under this Agreement and agree expressly to perform the Company's obligations under this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations in the absence of a succession. For all purposes under this Agreement, the term "Company" shall include any successor to the Company's business and/or assets which executes and delivers the assumption agreement described in this subsection (a) or which becomes bound by the terms of this Agreement by operation of law.

(b) Employee's Successors. Without the written consent of the Company, Employee shall not assign or transfer this Agreement or any right or obligation under this Agreement to any other person or entity. Notwithstanding the foregoing, the terms of this Agreement and all rights of Employee hereunder shall inure to the benefit of, and be enforceable by, Employee's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

7. Notices.

(a) General. Notices and all other communications contemplated by this Agreement shall be in writing and shall be deemed to have been duly given when personally delivered or when mailed by U.S. registered or certified mail, return receipt requested and postage prepaid. In the case of the Employee, mailed notices shall be addressed to Employee at the home address which Employee most recently communicated to the Company in writing. In the case of the Company, mailed notices shall be addressed to its corporate headquarters.

(b) Notice of Termination. Any termination by the Company for Cause or by the Employee as a result of a voluntary resignation shall be communicated by a notice of termination to the other party hereto given in accordance with this Section. Such notice shall indicate the specific termination provision in this Agreement relied upon, shall set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination under the provision so indicated, and shall specify the Termination Date (which shall be not more than 30 days after the giving of such notice). The failure by the Employee to provide the notice or to include in the notice any fact or circumstance which contributes to a showing of Involuntary Termination shall

not waive any right of the Employee hereunder or preclude the Employee from asserting such fact or circumstance in enforcing his rights hereunder.

8. Arbitration.

(a) Any dispute or controversy arising out of, relating to, or in connection with this Agreement, or the interpretation, validity, construction, performance, breach, or termination thereof, shall be settled by binding arbitration to be held in Santa Clara, California, in accordance with the National Rules for the Resolution of Employment Disputes then in effect of the American Arbitration Association (the "Rules"). The arbitrator may grant injunctions or other relief in such dispute or controversy. The decision of the arbitrator shall be final, conclusive and binding on the parties to the arbitration. Judgment may be entered on the arbitrator's decision in any court having jurisdiction. The arbitrator may require one party to pay the costs and attorney fees of the prevailing party.

(b) The arbitrator(s) shall apply California law to the merits of any dispute or claim, without reference to conflicts of law rules. The arbitration proceedings shall be governed by federal arbitration law and by the Rules, without reference to state arbitration law. Employee hereby consents to the personal jurisdiction of the state and federal courts located in California for any action or proceeding arising from or relating to this Agreement or relating to any arbitration in which the parties are participants.

(c) Employee understands that nothing in this Section modifies Employee's at-will employment status. Either Employee or the Company can terminate the employment relationship at any time, with or without Cause.

(d) EMPLOYEE HAS READ AND UNDERSTANDS THIS SECTION, WHICH DISCUSSES ARBITRATION. EMPLOYEE UNDERSTANDS THAT SUBMITTING ANY CLAIMS ARISING OUT OF, RELATING TO, OR IN CONNECTION WITH THIS AGREEMENT, OR THE INTERPRETATION, VALIDITY, CONSTRUCTION, PERFORMANCE, BREACH OR TERMINATION THEREOF TO BINDING ARBITRATION, CONSTITUTES A WAIVER OF EMPLOYEE'S RIGHT TO A JURY TRIAL AND RELATES TO THE RESOLUTION OF ALL DISPUTES RELATING TO ALL ASPECTS OF THE EMPLOYER/EMPLOYEE RELATIONSHIP, INCLUDING BUT NOT LIMITED TO, THE FOLLOWING CLAIMS:

(i) ANY AND ALL CLAIMS FOR WRONGFUL DISCHARGE OF EMPLOYMENT; BREACH OF CONTRACT, BOTH EXPRESS AND IMPLIED; BREACH OF THE COVENANT OF GOOD FAITH AND FAIR DEALING, BOTH EXPRESS AND IMPLIED; NEGLIGENT OR INTENTIONAL INFLICTION OF EMOTIONAL DISTRESS; NEGLIGENT OR INTENTIONAL MISREPRESENTATION; NEGLIGENT OR INTENTIONAL INTERFERENCE WITH CONTRACT OR PROSPECTIVE ECONOMIC ADVANTAGE; AND DEFAMATION.

(ii) ANY AND ALL CLAIMS FOR VIOLATION OF ANY FEDERAL STATE OR MUNICIPAL STATUTE, INCLUDING, BUT NOT LIMITED TO, TITLE VII OF THE CIVIL RIGHTS ACT OF 1964, THE CIVIL RIGHTS ACT OF 1991, 1 AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967, THE AMERICANS WITH DISABILITIES ACT OF 1990, THE FAIR LABOR STANDARDS ACT, THE CALIFORNIA FAIR EMPLOYMENT AND HOUSING ACT, AND LABOR CODE SECTION 20 1, *et seq*;

(iii) ANY AND ALL CLAIMS ARISING OUT OF ANY OTHER LAWS AND REGULATIONS RELATING TO EMPLOYMENT OR EMPLOYMENT DISCRIMINATION.

9. Miscellaneous Provisions.

(a) Effect of Statutory Benefits. To the extent that any severance benefits are required to be paid to the Employee upon termination of employment with the Company as a result of any requirement of law or any governmental entity in any applicable jurisdiction, the aggregate amount of severance benefits payable pursuant to Section 4 hereof shall be reduced by such amount.

(b) No Duty to Mitigate. The Employee shall not be required to mitigate the amount of any payment contemplated by this Agreement, nor shall any such payment be reduced by any earnings that the Employee may receive from any other source.

(c) Waiver. No provision of this Agreement may be modified, waived or discharged unless the modification, waiver or discharge is agreed to in writing and signed by the Employee and by an authorized officer of the Company (other than the Employee). No waiver by either party of any breach of, or of compliance with, any condition or provision of this Agreement by the other party shall be considered a waiver of any other condition or provision or of the same condition or provision at another time.

(d) Integration. This Agreement and any outstanding stock option agreements and any restricted stock purchase agreements referenced herein represent the entire agreement and understanding between the parties as to the subject matter herein and supersede all prior or contemporaneous agreements, whether written or oral, with respect to this Agreement and any stock option agreement or any restricted stock purchase agreement, provided, that, for clarification purposes, this agreement shall not affect any agreements between the Company and Employee regarding intellectual property matters or confidential information of the Company.

(e) Choice of Law. The validity, interpretation, construction and performance of this Agreement shall be governed by the internal substantive laws, but not the conflicts of law rules, of the State of California.

(f) Severability. The invalidity or unenforceability of any provision or provisions of this Agreement shall not affect the validity or enforceability of any other provision hereof, which shall remain in full force and effect.

(g) Employment Taxes. All payments made pursuant to this Agreement shall be subject to withholding of applicable income and employment taxes.

(h) Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instrument.

IN WITNESS WHEREOF, each of the parties has executed this Agreement, in the case of the Company by its duly authorized officer, as of the day and year first above written.

COMPANY: AcelRx Pharmaceuticals, Inc..

By: /s/ Thomas A. Schreck

Title: CEO

EMPLOYEE:

/s/ Thomas A. Schreck
Signature

Thomas A. Schreck

Exhibit 10.14

AcelRx Pharmaceuticals, Inc.

December 31, 2010

Re: Amended and Restated Offer Letter

Dear Larry:

This letter (the "***Amended Letter***") amends and restates the offer letter between you and AcelRx Pharmaceuticals, Inc. (the "***Company***") dated September 6, 2006 (the "***Original Letter***") in order to clarify the manner of exemption or compliance of certain items of compensation with Section 409A of the Internal Revenue Code of 1986, as amended (the "***Code***").

The terms of your position with the Company are as set forth below:

1. Position.

(a) You will continue to serve as the Chief Development Officer of the Company, working out of the Company's headquarters office in Redwood City, California. You will report to Richard King, the Company's President and Chief Executive Officer.

(b) You agree to the best of your ability and experience that you will at all times loyally and conscientiously perform all of the duties and obligations required of and from you pursuant to the express and implicit terms hereof, and to the reasonable satisfaction of the Company. During the term of your employment, you further agree that you will devote at least 95% of your business time and attention to the business of the Company, the Company will be entitled to all of the benefits and profits arising from or incident to all such work services and advice, you will not render commercial or professional services of any nature to any person or organization, whether or not for compensation, without the prior written consent of the Company, such consent not to be unreasonably withheld, and you will not directly or indirectly engage or participate in any business that is competitive in any manner with the business of the Company. Nothing in this letter agreement will prevent you from accepting speaking or presentation engagements in exchange for honoraria or from serving on boards of charitable organizations, or from owning no more than one percent (1%) of the outstanding equity securities of a corporation whose stock is listed on a national stock exchange.

2. Start Date. You commenced employment with the Company on September 21, 2006 (the "***Start Date***").

3. Compensation. You will be eligible to earn a monthly salary of $22,916.67, which is equivalent to $275,000.00 on an annualized basis, less standard payroll deductions and withholdings (the " ***Base Salary***"). Your salary will be payable in two equal payments per month pursuant to the Company's regular payroll policy. The Base Salary will be reviewed annually as part of the Company's normal salary review process.

4. Stock Options.

(a) Prior Grants. In connection with your services for the Company, the Company's Board of Directors (the "***Board***") has granted to you stock options to purchase shares of the Company's Common Stock. The options are subject to the terms of the Company's 2006 Stock Plan (the "***Plan***") and the Stock Option Agreement(s) between you and the Company, except as expressly modified by this Amended Letter.

(b) Effect of Termination Following a Change in Control. In the event that the Company undergoes a Change in Control (as such term is defined in the Plan) and on or within eighteen (18) months following the closing of the Change in Control, the Company terminates your employment without Cause (as such term is defined in the Plan) and other than as a result of your death or disability, or you terminate your employment due to an Involuntary Termination (as such term is defined below), and subject to your execution of a general release of all claims with respect to the Company that is effective not later than sixty (60) days after your Separation from Service (as such term is defined below), the vesting of the stock options that the Company has granted to you as of the date of this Amended Letter and any stock options that the Company may grant to you in the future (the shares subject to each such stock option, the "***Option Shares***") shall accelerate in full such that 100% of the then unvested Option Shares will become vested and exercisable as of your termination date. For purposes of the Option Shares, an "***Involuntary Termination***" shall mean your voluntary resignation from all positions you then hold with the Company within sixty (60) days following the occurrence of any of the following events without your written consent and after providing written notice of such event to the Company and providing the Company at least thirty (30) days to cure such event: (i) a material reduction or change in your job duties, reporting relationships, responsibilities and requirements inconsistent with your position with the Company and prior duties, reporting relationships, responsibilities and requirements prior to the Change in Control, provided that neither a mere change in title alone nor reassignment following a Change in Control to a position that is substantially similar to the position held prior to the Change in Control in terms of job duties, responsibilities or requirements shall constitute a material reduction in job responsibilities; (ii) a reduction in your then-current base salary by at least 20%, provided that an across-the-board reduction in the salary level of all other senior executives by the same percentage amount as part of a general salary level reduction shall not constitute such a salary reduction, or (iii) the relocation of your principal place for performance of your Company duties to a location that increases your one-way commute by more than thirty (30) miles.

5. Benefits.

(a) Insurance Benefits. The Company will provide you with the opportunity to participate in the standard benefits plans currently available to other Company employees, subject to any eligibility requirements imposed by such plans.

(b) Vacation; Sick Leave. You will be entitled to paid time off according to the Company's standard policies.

(c) Expense Reimbursements. You will be eligible for expense reimbursement in accordance with Company policy. For the avoidance of doubt, to the extent that any reimbursements payable to you are subject to the provisions of Code Section 409A: (a) to be eligible to obtain reimbursement for such expenses you must submit expense reports

within 45 days after the expense is incurred, (b) any such reimbursements will be paid no later than December 31 of the year following the year in which the expense was incurred, (c) the amount of expenses reimbursed in one year will not affect the amount eligible for reimbursement in any subsequent year, and (d) the right to reimbursement under this agreement will not be subject to liquidation or exchange for another benefit.

6. Confidential Information and Invention Assignment Agreement . Your employment with the Company is subject to the terms of the Confidential Information and Invention Assignment Agreement previously entered into between you and the Company (the "***Confidentiality Agreement***").

7. At-Will Employment. Your employment with the Company will continue to be on an "at will" basis, meaning that either you or the Company may terminate your employment at any time for any reason or no reason, without further obligation or liability.

8. No Conflicting Obligations. In your work for the Company, you are not to use or disclose to any person associated with the Company, any confidential or proprietary information belonging to any former employer or other person or entity with respect to which you owe an obligation of confidentiality under any agreement or otherwise **.** The Company does not need and will not use such information and we will assist you in any way possible to preserve and protect the confidentiality of proprietary information belonging to third parties **.** Also, we expect you to abide by any obligations to refrain from soliciting any person employed by or otherwise associated with any former employer and suggest that you refrain from having any contact with such persons until such time as any non-solicitation obligation expires.

9. Section 409A Matters. It is intended that all of the severance benefits and other payments payable under the Original Letter, as amended by this Amended Letter, satisfy, to the greatest extent possible, the exemptions from the application of Section 409A provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, will be construed and interpreted in a manner that makes such amounts compliant with the requirements Section 409A. For purposes of Code Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), your right to receive any installment payments hereunder (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary herein, if you are deemed by the Company at the time of your "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h) and without regard to alternate definitions thereunder, a "***Separation from Service***") to be a "specified employee" for purposes of Code Section 409A(a)(2)(B)(i), and if any of the payments or benefits due upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be "deferred compensation", then to the extent delayed commencement of any portion of such payments or benefits is required in order to avoid a prohibited distribution under Code Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to you prior to the earliest of (i) the expiration of the six-month period measured from the date of your Separation from Service with the Company, (ii) the date of your death or (iii) such earlier date as permitted under Section

409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this paragraph shall be paid in a lump sum to you, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. For purposes of this Amended Letter, any reference to termination of employment shall be construed to mean a Separation from Service.

10. Entire Agreement. This Amended Letter, together with the Confidentiality Agreement, sets forth the entire agreement and understanding between you and the Company relating to your employment and supersedes all prior agreements and discussions between us. This Amended Letter may not be modified or amended except by a written agreement, signed by an officer of the Company, although the Company reserves the right to modify unilaterally your compensation, benefits, job title and duties, reporting relationships and other terms of your employment. This Amended Letter will be governed by the laws of the State of California without regard to is conflict of laws provision.

We hope you find this Amended Letter acceptable and look forward to your favorable response. Please return one copy of this Amended Letter indicating your acceptance to me.

Sincerely,

/s/ Richard King
Richard King
President and Chief Executive Officer

I accept the terms of employment offered in this Amended Letter.

Signature: /s/ Larry Hamel
Larry Hamel

Date: December 31, 2010

Exhibit 10.15

AcelRx Pharmaceuticals, Inc.

December 30, 2010

Re: Amended and Restated Offer Letter

Dear Anil:

This letter (the "***Amended Letter***") amends and restates the offer letter between you and AcelRx Pharmaceuticals, Inc. (the "***Company***") dated August 29, 2007 (the "***Original Letter***") in order to clarify the manner of exemption or compliance of certain items of compensation with Section 409A of the Internal Revenue Code of 1986, as amended (the "***Code***").

The terms of your position with the Company are as set forth below:

1. Position.

(a) You will continue to serve as the Chief Engineering Officer of the Company, working out of the Company's headquarters office in Redwood City, California. You will report to Richard King, the Company's President and Chief Executive Officer.

(b) You agree to the best of your ability and experience that you will at all times loyally and conscientiously perform all of the duties and obligations required of and from you pursuant to the express and implicit terms hereof, and to the reasonable satisfaction of the Company. During the term of your employment, you further agree that you will devote at least 100% of your business time and attention to the business of the Company, the Company will be entitled to all of the benefits and profits arising from or incident to all such work services and advice, you will not render commercial or professional services of any nature to any person or organization, whether or not for compensation, without the prior written consent of the Company, such consent not to be unreasonably withheld, and you will not directly or indirectly engage or participate in any business that is competitive in any manner with the business of the Company. Nothing in this letter agreement will prevent you from accepting speaking or presentation engagements in exchange for honoraria or from serving on boards of charitable organizations, or from owning no more than one percent (1%) of the outstanding equity securities of a corporation whose stock is listed on a national stock exchange.

2. Start Date. You commenced employment with the Company on September 26, 2007 (the "***Start Date***").

3. Compensation. You will be eligible to earn a monthly salary of $19,583.33, which is equivalent to $235,000.00 on an annualized basis, less standard payroll deductions and withholdings (the " ***Base Salary***"). Your salary will be payable in two equal payments per month pursuant to the Company's regular payroll policy. The Base Salary will be reviewed annually as part of the Company's normal salary review process.

4. Stock Options.

(i) Prior Grants. In connection with your services for the Company, the Company's Board of Directors (the "***Board***") has granted to you stock options to purchase shares of the Company's Common Stock. The options are subject to the terms of the Company's 2006 Stock Plan (the "***Plan***") and the Stock Option Agreement(s) between you and the Company, except as expressly modified by this Amended Letter.

(ii) Effect of Termination Following a Change in Control. In the event that the Company undergoes a Change in Control (as such term is defined in the Plan) and on or within eighteen (18) months following the closing of the Change in Control, the Company terminates your employment without Cause (as such term is defined in the Plan) and other than as a result of your death or disability, or you terminate your employment due to an Involuntary Termination (as such term is defined below), and subject to your execution of a general release of all claims with respect to the Company that is effective not later than sixty (60) after your Separation from Service (as such term is defined below), the vesting of the stock options that the Company has granted to you as of the date of this Amended Letter and any stock options that the Company may grant to you in the future (the shares subject to each such stock option, the "***Option Shares***") shall accelerate in full such that 100% of the then unvested Option Shares will become vested and exercisable as of your termination date. For purposes of the Option Shares, an "***Involuntary Termination***" shall mean your voluntary resignation from all positions you then hold with the Company within sixty (60) days following the occurrence of any of the following events without your written consent and after providing written notice of such event to the Company and providing the Company at least thirty (30) days to cure such event: (i) a material reduction or change in your job duties, reporting relationships, responsibilities and requirements inconsistent with your position with the Company and prior duties, reporting relationships, responsibilities and requirements prior to the Change in Control, provided that neither a mere change in title alone nor reassignment following a Change in Control to a position that is substantially similar to the position held prior to the Change in Control in terms of job duties, responsibilities or requirements shall constitute a material reduction in job responsibilities; (ii) a reduction in your then-current base salary by at least 20%, provided that an across-the-board reduction in the salary level of all other senior executives by the same percentage amount as part of a general salary level reduction shall not constitute such a salary reduction, or (iii) the relocation of your principal place for performance of your Company duties to a location that increases your one-way commute by more than thirty (30) miles.

5. Benefits.

(a) Insurance Benefits. The Company will provide you with the opportunity to participate in the standard benefits plans currently available to other Company employees, subject to any eligibility requirements imposed by such plans.

(b) Vacation; Sick Leave. You will be entitled to paid time off according to the Company's standard policies**.**

(c) Expense Reimbursements. You will be eligible for expense reimbursement in accordance with Company policy. For the avoidance of doubt, to the extent that any reimbursements payable to you are subject to the provisions of Code Section 409A: (a) to be eligible to obtain reimbursement for such expenses you must submit expense reports

within 45 days after the expense is incurred, (b) any such reimbursements will be paid no later than December 31 of the year following the year in which the expense was incurred, (c) the amount of expenses reimbursed in one year will not affect the amount eligible for reimbursement in any subsequent year, and (d) the right to reimbursement under this agreement will not be subject to liquidation or exchange for another benefit.

6. Confidential Information and Invention Assignment Agreement . Your employment with the Company is subject to the terms of the Confidential Information and Invention Assignment Agreement previously entered into between you and the Company (the "***Confidentiality Agreement***").

7. At-Will Employment. Your employment with the Company will continue to be on an "at will" basis, meaning that either you or the Company may terminate your employment at any time for any reason or no reason, without further obligation or liability.

8. No Conflicting Obligations. In your work for the Company, you are not to use or disclose to any person associated with the Company, any confidential or proprietary information belonging to any former employer or other person or entity with respect to which you owe an obligation of confidentiality under any agreement or otherwise **.** The Company does not need and will not use such information and we will assist you in any way possible to preserve and protect the confidentiality of proprietary information belonging to third parties **.** Also, we expect you to abide by any obligations to refrain from soliciting any person employed by or otherwise associated with any former employer and suggest that you refrain from having any contact with such persons until such time as any non-solicitation obligation expires.

9. Section 409A Matters. It is intended that all of the severance benefits and other payments payable under the Original Letter, as amended by this Amended Letter, satisfy, to the greatest extent possible, the exemptions from the application of Section 409A provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, will be construed and interpreted in a manner that makes such amounts compliant with the requirements Section 409A. For purposes of Code Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), your right to receive any installment payments hereunder (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary herein, if you are deemed by the Company at the time of your "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h) and without regard to alternate definitions thereunder, a "***Separation from Service***") to be a "specified employee" for purposes of Code Section 409A(a)(2)(B)(i), and if any of the payments or benefits due upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be "deferred compensation", then to the extent delayed commencement of any portion of such payments or benefits is required in order to avoid a prohibited distribution under Code Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to you prior to the earliest of (i) the expiration of the six-month period measured from the date of your Separation from Service with the Company, (ii) the date of your death or (iii) such earlier date as permitted under Section

409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this paragraph shall be paid in a lump sum to you, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. For purposes of this Amended Letter, any reference to termination of employment shall be construed to mean a Separation from Service.

10. Entire Agreement. This Amended Letter, together with the Confidentiality Agreement, sets forth the entire agreement and understanding between you and the Company relating to your employment and supersedes all prior agreements and discussions between us. This Amended Letter may not be modified or amended except by a written agreement, signed by an officer of the Company, although the Company reserves the right to modify unilaterally your compensation, benefits, job title and duties, reporting relationships and other terms of your employment. This Amended Letter will be governed by the laws of the State of California without regard to is conflict of laws provision.

We hope you find this Amended Letter acceptable and look forward to your favorable response. Please return one copy of this Amended Letter indicating your acceptance to me.

Sincerely,

/s/ Richard King
Richard King
President and Chief Executive Officer

I accept the terms of employment offered in this Amended Letter.

Signature: /s/ Anil Dasu
Anil Dasu

Date: December 30, 2010

Exhibit 10.16

AcelRx Pharmaceuticals, Inc.

December 29, 2010

Re: Amended and Restated Offer Letter

Dear Pamela:

This letter (the "***Amended Letter***") amends and restates the offer letter between you and AcelRx Pharmaceuticals, Inc. (the "***Company***") dated July 1, 2009 (the "***Original Letter***") in order to clarify the manner of exemption or compliance of certain items of compensation with Section 409A of the Internal Revenue Code of 1986, as amended (the " ***Code***").

The terms of your position with the Company are as set forth below:

1. Position.

(a) You will continue to serve as the Chief Medical Officer for the Company, working out of the Company's offices in Redwood City, California. You will report to Richard King, the Company's President and Chief Executive Officer.

(b) You agree to the best of your ability and experience that you will at all times loyally and conscientiously perform all of the duties and obligations required of and from you pursuant to the express and implicit terms hereof, and to the reasonable satisfaction of the Company. During the term of your employment, you further agree that you will devote 100% of your business time and attention to the business of the Company, the Company will be entitled to all of the benefits and profits arising from or incident to all such work services and advice, you will not render commercial or professional services of any nature to any person or organization, whether or not for compensation, without the prior written consent of the Company, such consent not to be unreasonably withheld, and you will not directly or indirectly engage or participate in any business that is competitive in any manner with the business of the Company. Nothing in this letter agreement will prevent you from accepting speaking or presentation engagements in exchange for honoraria or from serving on boards of charitable organizations, or from owning no more than one percent (1%) of the outstanding equity securities of a corporation whose stock is listed on a national stock exchange.

2. Start Date. You commenced employment with the Company on July 1, 2009 (the "***Start Date***").

3. Compensation. You will be eligible to earn a monthly salary of $31,250.00, which is equivalent to $375,000.00 on an annualized basis, less standard payroll deductions and withholdings (the " ***Base Salary***"). Your salary will be payable in two equal payments per month pursuant to the Company's regular payroll policy. The Base Salary will be reviewed annually as part of the Company's normal salary review process.

4. Stock Options.

(a) Prior Grants. In connection with your services for the Company, the Company's Board of Directors (the "***Board***") has granted to you stock options to purchase shares of the Company's Common Stock. The options are subject to the terms of the Company's 2006 Stock Plan (the "***Plan***") and the Stock Option Agreements between you and the Company, except as expressly modified by this Amended Letter.

(b) Effect of Termination Following a Change in Control. In the event that the Company undergoes a Change in Control (as such term is defined in the Plan) and on or within eighteen (18) months following the closing of the Change in Control, the Company terminates your employment without Cause (as such term is defined below) and other than as a result of your death or disability, or you terminate your employment due to an Involuntary Termination (as such term is defined below), and subject to your execution of a general release of all claims with respect to the Company that is effective not later than sixty (60) days after your Separation from Service (as such term is defined below) and your resignation from the Board (if requested by the Board), the vesting of the stock options that the Company has granted to you as of the date of this Amended Letter and any stock options that the Company may grant to you in the future (the shares subject to each such stock option, the "***Option Shares***") shall accelerate in full such that 100% of the then unvested Option Shares will become vested and exercisable as of your termination date.

5. Benefits.

(a) Insurance Benefits. The Company will provide you with the opportunity to participate in the standard benefits plans currently available to other Company employees, subject to any eligibility requirements imposed by such plans.

(b) Vacation; Sick Leave. You will be entitled to paid time off according to the Company's standard policies.

(c) Expense Reimbursements. You will be eligible for expense reimbursement in accordance with Company policy. For the avoidance of doubt, to the extent that any reimbursements payable to you are subject to the provisions of Code Section 409A: (a) to be eligible to obtain reimbursement for such expenses you must submit expense reports within 45 days after the expense is incurred, (b) any such reimbursements will be paid no later than December 31 of the year following the year in which the expense was incurred, (c) the amount of expenses reimbursed in one year will not affect the amount eligible for reimbursement in any subsequent year, and (d) the right to reimbursement under this agreement will not be subject to liquidation or exchange for another benefit.

6. Confidential Information and Invention Assignment Agreement . Your employment with the Company is subject to the terms of the Confidential Information and Invention Assignment Agreement previously entered into between you and the Company (the "***Confidentiality Agreement***").

7. At-Will Employment. Your employment with the Company will continue to be on an "at will" basis, meaning that either you or the Company may terminate your employment at any time for any reason or no reason, without further obligation or liability.

8. Severance Benefits.

(a) Termination Without Cause During the Initial Period. If the Company terminates your employment other than for Cause (and other than as a result of your death or disability) on or before the 2nd anniversary of your Start Date, and provided such termination constitutes a "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h) and without regard to alternate definitions thereunder, a "***Separation from Service***"), then subject to your obligations below, the Company will pay you a cash lump-sum payment in an amount equal to (x) four (4) months of your then-Base Salary at the rate in effect on the effective date of your termination, plus (y) an additional two (2) weeks of your then-Base Salary for every full year of regular, full time employment you have completed as of your termination date (the "***Initial Period Severance Benefit***"), with such payment made on the 60th day following your Separation from Service. Nothing in this severance provision is intended to modify the at-will nature of your employment.

(b) Termination Following a Change in Control. If the Company or a successor entity terminates your employment other than for Cause (and other than as a result of your death or disability), or if you terminate your employment due to an Involuntary Termination, in either case on or within twelve (12) months following a Change in Control, and provided such termination constitutes a Separation from Service, then subject to your obligations below, you shall be entitled to receive the following severance benefits (collectively the "***Change in Control Severance Benefits***"):

(i) an amount equal to six (6) months of your then current Base Salary, ignoring any decrease in Base Salary that forms the basis for an Involuntary Termination, subject to applicable tax withholdings, paid (except as set forth below) over the first 6 months following your Separation from Service; and

(ii) if you timely elect continued coverage under the health care continuation laws commonly known as COBRA for yourself and your covered dependents, then the Company shall pay, directly to the COBRA carrier as and when due, the COBRA premiums necessary to continue your health insurance coverage in effect for yourself and your eligible dependents from your termination date until the earliest of (A) the end of the 6th month following your termination date, (B) the expiration of your eligibility for the continuation coverage under COBRA, or (C) the date when you become eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment (such period from the termination date through the earliest of (A) through (C), the "***COBRA Payment Period***"). Notwithstanding the foregoing, if at any time the Company determines that the payment of the COBRA premiums would result in a violation of the nondiscrimination rules of Section 105(h)(2) of the Code or any statute or regulation of similar effect (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of providing the COBRA premiums, the Company will instead pay to you on the last day of each month of the remainder of the COBRA Payment Period, a fully taxable cash payment equal to the COBRA premiums for that month (such amount, the "***Special Severance Payment***"), for the remainder of the COBRA Payment Period. If you become eligible for coverage under another employer's group health plan or otherwise cease to be eligible for COBRA during the period provided in this clause, you must immediately

notify the Company of such event, and all payments and obligations under this clause shall cease.

(c) Conditions. Your entitlement to the Initial Period Severance Benefit or the Change in Control Severance Benefits, as applicable (collectively referred to as the "***Severance Benefits***"), shall be contingent upon (x) your execution of a release of claims agreement in a form acceptable to the Company that is effective within sixty (60) days after your Separation from Service and (y) your resignation from the Board (if requested by the Board), to be effective no later than the date of your Separation from Service (or such other date as requested by the Board). In addition, notwithstanding the payment schedules described above, no payments will be made prior to the 60th day following your Separation from Service. On the 60th day following your Separation from Service, the Company will pay, in a lump sum, the Severance Benefits that would have otherwise been paid on or prior to such date under the original schedule but for the delay while waiting for the 60th day in compliance with Section 409A and the effectiveness of the release, with the balance of the Severance Benefits being paid as originally scheduled. All of the Severance Benefits are subject to applicable tax withholdings.

(d) Certain Definitions. The following terms have the meaning set forth below wherever they are used in the Original Letter (as amended by this Amended Letter):

(i) "***Cause***" shall exist for termination if any of the following occur: (i) your material breach of your employment responsibilities, including but not limited to material violations of the Company's policies or gross negligence in the performance of your duties and responsibilities, if the breach is not cured within thirty days following written notice from the Company, (ii) your conviction of, or the entry of a pleading of guilty or nolo contendere to, any crime involving moral turpitude or any felony, or (iii) your commission of fraud or any material act of dishonesty or disloyalty in connection with your employment with the Company.

(ii) "***Involuntary Termination***" shall mean your voluntary resignation from all positions you then hold with the Company within sixty (60) days following the occurrence of any of the following events without your written consent and after providing written notice of such event to the Company and providing the Company at least thirty (30) days to cure such event: (i) a material reduction or change in your job duties, reporting relationships, responsibilities and requirements inconsistent with your position with the Company and prior duties, reporting relationships, responsibilities and requirements prior to the Change in Control, provided that neither a mere change in title alone nor reassignment following a Change in Control to a position that is substantially similar to the position held prior to the Change in Control in terms of job duties, responsibilities or requirements shall constitute a material reduction in job responsibilities; (ii) a reduction in your then-current base salary by at least 20%; provided that an across-the-board reduction in the salary level of all other senior executives by the same percentage amount as part of a general salary level reduction shall not constitute such a salary reduction, or (iii) the relocation of your principal place for performance of your Company duties to a location that increases your one-way commute by more than thirty (30) miles.

9. No Conflicting Obligations. In your work for the Company, you are not to use or disclose to any person associated with the Company, any confidential or proprietary information belonging to any former employer or other person or entity with respect to which

you owe an obligation of confidentiality under any agreement or otherwise. The Company does not need and will not use such information and we will assist you in any way possible to preserve and protect the confidentiality of proprietary information belonging to third parties. Also, we expect you to abide by any obligations to refrain from soliciting any person employed by or otherwise associated with any former employer and suggest that you refrain from having any contact with such persons until such time as any non-solicitation obligation expires.

10. Section 409A Matters. It is intended that all of the severance benefits and other payments payable under the Original Letter, as amended by this Amended Letter, satisfy, to the greatest extent possible, the exemptions from the application of Section 409A provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, will be construed and interpreted in a manner that makes such amounts compliant with the requirements Section 409A. For purposes of Code Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), your right to receive any installment payments (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary herein, if you are deemed by the Company at the time of your Separation from Service to be a "specified employee" for purposes of Code Section 409A(a)(2)(B)(i), and if any of the payments or benefits due upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be "deferred compensation", then to the extent delayed commencement of any portion of such payments or benefits is required in order to avoid a prohibited distribution under Code Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to you prior to the earliest of (i) the expiration of the six-month period measured from the date of your Separation from Service with the Company, (ii) the date of your death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this paragraph shall be paid in a lump sum to you, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. For purposes of this Amended Letter, any reference to termination of employment shall be construed to mean a Separation from Service.

11. Entire Agreement. This Amended Letter, together with the Confidentiality Agreement, sets forth the entire agreement and understanding between you and the Company relating to your employment and supersedes all prior agreements and discussions between us. This Amended Letter may not be modified or amended except by a written agreement, signed by an officer of the Company, although the Company reserves the right to modify unilaterally your compensation, benefits, job title and duties, reporting relationships and other terms of your employment. This Amended Letter will be governed by the laws of the State of California without regard to is conflict of laws provision.

We hope you find this Amended Letter acceptable and look forward to your favorable response. Please return one copy of this Amended Letter indicating your acceptance to me.

Sincerely,

/s/ Richard King
Richard King
President and Chief Executive Officer

I accept the terms of employment offered in this Amended Letter.

Signature: /s/ Pamela Palmer, M.D
Pamela Palmer, M.D.

Date: 12/29/10

Exhibit 10.17

December 31, 2010

Re: Amended and Restated Offer Letter

Dear Richard:

This letter (the "Amended Letter") amends and restates the offer letter between you and AcelRx Pharmaceuticals, Inc. ("AcelRx" or the "Company") dated March 1, 2010 (the "Original Letter") in order to clarify the manner of exemption or compliance of certain items of compensation with Section 409A of the Internal Revenue Code of 1986, as amended (the "Code") and the 2010 Patient Protection and Affordable Care Act. This letter also clarifies the terms of the milestone-based option grant as contemplated in the Original Letter.

Position

You will continue to serve as the Company's President and Chief Executive Officer and as a member of the Board of Directors of the Company (the "Board"). You shall work for the company on a 100% basis and shall not perform any outside consulting or other services without advance approval from the Board. You may not serve as a director on any board of directors without the written consent of the Board, except that you may sit on the board of directors of Clarus Therapeutics, Inc. as an outside non employee director provided Clarus Therapeutics, Inc. successfully becomes a publicly traded company through an Initial Public Offering and such service does not materially interfere with your duties to the Company.

Compensation

You shall earn an annualized base salary of $400,000, less standard payroll deductions and withholdings, payable in accordance with Company practice and policy. In addition to your base salary, you will have an opportunity to earn a target annual performance bonus of up to 35% of your earned salary based on achievement of a series of personal and Company objectives that the Board and/or the Compensation Committee of the Board will approve annually. Whether you earn any bonus will be dependent upon the actual achievement by you and the Company of the applicable personal and Company objectives, as determined by the Board (or Committee, as applicable), and will be subject to your continued employment through the end of the applicable performance period. The 2010 performance bonus will be prorated based on your employment commencement date of March 3, 2010. In all events, any earned bonus will be paid not later than March 15 of the year following the year in which your right to such amount became vested so that such amounts are exempt from Code Section 409A pursuant to Treasury Regulation 1.409A-1(b)(4).

Equity Awards

The Board previously granted to you stock options exercisable for 1,826,440 shares of the Company's Common Stock (the "Initial Option"). These options are subject to the terms and conditions of the applicable stock option agreement between you and the Company. From time to time, the Board may grant you additional equity awards, in their sole discretion.

If by June 30, 2011, the Company has: (i) closed its underwritten initial public offering for the purchase of equity securities of the Company; (ii) sold at least $15 million dollars of preferred stock in a private financing to investors who are not stockholders of the Company prior to such financing; or (iii) has completed a corporate partnering transaction approved by the Board that partners one of the Company's primary product candidates in either Europe or the United States, then, promptly following the Board's certification of the achievement of such performance milestones, and subject to your continued employment through both the milestone achievement and the date of grant, the Board will grant to you an additional stock option (the "Milestone Grant") to purchase 460,835 shares. Subject to Board approval, such grant will be made pursuant to the terms of the Company's then-current equity incentive plan and will have an exercise price equal to 100% of the fair market value of the Common Stock on the date of grant. This grant will be subject to vesting over four years following the date of grant.

Change in Control Severance Benefits

If on or within 18 months following a Change in Control (as defined in the Company's 2006 Stock Plan) either you are terminated without Cause (defined below) (and other than as a result of your death or disability) or you resign for Good Reason (defined below), and subject to your execution of a general release of all claims with respect to the Company that is effective not later than 30 days after your Separation from Service (as defined below) then the vesting of any then-outstanding equity awards shall accelerate in full such that 100% of the then unvested shares underlying such equity award will become vested and exercisable as of your termination date.

In addition, if (1) AcelRx or a successor entity terminates your employment without Cause (and other than as a result of your death or disability), or if you resign for Good Reason, in either case on or within twelve (12) months following a Change in Control, or (2) AcelRx or a successor entity terminates your employment without Cause (and other than as a result of your death or disability) and it is not in connection with a Change in Control, and provided such termination constitutes a "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h) and without regard to alternate definitions thereunder, a "Separation from Service"), then subject to your obligations below, you shall be entitled to receive the following severance benefits (collectively the "Severance Benefits"):

(i) an amount equal to twelve (12) months of your then current base salary, ignoring any decrease in base salary that forms the basis for Good Reason, subject to applicable tax withholdings, paid (except as set forth below) over the first 12 months following your

Separation from Service (such 12 month period, the "Severance Period", and such benefit, the "Salary Continuation"); and

(ii) if you timely elect continued coverage under the health care continuation laws commonly known as COBRA for yourself and your covered dependents, then the Company shall pay, directly to the COBRA carrier as and when due, the COBRA premiums necessary to continue your health insurance coverage in effect for yourself and your eligible dependents from your termination date until the earliest of (A) the end of the Severance Period, (B) the expiration of your eligibility for the continuation coverage under COBRA, or (C) the date when you become eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment (such period from the termination date through the earliest of (A) through (C), the "COBRA Payment Period"). Notwithstanding the foregoing, if at any time the Company determines that the payment of the COBRA premiums would result in a violation of the nondiscrimination rules of Section 105(h)(2) of the Code or any statute or regulation of similar effect (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of providing the COBRA premiums, the Company will instead pay to you on the first day of each month of the remainder of the COBRA Payment Period, a fully taxable cash payment equal to the COBRA premiums for that month, subject to applicable tax withholdings (such amount, the "Special Severance Payment"), for the remainder of the COBRA Payment Period. If you become eligible for coverage under another employer's group health plan or otherwise cease to be eligible for COBRA during the period provided in this clause, you must immediately notify the Company of such event, and all payments and obligations under this clause shall cease.

The Severance Benefits are conditional upon (a) your continuing to comply with your obligations under your Proprietary Information Agreement (defined below) during the period of time in which you are receiving the Severance Benefits; (b) your delivering to the Company an effective, general release of claims in favor of the Company in a form acceptable to the Company within 30 days following your Separation from Service; and (c) if you are a member of the Board, your resignation from the Board, to be effective no later than the date of your Separation from Service (or such other date as requested by the Board). In addition, notwithstanding the payment schedules described above, no payments will be made prior to the 30th day following your Separation from Service. On the 30th day following your Separation from Service, the Company will pay, in a lump sum, the Severance Benefits that would have otherwise been paid on or prior to such date under the original schedule but for the delay while waiting for the 30th day in compliance with Section 409A and the effectiveness of the release, with the balance of the Severance Benefits being paid as originally scheduled.

The following terms have the meaning set forth below wherever they are used in the Original Letter (as amended by this Amended Letter):

"Cause" means (a) your unauthorized use or disclosure of the Company's confidential information or trade secrets, which use or disclosure causes material harm to the Company, (b) your material breach of any agreement between you and the Company, (c) your material failure to comply with the Company's written policies or rules, (d) your conviction of, or your plea of "guilty" or "no contest" to, a felony under the laws of the United States or any state, (e) your gross negligence or willful misconduct, (f) your continuing failure to perform assigned duties after receiving written notification of the failure from the Board of Directors or (g) your failure to cooperate in good faith with a governmental or internal investigation of the Company or its directors, officers, or employees, if the Company has request your cooperation. A condition will not be considered "Cause" under (b), (c), (f) and (g) unless the Company gives you written notice of the condition within 30 days after the condition comes into existence and you fail to remedy the condition within 5 days after receiving your written notice.

"Good Reason" means your voluntary resignation from all positions you then hold with the Company within sixty (60) days following the occurrence of any of the following events without your written consent and after providing written notice of such event to the Company and providing the Company at least thirty (30) days to cure such event: (i) a material reduction or change in your job duties, reporting relationships, responsibilities and requirements inconsistent with your position with the Company and prior duties, reporting relationships, responsibilities and requirements prior to the Change in Control, provided that neither a mere change in title alone nor reassignment following a Change in Control to a position that is substantially similar to the position held prior to the Change in Control in terms of job duties, responsibilities or requirements shall constitute a material reduction in job responsibilities; (ii) a reduction in your then-current base salary by at least 20%, provided that an across-the-board reduction in the salary level of all other senior executives by the same percentage amount as part of a general salary level reduction shall not constitute such a salary reduction, or (iii) the relocation of your principal place for performance of your Company duties to a location more than thirty (30) miles from the Company's then current location at the time of the Change in Control.

Additional Terms

AcelRx offers competitive and comprehensive benefits programs. All employees are eligible to participate in the programs, in accordance with plan guidelines. You will also be entitled to four weeks of paid vacation annually according to the Company's standard policies.

You will be eligible for expense reimbursement in accordance with Company policy. For the avoidance of doubt, to the extent that any reimbursements payable to you are subject to the provisions of Code Section 409A: (a) to be eligible to obtain reimbursement for such expenses you must submit expense reports within 45 days after the expense is incurred, (b) any such reimbursements will be paid no later than December 31 of the year following the year in which

the expense was incurred, (c) the amount of expenses reimbursed in one year will not affect the amount eligible for reimbursement in any subsequent year, and (d) the right to reimbursement under this agreement will not be subject to liquidation or exchange for another benefit.

Your employment is subject to your continued compliance with the terms of the employee non-disclosure and inventions agreement dated March 10, 2010 between you and the Company (the "Proprietary Information Agreement"). In your work for the Company, you are not to use or disclose to any person associated with the Company, any confidential or proprietary information belonging to any former employer or other person or entity with respect to which you owe an obligation of confidentiality under any agreement or otherwise. The Company does not need and will not use such information and we will assist you in any way possible to preserve and protect the confidentiality of proprietary information belonging to third parties.

As you know, your employment with the Company will be on an "at will" basis, meaning that either you or the Company may terminate your employment at any time for any reason or no reason, without further obligation or liability except as set forth herein.

It is intended that all of the severance benefits and other payments payable under the Original Letter, as amended by this Amended Letter, satisfy, to the greatest extent possible, the exemptions from the application of Section 409A provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and will be construed to the greatest extent possible as consistent with those provisions. For purposes of Code Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), your right to receive any installment payments (whether severance payments, reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary herein, if you are deemed by the Company at the time of your Separation from Service to be a "specified employee" for purposes of Code Section 409A(a)(2)(B)(i), and if any of the payments or benefits due upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be "deferred compensation", then to the extent delayed commencement of any portion of such payments or benefits is required in order to avoid a prohibited distribution under Code Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to you prior to the earliest of (i) the expiration of the six-month period measured from the date of your Separation from Service with the Company, (ii) the date of your death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this paragraph shall be paid in a lump sum to you, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred.

We hope you find this Amended Letter acceptable and look forward to your favorable response. Please return one copy of this Amended Letter indicating your acceptance to me.

Sincerely,

Guy Paul Nohra
On behalf of the Board of Directors

I accept the terms of employment offered in this Amended Letter.

Signature: /s/ Richard King
Richard King

Date: December 31, 2010

Exhibit 10.18

AcelRx Pharmaceuticals, Inc.

December 29, 2010

Re: Amended and Restated Offer Letter

Dear Jim,

This letter (the "***Amended Letter***") amends and restates the offer letter between you and AcelRx Pharmaceuticals, Inc. (the "***Company***") dated September 14, 2010 (the "***Original Letter***") in order to clarify the manner of exemption or compliance of certain items of compensation with Section 409A of the Internal Revenue Code of 1986, as amended (the "***Code***").

The terms of your position with the Company are as set forth below:

1. Position.

(a) You will continue to serve as the Chief Financial Officer of the Company, working out of the Company's headquarters office in Redwood City, California. You will report to Richard King, the Company's President and Chief Executive Officer.

(b) You agree to the best of your ability and experience that you will at all times loyally and conscientiously perform all of the duties and obligations required of and from you pursuant to the express and implicit terms hereof, and to the reasonable satisfaction of the Company. During the term of your employment, you further agree that you will devote at least 100% of your business time and attention to the business of the Company, the Company will be entitled to all of the benefits and profits arising from or incident to all such work services and advice, you will not render commercial or professional services of any nature to any person or organization, whether or not for compensation, without the prior written consent of the Company, such consent not to be unreasonably withheld, and you will not directly or indirectly engage or participate in any business that is competitive in any manner with the business of the Company. Nothing in this letter agreement will prevent you from accepting speaking or presentation engagements in exchange for honoraria or from serving on boards of charitable organizations, or from owning no more than one percent (1%) of the outstanding equity securities of a corporation whose stock is listed on a national stock exchange.

2. Start Date. You commenced employment with the Company on October 1, 2010 (the "***Start Date***").

3. Compensation. You will be eligible to earn a monthly salary of $24,166.66, which is equivalent to $290,000.00 on an annualized basis, less standard payroll deductions and withholdings (the " ***Base Salary***"). Your salary will be payable in two equal payments per month pursuant to the Company's regular payroll policy. The Base Salary will be reviewed annually as part of the Company's normal salary review process. In addition to your Base Salary, you will have an opportunity to earn a target annual bonus of up to 30% of your earned Base Salary based on achievement of a series of personal and Company objectives that the Board and/or the

Compensation Committee of the Board will approve annually. Whether you earn any bonus will be dependent upon the actual achievement by you and the Company of the applicable personal and Company objectives, as determined by the Board (or Committee, as applicable), and will be subject to your continued employment through the end of the applicable performance period. The 2010 performance bonus will be prorated based on your Start Date. In all events, any earned bonus will be paid not later than March 15 of the year following the year in which your right to such amount became vested so that such amounts are exempt from Code Section 409A pursuant to Treasury Regulation 1.409A-1(b)(4).

4. Stock Options.

(a) Initial Grant. In connection with the commencement of your employment, the Board of Directors of the Company (the "***Board***") granted to you an option to purchase 500,000 shares of the Company's Common Stock (the "***Initial Option Shares***"). Such option is subject to the terms of the Company's 2006 Stock Plan (the "***Plan***") and the Stock Option Agreement between you and the Company, except as expressly modified by this Amended Letter.

(b) Milestone Grant. If, by June 30, 2011, the Company has either (i) closed its underwritten initial public offering for the purchase of equity securities of the Company or (ii) sold at least $15 million dollars of preferred stock in a private financing to investors who are not stockholders prior to such financing, then, promptly following the Board's certification of the achievement of such performance milestones, and subject to your continued employment through both the milestone achievement and the date of grant, the Board will grant to you an additional stock option to purchase 100,000 shares of the Company's Common Stock (the "***Contingent Shares***"). Subject to Board approval, such grant will be made pursuant to the terms of the Company's then-current equity incentive plan and a Stock Option Agreement between you and the Company, and will have an exercise price equal to 100% of the fair market value of the Common Stock on the date of the grant. The Contingent Shares will vest at the rate of 1/48 of the total number of the Contingent Shares per month, subject to the acceleration provisions set forth below. Vesting will, of course, depend on your continued employment with the Company.

(c) Effect of Termination Following a Change in Control. In the event that the Company undergoes a Change in Control (as such term is defined in the Plan) and on or within eighteen (18) months following the closing of the Change in Control, the Company (or its successor) terminates your employment without Cause (as such term is defined below) and other than as a result of your death or disability, or you terminate your employment due to an Involuntary Termination (as such term is defined below), and subject to your execution of a general release of all claims with respect to the Company that is effective not later than sixty (60) days after your termination date, the vesting of the Initial Option Shares, Contingent Shares and any stock options that the Company may grant to you in the future (the shares subject to each such stock option, the "***Option Shares***") shall accelerate in full such that 100% of the then unvested Option Shares will become vested and exercisable as of your termination date.

5. Benefits.

(**a**) **Insurance Benefits**. The Company will provide you with the opportunity to participate in the standard benefits plans currently available to other Company employees, subject to any eligibility requirements imposed by such plans.

(b) Vacation; Sick Leave. You will be entitled to paid time off according to the Company's standard policies.

(c) Expense Reimbursements. You will be eligible for expense reimbursement in accordance with Company policy. For the avoidance of doubt, to the extent that any reimbursements payable to you are subject to the provisions of Code Section 409A: (a) to be eligible to obtain reimbursement for such expenses you must submit expense reports within 45 days after the expense is incurred, (b) any such reimbursements will be paid no later than December 31 of the year following the year in which the expense was incurred, (c) the amount of expenses reimbursed in one year will not affect the amount eligible for reimbursement in any subsequent year, and (d) the right to reimbursement under this agreement will not be subject to liquidation or exchange for another benefit.

6. Confidential Information and Invention Assignment Agreement . Your employment with the Company is subject to the terms of the Confidential Information and Invention Assignment Agreement previously entered into between you and the Company (the "***Confidentiality Agreement***").

7. Severance Benefits.

(a) Termination Following a Change in Control. If the Company or a successor entity terminates your employment other than for Cause (and other than as a result of your death or disability), or if you terminate your employment due to an Involuntary Termination, in either case on or within twelve (12) months following a Change in Control, and provided such termination constitutes a "separation from service" (as defined under Treasury Regulation Section 1.409A-1(h) and without regard to alternate definitions thereunder, a "***Separation from Service***"), then subject to your obligations below, you shall be entitled to receive the following severance benefits (collectively the "***Severance Benefits***"):

(i) an amount equal to six (6) months of your then current Base Salary, ignoring any decrease in Base Salary that forms the basis for an Involuntary Termination, subject to applicable tax withholdings, paid (except as set forth below) over the first 6 months following your Separation from Service; and

(ii) if you timely elect continued coverage under the health care continuation laws commonly known as COBRA for yourself and your covered dependents, then the Company shall pay, directly to the COBRA carrier as and when due, the COBRA premiums necessary to continue your health insurance coverage in effect for yourself and your eligible dependents from your termination date until the earliest of (A) the end of the 6 th month following your termination date, (B) the expiration of your eligibility for the continuation coverage under COBRA, or (C) the date when you become eligible for substantially equivalent health insurance coverage in connection with new employment or self-employment (such period from the

termination date through the earliest of (A) through (C), the "***COBRA Payment Period***"). Notwithstanding the foregoing, if at any time the Company determines that the payment of the COBRA premiums would result in a violation of the nondiscrimination rules of Section 105(h)(2) of the Code or any statute or regulation of similar effect (including but not limited to the 2010 Patient Protection and Affordable Care Act, as amended by the 2010 Health Care and Education Reconciliation Act), then in lieu of providing the COBRA premiums, the Company will instead pay to you on the last day of each month of the remainder of the COBRA Payment Period, a fully taxable cash payment equal to the COBRA premiums for that month (such amount, the "***Special Severance Payment***"), for the remainder of the COBRA Payment Period. If you become eligible for coverage under another employer's group health plan or otherwise cease to be eligible for COBRA during the period provided in this clause, you must immediately notify the Company of such event, and all payments and obligations under this clause shall cease.

(b) Conditions. Your entitlement to the Severance Benefits shall be contingent upon your execution of a release of claims agreement in a form acceptable to the Company that is effective within sixty (30) days after your Separation from Service. In addition, notwithstanding the payment schedules described above, no payments will be made prior to the 60th day following your Separation from Service. On the 60th day following your Separation from Service, the Company will pay, in a lump sum, the Severance Benefits that would have otherwise been paid on or prior to such date under the original schedule but for the delay while waiting for the 60th day in compliance with Section 409A and the effectiveness of the release, with the balance of the Severance Benefits being paid as originally scheduled. All of the Severance Benefits are subject to applicable tax withholdings.

(c) Certain Definitions. The following terms have the meaning set forth below wherever they are used in the Original Letter (as amended by this Amended Letter):

(i) "***Cause***" shall exist for termination if any of the following occur: (i) your material breach of your employment responsibilities, including but not limited to material violations of the Company's policies or gross negligence in the performance of your duties and responsibilities, if the breach is not cured within thirty days following written notice from the Company, (ii) your conviction of, or the entry of a pleading of guilty or nolo contendere to, any crime involving moral turpitude or any felony, or (iii) your commission of fraud or any material act of dishonesty or disloyalty in connection with your employment with the Company.

(ii) "***Involuntary Termination***" shall mean your voluntary resignation from all positions you then hold with the Company within sixty (60) days following the occurrence of any of the following events without your written consent and after providing written notice of such event to the Company and providing the Company at least thirty (30) days to cure such event: (i) a material reduction or change in your job duties, reporting relationships, responsibilities and requirements inconsistent with your position with the Company and prior duties, reporting relationships, responsibilities and requirements prior to the Change in Control, provided that neither a mere change in title alone nor reassignment following a Change in Control to a position that is substantially similar to the position held prior to the Change in Control in terms of job duties, responsibilities or requirements shall constitute a material

reduction in job responsibilities; (ii) a reduction in your then-current base salary by at least 20%; provided that an across-the-board reduction in the salary level of all other senior executives by the same percentage amount as part of a general salary level reduction shall not constitute such a salary reduction, or (iii) the relocation of your principal place for performance of your Company duties to a location that increases your one-way commute by more than thirty (30) miles.

8. At-Will Employment. Your employment with the Company will continue to be on an "at will" basis, meaning that either you or the Company may terminate your employment at any time for any reason or no reason, without further obligation or liability.

9. No Conflicting Obligations. In your work for the Company, you are not to use or disclose to any person associated with the Company, any confidential or proprietary information belonging to any former employer or other person or entity with respect to which you owe an obligation of confidentiality under any agreement or otherwise. The Company does not need and will not use such information and we will assist you in any way possible to preserve and protect the confidentiality of proprietary information belonging to third parties. Also, we expect you to abide by any obligations to refrain from soliciting any person employed by or otherwise associated with any former employer and suggest that you refrain from having any contact with such persons until such time as any non-solicitation obligation expires.

10. Section 409A Matters. It is intended that all of the severance benefits and other payments payable under the Original Letter, as amended by this Amended Letter, satisfy, to the greatest extent possible, the exemptions from the application of Section 409A provided under Treasury Regulations 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9), and will be construed to the greatest extent possible as consistent with those provisions, and to the extent not so exempt, will be construed and interpreted in a manner that makes such amounts compliant with the requirements Section 409A. For purposes of Code Section 409A (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), your right to receive any installment payments hereunder (whether reimbursements or otherwise) shall be treated as a right to receive a series of separate payments and, accordingly, each installment payment hereunder shall at all times be considered a separate and distinct payment. Notwithstanding any provision to the contrary herein, if you are deemed by the Company at the time of your Separation from Service to be a "specified employee" for purposes of Code Section 409A(a)(2)(B)(i), and if any of the payments or benefits due upon Separation from Service set forth herein and/or under any other agreement with the Company are deemed to be "deferred compensation", then to the extent delayed commencement of any portion of such payments or benefits is required in order to avoid a prohibited distribution under Code Section 409A(a)(2)(B)(i) and the related adverse taxation under Section 409A, such payments shall not be provided to you prior to the earliest of (i) the expiration of the six-month period measured from the date of your Separation from Service with the Company, (ii) the date of your death or (iii) such earlier date as permitted under Section 409A without the imposition of adverse taxation. Upon the first business day following the expiration of such applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this paragraph shall be paid in a lump sum to you, and any remaining payments due shall be paid as otherwise provided herein or in the applicable agreement. No interest shall be due on any amounts so deferred. For all purposes

under this Agreement, references to termination of employment shall mean a Separation from Service.

11. Entire Agreement. This Amended Letter, together with the Confidentiality Agreement, sets forth the entire agreement and understanding between you and the Company relating to your employment and supersedes all prior agreements and discussions between us. This Amended Letter may not be modified or amended except by a written agreement, signed by an officer of the Company, although the Company reserves the right to modify unilaterally your compensation, benefits, job title and duties, reporting relationships and other terms of your employment. This Amended Letter will be governed by the laws of the State of California without regard to is conflict of laws provision.

We hope you find this Amended Letter acceptable and look forward to your favorable response. Please return one copy of this Amended Letter indicating your acceptance to me.

Sincerely,

/s/ Richard King
Richard King
President and Chief Executive Officer

I accept the terms of employment offered in this Amended Letter.

Signature: /s/ Jim Welch
Jim Welch

Date: 12/29/10

AcelRx Pharmaceuticals, Inc.

May 6, 2010

Dear Tom:

As discussed with you, this letter contains the terms of the resignation agreement (the ***"Agreement"***) between you and AcelRx Pharmaceuticals, Inc. (the ***"Company"***).

1. Resignation Date; Final Pay. You tendered the resignation of your employment, which the Company accepted, effective as of April 30, 2010 (the ***"Resignation Date"***), which was your last day of work. On the Resignation Date, the Company paid you (i) all accrued salary and (ii) following the submission of proper expense reports, all expenses reasonably and necessarily incurred by you in connection with the business of the Company prior to the Resignation Date, subject to standard payroll deductions and withholdings.

2. Benefits. In recognition of your prior service and in consideration of your signing this Agreement and returning it to the Company, you are entitled to the following benefits:

(a) As of the Effective Date (as defined below), six months of your base salary as in effect as of the Resignation Date, to be paid monthly, starting within thirty (30) days of the Effective Date;

(b) As of the Effective Date, six months of Company-paid health (i.e., medical, vision and dental) coverage and benefits for such coverage as in effect for you as of the Resignation Date; provided, however, that (i) you constitute a qualified beneficiary, as defined in Section 4980B(g)(1) of the Internal Revenue Code of 1986, as amended; and (ii) you elect continuation coverage pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended (***"COBRA"***), within the time period prescribed pursuant to COBRA.

By signing below, you acknowledge that you are receiving the separation benefits outlined in this Paragraph 2 in consideration for waiving your rights to claims referred to in this agreement and that you would not otherwise be entitled to such benefits.

3. Vesting of Stock Option Awards. In consideration for your willingness to continue to serve on the Board of Directors of the Company (the ***"Board"***), each outstanding stock option granted to you under the 2006 Stock Plan, as amended, shall continue to vest according to the terms of each such grant, so long as you continue to provide service to the Company as a member of the Board or as a Consultant (set forth in ***Exhibit C*** to this agreement).

4. Other Compensation or Benefits. You acknowledge that, except as provided in this Agreement, you have not earned and will not receive any other compensation from the Company, including without limitation wages, bonus, incentive compensation, severance, accrued vacation or employee benefits, with the exception of any vested benefits you may have under the express terms of a written ERISA-qualified benefit plan (e.g., 401(k) account or other retirement account). By way of example but not limitation, you acknowledge that you have not eamed and are not owed any unpaid bonus or other incentive compensation.

5. Proprietary Information Obligations. You acknowledge and reaffirm your obligations pursuant to that certain Confidential Information and Invention Assignment Agreement between you and the Company, dated December 8, 2005, attached hereto as ***Exhibit A.*** Additionally, you agree that any and all work product that you created or contributed in connection with your employment with the Company that is related to research and development of any current or contemplated AcelRx product, including, but not limited to, oral transmucosal formulations, oral transmucosal drug dosage forms, andlor medical device technology for oral transmucosal drug delivery relating thereto is the sole and exclusive property of the Company, and you hereby assign to the Company all of your right, title and interest in all such work product, if any, with the exception of any work product that qualifies fully for protection under Section 2870 of the California Labor Code (set forth in ***Exhibit B*** to this Agreement).

6. Company Property. You and the Company mutually acknowledge and agree that as of the date of this Agreement you may retain those materials related to the performance of your duties as a member of the Board of Directors, and you have returned to the Company all other property of the Company in your possession or control which you do not need in your capacity as a member of the Board of Directors, including, but not limited to: credit cards, entry cards, identification badges and keys. You may continue to use your Company-owned laptop computer and email account for Company business while a member of the Board of Directors.

7. Nondisparagement. You agree not to disparage the Company, or its officers, directors, employees, shareholders and agents, in any manner likely to be harmful to their business, business reputations or personal reputations. Similarly, the Company shall direct its officers and directors not to disparage you in any manner likely to be harmful to your business or personal reputation. Notwithstanding the foregoing: any party may respond accurately and fully to any request for information when required by legal process.

8. No Admissions. The promises and payments in consideration of this Agreement shall not be construed to be an admission of any liability or obligation by either party to the other party, and neither party makes any such admission.

9. Confidentiality. The provisions of this Agreement shall be held in strictest confidence by you and the Company and shall not be publicized or disclosed in any manner whatsoever; *provided, however,* that: (a) you may disclose this Agreement in confidence to your immediate family; (b) the parties may disclose this Agreement in confidence to their respective attorneys, accountants, investors, auditors, tax preparers, and financial advisors; (c) the Company may disclose this Agreement to fulfill standard or legally required corporate reporting or

disclosure requirements; and (d) the parties may disclose this Agreement insofar as such disclosure may be necessary to enforce its terms or as otherwise required by law. By way of example and without limitation, you agree not to disclose the terms of this Agreement to any current or former Company employee. If a provision of this Agreement is hereafter made available to you through public disclosure by the Company or any third party having a legal right to do so, you are relieved of the confidentiality requirement with respect to that provision.

10. No Voluntary Adverse Action; Cooperation. You agree that you will not voluntarily assist any person in preparing, bringing, or pursuing any litigation, arbitration, administrative claim or other formal proceeding against the Company or any of its current or future subsidiaries, affiliates, successors or assigns, and their officers, directors, employees or agents, unless pursuant to subpoena or other compulsion of law. In addition, you agree to cooperate fully with the Company in connection with any actual or contemplated defense, prosecution, or investigation of any claims or demands by or against third parties, or other matters arising from events, acts, or failures to act that occurred during the period of your employment by the Company. Such cooperation includes, without limitation, making yourself available to the Company upon reasonable notice, without subpoena, to provide truthful and accurate information in witness interviews and deposition and trial testimony. The Company will reimburse you for reasonable out-of-pocket expenses you incur in connection with any such cooperation (excluding forgone wages, salary, or other compensation) and will make reasonable efforts to accommodate your scheduling needs. In addition, you agree to execute all documents (if any) necessary to carry out the terms of this Agreement.

11. Release of Claims.

(a) General Release. In consideration of the covenants and terms provided under this Agreement and excluding only the obligations and representations set forth herein, you and Company hereby generally and completely release the other Party, its current or future subsidiaries, and their respective directors, officers, employees, shareholders, agents, attorneys, predecessors, successors, insurers, affiliates, and assigns (collectively, the ***"Released Parties"***) from any and all claims, liabilities and obligations, that arise out of or are in any way related to events, acts, conduct, or omissions occurring prior to or on the date you sign this Agreement (collectively, the ***"Released Claims"***).

(b) Scope of Release. The Released Claims include, but are not limited to: (i) all claims arising out of or in any way related to your employment with the Company, or the termination of that employment; (ii) all claims related to your compensation or benefits from the Company, including salary, bonuses, commissions, vacation pay, expense reimbursements, severance pay, fringe benefits, profit sharing, carried interest, stock, stock options, or any other ownership, equity, or profits interests in the Company; (iii) all claims for breach of contract, wrongful termination, and breach of the implied covenant of good faith and fair dealing; (iv) all tort claims, including claims for fraud, defamation, emotional distress, and discharge in violation of public policy; and (v) all federal, state, and local statutory claims, including claims for discrimination, harassment, retaliation, attorneys' fees, or other claims arising under the federal Civil Rights Act of 1964 (as amended), the federal Age Discrimination in Employment Act of

1967 (as amended) (the "***ADEA***"), the federal Americans with Disabilities Act of 1990, the California Labor Code (as amended), and the California Fair Employment and Housing Act (as amended).

(c) Excluded Claims. Notwithstanding the foregoing, the following are not included in the Released Claims (the "***Excluded Claims***"): (i) any rights or claims for indemnification you may have pursuant to any written indemnification agreement with the Company to which you are a party or under applicable law; (ii) any rights which are not waivable as a matter of law; and (iii) any claims for breach of this Agreement. In addition, nothing in this Agreement prevents you from filing, cooperating with, or participating in any proceeding before the Equal Employment Opportunity Commission, the Department of Labor, the California Department of Fair Employment and Housing, or any other government agency, except that you acknowledge and agree that you hereby waive your right to any monetary benefits in connection with any such claim, charge or proceeding. You represent and warrant that, other than the Excluded Claims, you are not aware of any claims you have or might have against any of the Released Parties that are not included in the Released Claims.

(d) ADEA Waiver. You acknowledge that you are knowingly and voluntarily waiving and releasing any rights you may have under the ADEA, and that the consideration given for the waiver and release in this Section 12(d) is in addition to anything of value to which you are already entitled. You further acknowledge that you have been advised, as required by the ADEA, that: (i) your waiver and release do not apply to any rights or claims that may arise after the date that you sign this Agreement; (ii) you should consult with an attorney prior to signing this Agreement (although you may choose voluntarily not to do so); (iii) you have twenty-one (21) days in which to consider this Agreement (although you may choose voluntarily to sign it earlier); (iv) you have seven (7) days following the date you sign this Agreement to revoke the Agreement (by providing written notice of your revocation to me); and (v) this Agreement will not be effective until the date upon which the revocation period has expired, which will be the eighth day after the date that this Agreement is signed by you provided that you do not revoke it (the "***Effective Date***").

(e) Waiver of Unknown Claims. In giving the releases set forth in this Agreement, which include claims which may be unknown to you at present, you acknowledge that you have read and understand Section 1542 of the California Civil Code: **"A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor."** You hereby expressly waive and relinquish all rights and benefits under that section and any law or legal principle of similar effect in any jurisdiction with respect to your release of claims herein, including but not limited to the release of unknown and unsuspected claims.

12. Representations. You hereby represent that you have been paid all compensation owed and for all hours worked, you have received all the leave and leave benefits and protections for which you are eligible pursuant to the Company's policies and any applicable

law, and you have not suffered any on-the-job injury for which you have not already filed a workers' compensation claim.

13. No Admissions. Nothing contained in this Agreement shall be construed as an admission by you or the Company of any liability, obligation, wrongdoing or violation of law.

14. Dispute Resolution. To aid in the rapid and economical resolution of any disputes which may arise under this Agreement, you and the Company agree that any and all claims, disputes or controversies of any nature whatsoever arising from or regarding the interpretation, execution or enforcement of this Agreement, your employment, or the termination of your employment, shall be resolved by confidential, final and binding arbitration conducted before a single arbitrator with JAMS, Inc. ("**JAMS**") in San Francisco, California under JAMS' then-applicable arbitration rules. **The parties acknowledge that, by agreeing to this arbitration procedure, they waive the right to resolve any such dispute through a trial by jury, judge or administrative proceeding.** You will have the right to be represented by legal counsel at any arbitration proceeding. Nothing in this Agreement shall prevent either you or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration.

15. Miscellaneous. This Agreement constitutes the complete, final and exclusive embodiment of the entire agreement between you and the Company with regard to the subject matter hereof. It is entered into without reliance on any promise, agreement, or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, agreements, or representations. This Agreement may not be modified or amended except in a written agreement signed by both you and an officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, and your and its heirs, successors and assigns. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the State of California without regard to conflicts of laws principles. If any provision of this Agreement or the application thereof shall be held by a court or arbitrator to be invalid, unenforceable, or void, in any jurisdiction, it shall not effect the application of the Agreement in any other jurisdiction, and the remainder of this Agreement shall remain in full force and effect, and the provision in question shall be modified so as to be rendered enforceable in a manner consistent with the intent of the parties insofar as possible.

If you wish to enter into this Agreement, please sign where indicated below within twenty-one (21) days and return this Agreement to me. If you do not sign and return this Agreement within the aforementioned time period, the Company's offer of separation benefits contained herein will expire.

We greatly appreciate your ongoing efforts in support of the Company.

May 6, 2010
Thomas Schreck

Sincerely,

/s/ Richard King
Richard King
Chief Executive Officer
AcelRx Pharmaceuticals, Inc.

I have read and understand the Agreement and agree to its terms:

/s/ Thomas Schreck
Thomas Schreck

Date: May 7, 2010

EXHIBIT A

CONFIDENTIAL INFORMATION AND INVENTION ASSIGNMENT AGREEMENT

May 6, 2010
Thomas Schreck

EXHIBIT B

CALIFORNIA LABOR CODE SECTION 2870

(a) Any provision in an employment agreement which provides that an employee shall assign, or offer to assign, any of his or her rights in an invention to his or her employer shall not apply to an invention that the employee developed entirely on his or her own time without using the employer's equipment, supplies, facilities, or trade secret information except for those inventions that either:

(1) Relate at the time of conception or reduction to practice of the invention to the employer's business, or actual or demonstrably anticipated research or development of the employer; or

(2) Result from any work performed by the employee for the employer.

To the extent a provision in an employment agreement purports to require an employee to assign an invention otherwise excluded from being required to be assigned under subdivision (a), the provision is against the public policy of this state and is unenforceable.

May 6, 2010
Thomas Schreck

EXHIBIT C

STOCK OPTION GRANTS

	Date	Shares	Vest
Restricted Stock and Founders Shares			
Thomas Schreck	8/15/2006	500,000	1/48 per month
Thomas Schreck	8/15/2006	500,000	Fully vested founders shares
Total Restricted Stock Purchases & Founders Shares		**1,000,000**	
Stock Option Grants - 2006 Stock Plan			
Thomas Schreck	4/3/2007	75,000	25% cliff 1 year; 1/48/mo.
Thomas Schreck	8/14/2008	150,000	25% cliff 1 year; 1/48/mo.
Thomas Schreck	3/25/2009	100,000	25% cliff 1 year; 1/48/mo.
Thomas Schreck	7/1/2009	100,000	25% cliff 1 year; 1/48/mo.
Thomas Schreck	4/28/2010	875,000	25% cliff 1 year; 1/48/mo.
		1,300,000	
Total Common Shares		**2,300,000**	

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" and to the use of our report dated June 30, 2010, in the Registration Statement (Amendment No. 2 to Form S-1) and related Prospectus of AcelRx Pharmaceuticals, Inc. for the registration of shares of its common stock.

/s/ Ernst & Young LLP

San Francisco, California
January 7, 2011