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As filed with the Securities and Exchange Commission on November 12, 2010

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

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
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(650) 216-3500

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

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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	☐

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Proposed Maximum Aggregate Offering Price[(1)]	Amount of Registration Fee
Common Stock, $0.001 par value per share	$86,250,000	$6,149.63

[(1)] Estimated solely for the purpose of calculating the amount of the registration fee in accordance with Rule 457(o) under the Securities Act of 1933, as amended. Includes the offering price of shares that the underwriters have the option to purchase to cover over-allotments, if any.

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 November 12, 2010

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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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 that enables sublingual delivery by adherence to the sublingual mucosa, or tissues under the tongue, within seconds after administration and full disintegration 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 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. 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. In 2002 and 2003, approximately 5% of operator errors reported to the United States Food and Drug Administration, or the FDA, 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.
- 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, as of September 30, 2010:

- 7,571,440 shares of common stock issuable upon the exercise of outstanding stock options under our 2006 Stock Plan having a weighted average exercise price of $0.47 per share;
- 926,717 shares of common stock issuable upon the exercise of outstanding warrants having a weighted average exercise price of $0.99 per share, which warrants are expected to remain outstanding upon completion of this offering;
- shares of common stock reserved for future issuance under our 2011 Equity Incentive Plan (including 670,518 shares of common stock reserved for future issuance under our 2006 Stock Plan), which will become effective immediately prior to the completion of this offering; and
- shares of common stock reserved for future issuance under our 2011 Employee Stock Purchase Plan, which will become effective immediately prior to the completion of 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 cash 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 2,029,011 shares of common stock upon completion of this offering;
- 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 conversion of the 2010 notes depends upon the actual initial public offering price per share in this offering and the closing date of this offering, the actual number of shares issuable upon such conversion will likely differ from the number of shares set forth above. In this regard, 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.

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 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	$ 10,082	
Working capital (deficit)	(1,894)	4,709	
Total assets	9,786	11,786	
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)	4,253	

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 cash 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 2,029,011 shares of common stock upon completion of this offering;

(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 conversion of the 2010 notes depends upon the actual initial public offering price per share in this offering and the closing date of this offering, the actual number of shares issuable upon such conversion will likely differ from the 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 also need to raise additional funds if we choose to initiate clinical trials for our other product candidates. 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 the 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 them 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. 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 components of the Sufentanil NanoTab PCA System;
- 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. In clinical studies completed to date, vomiting and itching were seen more frequently in the ARX-01 treated group than in the placebo treated subjects. 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 risk management plans, referred to in the legislation as 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, upon approval, 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 design for the device component 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 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 we have a quota which allocates a sufficient quantity of sufentanil to meet our planned clinical and preclinical needs during 2010, and we have applied for our 2011 quota. 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. Recruiting and retaining other qualified employees for our business, including scientific and technical personnel, will also be critical to our success. 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. Moreover, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in executing our development and commercialization strategies. Our consultants and advisors may be employed by others and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. The inability to recruit or loss of the services of any key employee or consultant 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 October 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 subject to opposition by third parties. 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 October 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 during the nine-month opposition period, which ends 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 own approximately 97% of our voting stock and, upon completion of this offering, that same group will hold 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, 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. Further, 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.

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 of $0.47 per share 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. 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 , or the 2011 Plan, our management is authorized to grant stock options to our employees, directors and consultants. The number of shares available for future grant under our 2011 Plan will automatically increase each year by % 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;
- permitting our board of directors to accelerate the vesting of outstanding option grants upon certain transactions that result in a change of control; 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 cash 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 2,029,011 shares of common stock upon completion of this offering;
  - (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 conversion of the 2010 notes depends upon the actual initial public offering price per share in this offering and the closing date of this offering, the actual number of shares issuable upon such conversion will likely differ from the 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	$ 10,082	
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)	4,253	
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, as of September 30, 2010:

- 7,571,440 shares of common stock issuable upon the exercise of outstanding stock options under our 2006 Stock Plan having a weighted average exercise price of $0.47 per share;
- 926,717 shares of common stock issuable upon the exercise of outstanding warrants having a weighted average exercise price of $0.99 per share, which warrants are expected to remain outstanding upon completion of this offering;

- shares of common stock reserved for future issuance under our 2011 Equity Incentive Plan (including 670,518 shares of common stock reserved for future issuance under our 2006 Stock Plan), which will become effective immediately prior to the completion of this offering; and
- shares of common stock reserved for future issuance under our 2011 Employee Stock Purchase Plan, which will become effective immediately prior to the completion of 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 cash 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 2,029,011 shares of common stock upon completion of this offering;

(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 conversion of the 2010 notes depends upon the actual initial public offering price per share in this offering and the closing date of this offering, the actual number of shares issuable upon such conversion will likely differ from the 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, as of September 30, 2010:

- 7,571,440 shares of common stock issuable upon the exercise of outstanding stock options under our 2006 Stock Plan having a weighted average exercise price of $0.47 per share;
- 926,717 shares of common stock issuable upon the exercise of outstanding warrants having a weighted average exercise price of $0.99 per share, which warrants are expected to remain outstanding upon completion of this offering;
- shares of common stock reserved for future issuance under our 2011 Equity Incentive Plan (including 670,518 shares of common stock reserved for future issuance under our 2006 Stock Plan), which will become effective immediately prior to the completion of this offering; and
- shares of common stock reserved for future issuance under our 2011 Employee Stock Purchase Plan, which will become effective immediately prior to the completion of 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 expected for the year ending 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	5,266,440	0.30	0.64	2,631,000
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.

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.

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 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 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 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.

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 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. 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
				(Unaudited)	
			(in thousands)		
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 rates are 407 errors per 10,000 people treated with IV PCA in the United States. In 2002 and 2003, approximately 5% of operator errors reported to the FDA 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
Hydromorphone	232
Fentanyl	277
Sufentanil	26,716

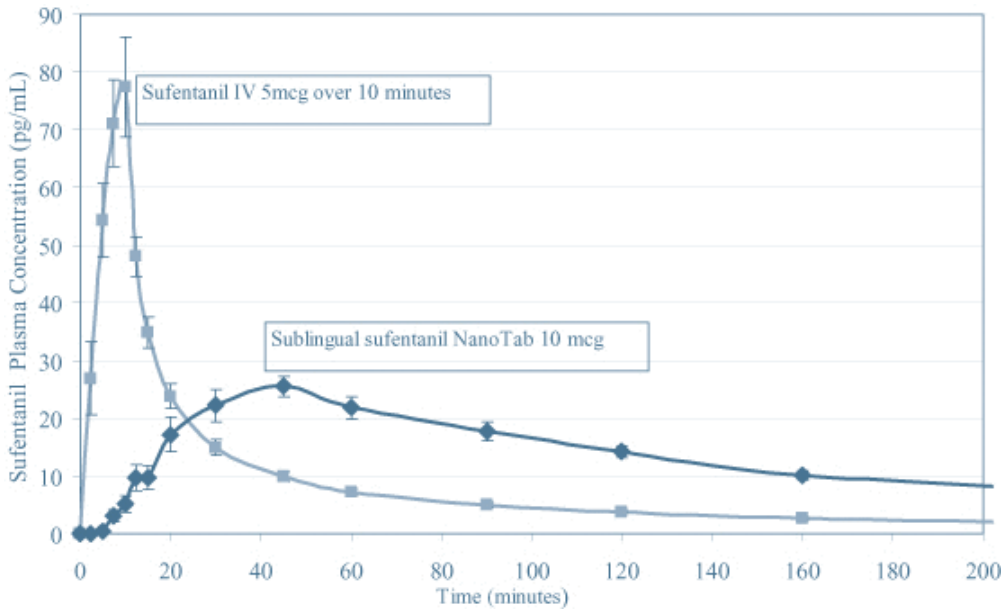
Although the analgesic efficacy of sufentanil has been well established, its use has been limited due to its short duration of action when delivered intravenously. The pharmaceutical attributes of sufentanil, including lipid solubility and ionization, result in rapid cell membrane penetration and onset 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:

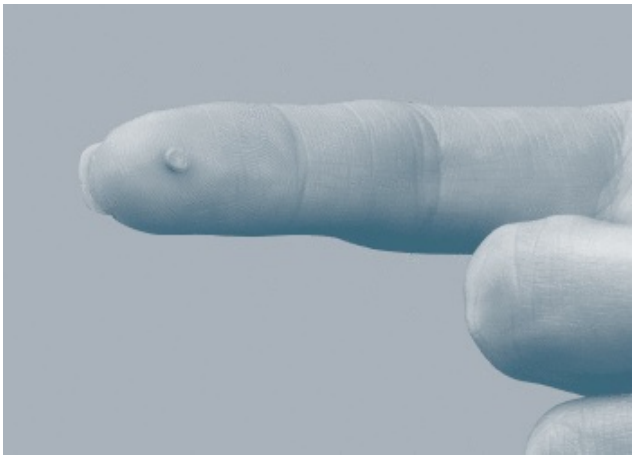
- relatively high bioavailability via the oral mucosa and very low GI bioavailability;
- prolonged plasma levels relative to IV delivery;
- PK parameters proportional to dose across a wide range of doses (2.5 mcg to 80 mcg);
- lower peak plasma concentration, or C_{max}, than IV delivery;
- time to maximum 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 that enables sublingual delivery by adherence to the sublingual mucosa, or tissues under the tongue, within seconds and full disintegration within minutes after administration. 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 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.



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

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 rates are 407 errors per 10,000 people treated with IV PCA in the United States. In 2002 and 2003, approximately 5% of operator errors reported to the FDA 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

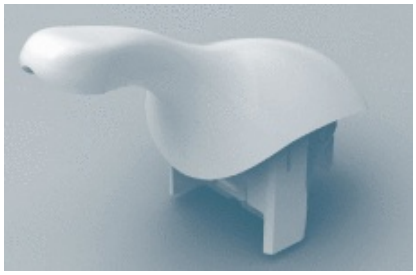


Figure 3, Controller

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 10 mcg and 15 mcg to placebo for the management of acute post-operative pain. Approximately 220 patients will be randomly assigned at a 1:2:1 ratio to treatment with 10 mcg sufentanil, 15 mcg sufentanil, or placebo, respectively. The primary endpoint will be the summed pain intensity difference over the first 48 hours of the study period, or SPID-48.

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 10 mcg and 15 mcg to placebo for the management of acute post-operative pain. Approximately 330 patients will be randomly assigned at a 1:2:1 ratio to treatment with 10 mcg sufentanil, 15 mcg sufentanil, or placebo, respectively. 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 at a 1:1 ratio to treatment with Sufentanil NanoTab PCA System 15 mcg 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.

ARX-01: Sufentanil NanoTab PCA System Phase 2 Studies

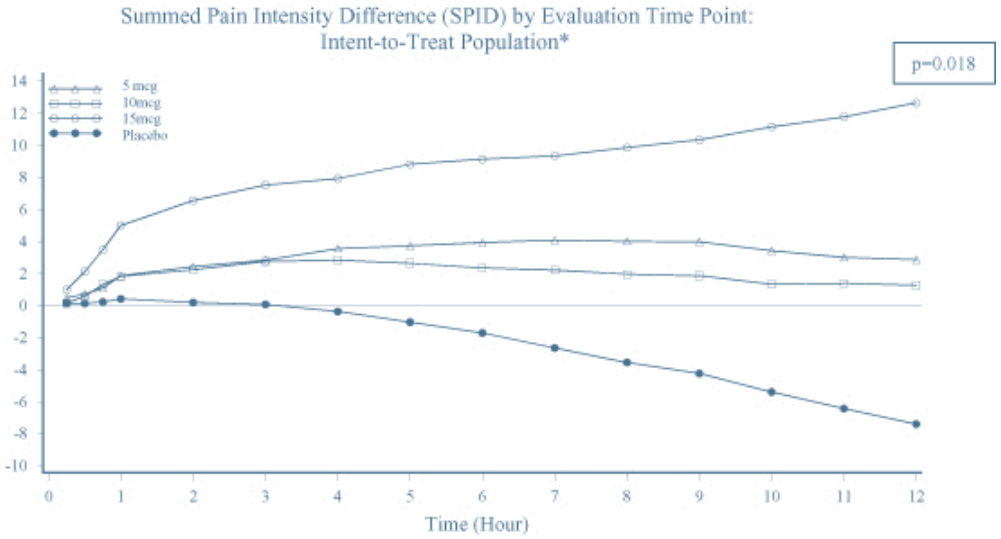
We completed three Phase 2 studies in support of sufentanil NanoTabs. Across all studies, the average time interval between doses was approximately 80 minutes. This compares favorably to typical redosing intervals for IV PCA with average period between dosing of 20 to 40 minutes. No serious adverse events, 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 ($p<0.05$). There were statistically significant differences in SPID scores between the sufentanil NanoTab 15 mcg dose group and the placebo group 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.

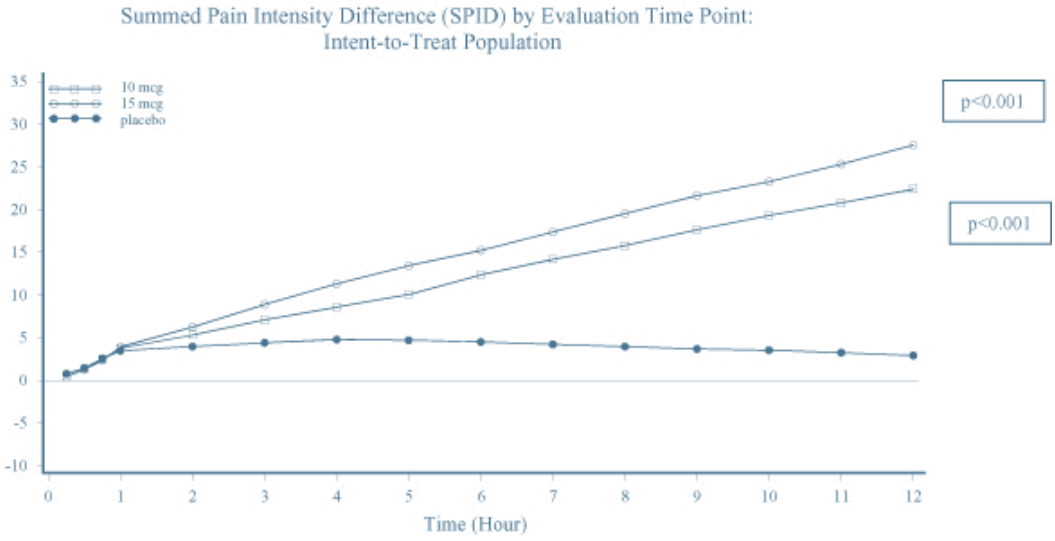
The following figure shows the Summed Pain Intensity Difference over the 12-Hour Study Period for the placebo, 5 mcg, 10 mcg and 15 mcg groups.



* 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 (25,000) 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%)
Pruritis	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

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.

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.

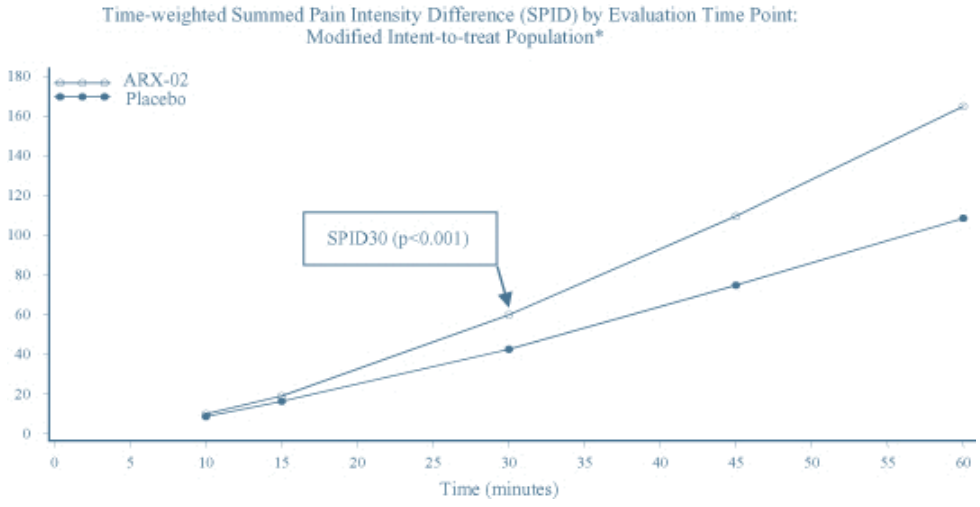
Phase 2 Clinical Results for ARX-02

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.

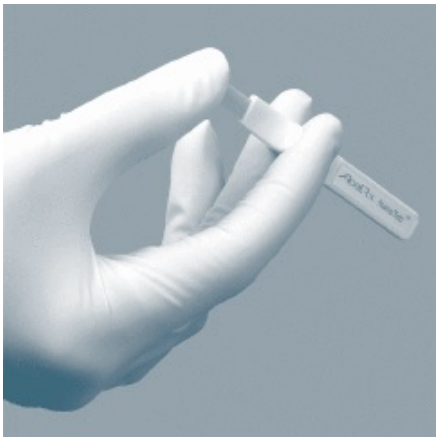
Pain intensity and pain relief were included as secondary endpoints. Lower scores for pain intensity were reported at each evaluation time point for sufentanil-treated episodes compared to placebo-treated episodes (p=0.027 at 15 minutes and p<0.001 at all other time points). Time reported time-weighted 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



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. 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).

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.

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 October 31, 2010, we currently hold 15 U.S. non-provisional pending patent applications, 39 foreign national and ten European regional counterpart patent applications covering various aspects of our product candidates. We also hold a European Patent, EP2114383, granted on July 21, 2010 and validated and translated in Switzerland, Germany, Denmark, Spain, France, the United Kingdom, Italy, the Netherlands, Portugal and Sweden. 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 product candidates. We are pursuing composition of matter claims for our NanoTabs, our formulations, our devices and for the combination of drugs and devices, as well as claims to methods of treatment using such compositions.

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 a 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 October 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 October 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	52	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
Linda R. Judge	54	Vice President, Intellectual Property
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.

Linda R. Judge. Ms. Judge has served as our Vice President, Intellectual Property since October 2007. From August 2004 until October 2007, Ms. Judge was a partner in the Intellectual Property law practice of DLA Piper US LLP. Ms. Judge was Director of Intellectual Property at Cell Genesys, Inc., a biotechnology company from September 2001 until August 2004. Ms. Judge holds a J.D. from Santa Clara University, and a M.S. in Environmental Chemistry from the University of California Berkeley. Ms. Judge is admitted to practice law in California and is a registered Patent Attorney before the United States Patent and Trademark Office.

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 will satisfy 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 will satisfy 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 will satisfy 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 will adopt 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:

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

In addition, we are providing information in this Compensation Discussion and Analysis on the following executives who were hired in 2010 and who will be named executive officers for 2010:

Richard A. King	President and Chief Executive Officer
James H. Welch	Chief Financial 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 •Negotiations and 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)
Thomas A. Schreck	$ 50,000	$ 375,000	<50th	—	$ 375,000	<50th
Pamela P. Palmer, M.D., Ph.D.	$ 50,000(2)	$ 375,000(3)	<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
Richard A. King	N/A	N/A	N/A	N/A	$ 400,000	>75th(4)
James H. Welch	N/A	N/A	N/A	N/A	$ 290,000	>75th(4)

(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) 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.
(3) Upon joining as an employee in July 2009.
(4) Assumes achievement of target bonus.

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.

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 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. 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, 2010 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.

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 covering 1% of the company upon the achievement of certain corporate milestones and Mr. Welch is eligible to earn an option covering 100,000 shares upon certain financing milestones. 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)
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
Richard A. King	N/A	N/A	1,826,440
James H. Welch	N/A	N/A	500,000

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 and Schreck and Dr. Palmer have been eligible to receive severance benefits upon certain involuntary terminations of employment under the terms of their respective employment agreements. In addition, our executive officers are eligible for accelerated vesting upon a termination following a change in control and

Mr. Schreck, in his capacity as a board member, is now eligible for accelerated 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 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 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 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 ended December 31, 2009 with respect to the compensation earned by our former President and Chief Executive Officer (and acting principal financial officer), who resigned effective April 30, 2010, and our three most highly compensated executive officers other than our former President and Chief Executive Officer who were serving as executive officers as of December 31, 2009. We refer to these individuals as our "named executive officers" elsewhere in this prospectus. Richard A. King, who has served as our President and Chief Executive Officer since May 1, 2010, and James H. Welch, who joined us as our Chief Financial Officer effective October 1, 2010, did not receive any compensation from us in any capacity during the year ended December 31, 2009.

2009 Summary Compensation Table

Name and Principal Position	Year	Salary ($)	Option Awards ($)[2]	All Other Compensation ($)[3]	Total ($)
Thomas A. Schreck[1] *Former President, Chief Executive Officer and Principal Financial Officer*	2009	375,000	98,071	7,350	480,421
Lawrence G. Hamel *Chief Development Officer*	2009	262,500	24,518	7,350	294,368
Badri Dasu *Chief Engineering Officer*	2009	247,500	12,259	7,350	267,109
Pamela P. Palmer, M.D., Ph.D. *Chief Medical Officer*	2009	187,500	73,554	177,813	438,867

[1] 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.
[2] The dollar amounts in this column represent the aggregate grant date fair value of all option awards granted during the year ended December 31, 2009. 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 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.
[3] The dollar amounts in this column represent company profit sharing contributions under our 401(k) plan and, with respect to Dr. Palmer, $175,000 of 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, 2009. During the year ended December 31, 2009, none of our named executive officers were awarded any equity incentive plan awards, non-equity incentive plan awards or stock awards.

2009 Grants of Plan-Based Awards Table

Name	Grant Date	All Other Option Awards: Number of Securities Underlying Options (#)[1]	Exercise or Base Price of Option Awards ($/Sh)[2]	Grant Date Fair Value of Stock and Option Awards ($)[3]
Thomas A. Schreck	7/01/2009	100,000	1.38	49,036
	7/01/2009	100,000	1.38	49,036
Lawrence G. Hamel	7/01/2009	50,000	1.38	24,518
Badri Dasu.	7/01/2009	25,000	1.38	12,259
Pamela P. Palmer, M.D., Ph.D.	7/01/2009	150,000	1.38	73,554

[1] The stock options reflected in this column were granted under our 2006 Plan. The shares subject to each stock option vested as to 1/4 th of the shares subject to the option on December 31, 2009 with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months. 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."

[2] Our common stock was not publicly traded during 2009, 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.

[3] 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 included elsewhere in this prospectus. These amounts do not necessarily correspond to the actual value that may be recognized by the named executive officers.

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. Dr. Palmer's offer letter agreement also provides for a severance payment if Dr. Palmer is terminated other than for cause 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, subject to Dr. Palmer executing a general release in favor of us.

In addition to the offer letter agreements with our named executive officers, we entered into offer letter agreements with Richard King, our current President and Chief Executive Officer, and James Welch, our current Chief Financial Officer in March 2010 and September 2010, respectively. Each of Mr. King's and Mr. Welch's offer letters provide for an initial base salary, an opportunity to earn a target annual bonus, eligibility to participate in our standard benefit plans, terms providing for an initial stock option grant and, terms providing for an option grant to Mr. King covering 1% of the company upon the achievement of certain corporate milestones and an option grant to Mr. Welch covering 100,000 shares upon certain financing milestones. Pursuant to Mr. King's offer letter, we granted Mr. King a stock option to purchase 1,826,440 shares of common stock under the 2006 Plan at an exercise price of $0.30 per share, of which 114,153 shares vested on May 1, 2010, 342,457 shares will vest on March 3, 2011, and 1,369,830 shares vest on a monthly basis over the three years following March 3, 2011, subject to accelerated vesting as described under "—Stock Option Vesting Acceleration" below. Pursuant to Mr. Welch's offer letter, we granted Mr. Welch a stock option to purchase 500,000 shares of common stock at an exercise price of $1.33 per share, of which 125,000 shares vest on October 1, 2011 and 375,000 shares vest monthly over the three years thereafter, subject to accelerated vesting as described under "—Stock Option Vesting Acceleration" below. Under Mr. King's offer letter, in the event that Mr. King's

employment is terminated without cause or Mr. King resigns for good reason, in each case within one year following a change in control, as these terms are used in Mr. King's offer letter, Mr. King, subject to Mr. King executing a general release of claims in favor of us and entering into a customary non-competition covenant with us, will be entitled to 12 months of base salary and health benefits continuation.

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 certain "double-trigger" stock option vesting acceleration benefits in the event their service with us is terminated for specified reasons in connection with certain 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. Mr. Schreck was entitled to these same 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 of $0.47 per share 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.

Additionally, pursuant to the stock option agreements under the 2006 Plan with each of our executive officers, including the executive officers (other than Mr. Schreck), in the event that the executive officer's service with us is terminated for cause or the executive officer voluntary terminates his or her employment for certain stated reasons within 18 months after a change in control, and the executive officer signs a general release of claims in favor of us, then the vesting of all shares subject to the options granted to the executive officer under the 2006 Plan will accelerate in full and be fully exercisable. With respect to Mr. Schreck, the vesting of all shares subject to each option granted to Mr. Schreck under the 2006 Plan will accelerate in full and be fully exercisable immediately upon a change in control.

2011 Equity Incentive Plan

Our board of directors adopted the 2011 Equity Incentive Plan, or 2011 Incentive Plan, on , 2010 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 , 2020, 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 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 % 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 shares.

No person may be granted stock awards covering more than 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 shares or a performance cash award having a maximum value in excess of $. 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 certain stock awards, 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. Our board of directors has delegated such authority to our Chief Executive Officer. 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 unit*s. Stock appreciation units are granted pursuant to stock appreciation grant agreements adopted by the plan administrator. The plan administrator determines the strike price for a stock appreciation unit, 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 unit, 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 unit is exercised. A stock appreciation unit granted under the 2011 Incentive Plan vests at the rate specified in the stock appreciation grant agreement as determined by the plan administrator.

The plan administrator determines the term of stock appreciation units granted under the 2011 Incentive Plan, up to a maximum of ten years. Unless the terms of a participant's stock appreciation 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 unit for a period of three months following the cessation of service. The stock appreciation unit term may be further extended in the event that exercise of the stock appreciation unit or the sale of shares received upon exercise of the stock appreciation unit 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 unit 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 units 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 unit 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 , 2010. 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 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) % of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year, (2) shares of our common stock or (3) 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, 2009

The following table presents information regarding outstanding equity awards held by our named executive officers as of December 31, 2009.

2009 Outstanding Equity Awards at Fiscal Year-End Table

	Option Awards				Stock Awards	
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)[8]
Thomas A. Schreck	25,000	75,000[1]	1.38	07/01/2019		
	25,000	75,000[1]	1.38	07/01/2019		
	75,000	75,000[2]	1.00	08/14/2018		
	56,250	18,750[3]	0.33	04/03/2017		
					83,333[7]	
Lawrence G. Hamel	12,500	37,500[1]	1.38	07/01/2019		
	37,500	37,500[4]	0.30	12/05/2017		
	81,250	18,750[3]	0.30	04/03/2017		
	37,500	12,500[5]	0.30	04/03/2017		
Badri Dasu	6,250	18,750[1]	1.38	07/01/2019		
	84,375	65,625[6]	0.30	10/25/2017		
Pamela P. Palmer, M.D., Ph.D.	37,500	112,500[1]	1.38	07/01/2019		
	75,000	75,000[2]	1.00	08/14/2018		
	75,000	25,000[3]	0.33	04/03/2017		
					83,333[7]	

[1] The shares subject to this stock option vested as to 1/4th of the shares subject to the option on December 31, 2009, with the remaining shares subject to the stock option vesting on an equal monthly basis over the following 36 months.

[2] The shares subject to this stock option vested as to 1/4th 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.

[3] The shares subject to this stock option vested as to 1/4th 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.

[4] The shares subject to this stock option vested as to 1/4th 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.

[5] The shares subject to this stock option vested as to 1/4th 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.

[6] 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.

[7] These shares vested on an equal monthly basis from January 15, 2010 until the shares vested in full on August 15, 2010.

[8] The market value of the unvested shares of restricted stock 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 unvested shares.

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, 2009. No stock options were exercised by our named executive officers during the year ended December 31, 2009.

2009 Option Exercises and Stock Vested Table

	Stock Awards	
Name	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting ($)[1]
Thomas A. Schreck	125,000	
Lawrence G. Hamel	—	—
Badri Dasu	—	—
Pamela P. Palmer, M.D., Ph.D.	125,000	

[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 in various termination situations has been estimated in the tables below, assuming the applicable termination event occurred on December 31, 2009. All of the potential compensation and benefits listed in the tables below are compensation or benefits that would have been made, as applicable, pursuant to the terms of the offer letter agreements with our named executive officers, the employment agreement we entered into with Mr. Schreck, the founder's vesting agreements we entered into with Mr. Schreck and Dr. Palmer, and with respect to stock option vesting acceleration, pursuant to 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.

Thomas A. Schreck

	No Change in Control	Change in Control
Compensation and Benefits[1]	Termination Without Cause or Eligible Voluntary Termination ($)	Termination Without Cause or Eligible Voluntary Termination ($)
Base salary[2]	187,500	187,500
Continued health coverage[3]	11,066	11,066
Stock option vesting acceleration[4]	—	

[1] The base salary compensation and continued health coverage benefits referenced in this table have been superseded by the terms of the resignation letter agreement that we entered into with Mr. Schreck in May 2010, the terms of which are described under "— Employment Agreements and Arrangements—Executive Employment Agreements and Termination Benefits—Thomas

Schreck Employment and Resignation Agreements." In addition, with respect to stock option vesting acceleration, Mr. Schreck's stock option agreements under the 2006 Plan currently provide for full vesting acceleration immediately upon a change in control.

(2) Represents a single lump sum payment equal to six months of base salary.

(3) Represents payment of 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.

Pamela P. Palmer, M.D., Ph.D.

Compensation and Benefits	Upon Termination Prior to Employment Anniversary ($)(1)	Change in Control and Termination Without Cause or Eligible Voluntary Termination ($)
Severance payment	125,000	—
Stock option vesting acceleration(2)	—	
Restricted stock vesting acceleration(3)	—	

(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, 2009.

(2) 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.

(3) The value of restricted stock 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 shares of restricted stock subject to acceleration.

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 , 2010, 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 on 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 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 15,000 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 12,500 shares of our common stock, which will vest as to 1/24 th 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, 2009 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, 2009.

2009 Director Compensation Table

Name	Fees Earned or Paid in Cash ($)	Option Awards ($)[1]	Total ($)
Howard B. Rosen	30,000	—	30,000
Stephen J. Hoffman Ph.D., M.D.	—	—	—
Guy P. Nohra	—	—	—
Mark Wan	—	—	—

[1] No stock options were granted to any of the non-employee directors listed in the table above during the year ended December 31, 2009. As of December 31, 2009, 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 held any outstanding stock options at December 31, 2009.

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.

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 to be Issued Upon Exercise of 2010 Warrants Prior to this Offering
Funds affiliated with Three Arch Partners [1]	$ 3,793,273	962,074
Funds affiliated with Skyline Venture Partners [2]	1,977,503	501,547
Funds affiliated with Alta Partners [3]	1,742,044	441,829
Funds affiliated with Kaiser Foundation Hospitals [4]	487,180	123,561

[1] 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.

[2] 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.

[3] 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.

[4] 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 2010, 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 September 30, 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 September 30, 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 September 30, 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 assumes:

- the exercise, on a cash 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 2,029,011 shares of common stock upon completion of this offering; 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 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	*	*
Pamela P. Palmer M.D., Ph.D.(6)	1,729,166	1,729,166	4.59%	
Badri Dasu(7)	185,208	185,208	*	*
Thomas A. Schreck(8)	1,934,623	1,934,623	5.15%	
Lawrence G. Hamel (9)	340,102	340,102	*	*
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)	86,041	86,041	*	*
All executive officers and directors as a group (9 persons) (14)	35,800,968		91.70%	

* 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) 24,542 shares of common stock issuable upon the 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, 10,391 shares of common stock issuable upon the 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, 456,495 shares of common stock issuable upon the 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 470,646 shares of common stock issuable upon the 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) 501,547 shares of common stock issuable upon the 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) 441,829 shares of common stock issuable upon the 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) 61,780 shares of common stock issuable upon the exercise of a 2010 warrant held by KFH and the concomitant conversion of the underlying Series C convertible preferred stock into common stock, and 61,781 shares of common stock issuable upon the 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 September 30, 2010.

(6) Includes 729,166 shares issuable pursuant to stock options exercisable within 60 days of September 30, 2010.

(7) Represents 185,208 shares issuable pursuant to stock options exercisable within 60 days of September 30, 2010.

(8) Includes 670,832 shares issuable pursuant to stock options exercisable within 60 days of September 30, 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 340,102 shares issuable pursuant to stock options exercisable within 60 days of September 30, 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 86,041 shares issuable pursuant to stock options exercisable within 60 days of September 30, 2010.

(14) Includes 2,125,502 shares issuable pursuant to stock options exercisable within 60 days of September 30, 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:

- 36,914,923 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 cash 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 2,029,011 shares of common stock upon completion of this offering; 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. We expect these warrants to be exercised, on a cash basis, in connection with the completion of this offering, resulting in the issuance of an aggregate of 2,029,011 shares of common stock upon the completion of this offering.

Registration Rights

Immediately following the closing of this offering, the holders of an aggregate of 37,173,231 shares of our common stock issued or issuable upon conversion of our preferred stock and the warrants described above (including the 2,029,011 shares of our common stock issued upon the expected 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), 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 are applying 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 .

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 cash 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 2,029,011 shares of common stock upon completion of this offering;
- 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 conversion of the 2010 notes depends upon the actual initial public offering price per share in this offering and the closing date of this offering, the actual number of shares issuable upon such conversion will likely be different from the amount 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 to the extent these shares have been released from any repurchase option that we may hold.

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 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, regulated investment companies, real estate investment trusts, "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 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 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 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 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 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). If you are a Non-U.S. Holder and we are a United States real property holding corporation described in (c) above, your gain derived from the sale generally will be taxed in the same manner as gain described in (a) above, except that the branch profits tax generally will not apply.

Information Reporting Requirements and Backup Withholding

Generally, we must report information to the IRS with respect to any dividends we pay on our 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%, but is scheduled to increase to 31% after 2010.

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 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. 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. 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 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.

New Healthcare Legislation

Under newly enacted legislation, certain U.S. holders that are individuals, estates or trusts will be required to pay an additional tax on, among other things, interest and dividends on and capital gains from the sale or other disposition of notes and stock for taxable years beginning after December 31, 2012. U.S. holders should consult their tax advisors regarding the effect, if any, of this legislation on their ownership and disposition of our notes and 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)

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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

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.

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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

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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.

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Notes to Financial Statements—(Continued)

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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.

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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 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 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.

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

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$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%

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

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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

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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 $1.2 million, 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

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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.

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.

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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 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.

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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.

Redemption Rights

The Series A, Series B and Series C are not redeemable.

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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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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, 2009	Nine Months Ended September 30,		Period from July 13, 2005 (Inception) Through September 30, 2010
	2007	2008	2009		2009	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%

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)

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

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)

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.

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)

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	2,657,500	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	923,056	923,056	923,056	923,056

The above table does not include common stock equivalents related to the 2010 Convertible Notes or the 2010 Warrants.

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 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.

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)

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.

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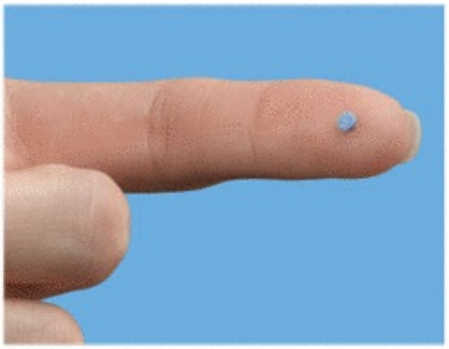
AcelRx Pharmaceuticals, Inc.

Sufentanil NanoTab



ARX-01
Sufentanil NanoTab PCA System

ARX-02
Sufentanil NanoTab BTP Management System

ARX-03
Sufentanil/Triazolam NanoTab

Accelerate. Innovate. Alleviate.

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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 (to be 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 November 12, 2010, 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.
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+†	Offer Letter between the Registrant and Larry Hamel, dated September 6, 2006.
10.15+†	Offer Letter between the Registrant and Badri Dasu, dated August 29, 2007.
10.16+†	Offer Letter between the Registrant and Pamela Palmer, dated July 1, 2009.
10.17+†	Offer Letter between the Registrant and Richard King, dated March 1, 2010.
10.18+†	Offer Letter between the Registrant and James Welch, dated September 14, 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.

(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 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 12th day of November 2010.

ACELRX PHARMACEUTICALS, INC.

By: /s/ RICHARD A. KING
Richard A. King
President and Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Richard A. King and James H. Welch, jointly and severally, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her, and in his or her name, place and stead, in any and all capacities, to sign the Registration Statement on Form S-1 of AcelRx Pharmaceuticals, Inc. and any or all amendments (including post-effective amendments) thereto and any new registration statement with respect to the offering contemplated thereby filed pursuant to Rule 462(b) of the Securities Act, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises hereby ratifying and confirming all that said attorneys-in-fact and agents, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this 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*)	November 12, 2010
/s/ JAMES H. WELCH **James H. Welch**	Chief Financial Officer *(Principal Accounting and Financial Officer)*	November 12, 2010
/s/ STEPHEN J. HOFFMAN **Stephen J. Hoffman**	Director	November 12, 2010
/s/ GUY P. NOHRA **Guy P. Nohra**	Director	November 12, 2010
/s/ PAMELA P. PALMER **Pamela P. Palmer**	Director	November 12, 2010
/s/ HOWARD B. ROSEN **Howard B. Rosen**	Director	November 12, 2010
/s/ THOMAS A. SCHRECK **Thomas A. Schreck**	Director	November 12, 2010
/s/ MARK WAN **Mark Wan**	Director	November 12, 2010

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EXHIBIT INDEX

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.
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.

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Exhibit Number	Description of the Document
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+†	Offer Letter between the Registrant and Larry Hamel, dated September 6, 2006.
10.15+†	Offer Letter between the Registrant and Badri Dasu, dated August 29, 2007.
10.16+†	Offer Letter between the Registrant and Pamela Palmer, dated July 1, 2009.
10.17+†	Offer Letter between the Registrant and Richard King, dated March 1, 2010.
10.18+†	Offer Letter between the Registrant and James Welch, dated September 14, 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.

Exhibit 3.1

AMENDED AND RESTATED CERTIFICATE OF INCORPORATION

OF

ACELRX PHARMACEUTICALS, INC.

The undersigned, Thomas A. Schreck, hereby certifies that:

1. He is the duly elected and acting President and Chief Executive Officer of AcelRx Pharmaceuticals, Inc., a Delaware corporation.

2. The Certificate of Incorporation of this corporation was originally filed with the Secretary of State of Delaware on July 13, 2005. The corporation was originally incorporated under the name of SuRx, Inc.

3. The Certificate of Incorporation of this corporation shall be amended and restated to read in full as follows:

ARTICLE I

The name of this corporation is AcelRx Pharmaceuticals, Inc. (the "Corporation").

ARTICLE II

The address of the Corporation's registered office in the State of Delaware is 3500 South Dupont Highway, Dover, County of Kent. The name of its registered agent at such address is Incorporating Services, Ltd.

ARTICLE III

The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the Delaware General Corporation Law.

ARTICLE IV

(A) **Classes of Stock.** The Corporation is authorized to issue two classes of stock to be designated, respectively, "Common Stock" and "Preferred Stock." The total number of shares which the Corporation is authorized to issue is 117,736,125 shares, each with a par value of $0.001 per share. 71,000,000 shares shall be Common Stock, 46,736,125 shares shall be Preferred Stock.

(B) **Rights, Preferences and Restrictions of Preferred Stock.** The Preferred Stock authorized by this Amended and Restated Certificate of Incorporation (this "Restated Certificate") may be issued from time to time in one or more series. The first series of Preferred Stock shall be designated "Series A Preferred Stock" and shall consist of 8,456,581 shares. The

second series of Preferred Stock shall be designated "Series B Preferred Stock" and shall consist of 5,279,544 shares. The third series of Preferred Stock shall be designated "Series C Preferred Stock" and shall consist of 33,000,000 shares. The rights, preferences, privileges, and restrictions granted to and imposed on the Preferred Stock are as set forth below in this Article IV(B).

1. **Dividend Provisions.** The holders of shares of Preferred Stock shall be entitled to receive, on a pari passu basis, non-cumulative dividends, out of any assets legally available therefor, prior and in preference to any declaration or payment of any dividend (payable other than in Common Stock or other securities and rights convertible into or entitling the holder thereof to receive, directly or indirectly, additional shares of Common Stock of the Corporation, provided that an adjustment to the respective Conversion Price (as defined below) of such other securities or rights has been made in accordance with Section 4(d)(ii) below) on the Common Stock of the Corporation, at the rate of $0.20 per share (as adjusted for stock splits, stock dividends, reclassification and the like) per annum on each outstanding share of Series A Preferred Stock, at the rate of $0.32 per share (as adjusted for stock splits, stock dividends, reclassification and the like) per annum on each outstanding share of Series B Preferred Stock and at a rate of $0.078856 per share (as adjusted for stock splits, stock dividends, reclassification and the like) per annum on each share of Series C Preferred Stock, payable quarterly when, as and if declared by the Board of Directors of the Corporation (the " Board of Directors"). After payment of such dividends, any additional dividends shall be distributed among the holders of Preferred Stock and Common Stock pro rata based on the number of shares of Common Stock then held by each holder (assuming conversion of all such Preferred Stock into Common Stock).

2. **Liquidation.**

(a) **Preference.** In the event of a Liquidation Transaction (as defined in Section 2(c)(i)), either voluntary or involuntary, the holders of the Preferred Stock shall be entitled to receive, on a pari passu basis, prior and in preference to, any distribution of any of the assets of the Corporation to the holders of Common Stock by reason of their ownership thereof, (i) for the Series A Preferred Stock, an amount per share equal to $2.50 per share (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series A Preferred Stock then held, plus declared but unpaid dividends, (ii) for the Series B Preferred Stock, an amount per share equal to $4.00 per share (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series B Preferred Stock then held, plus declared but unpaid dividends and (iii) for the Series C Preferred Stock, an amount per share equal to $0.9857 per share (as adjusted for stock splits, stock dividends, reclassification and the like) for each share of Series C Preferred Stock then held, plus declared but unpaid dividends. If, upon the occurrence of such event, the assets and funds thus distributed among the holders of the Preferred Stock shall be insufficient to permit the payment to such holders of the full aforesaid preferential amounts, then the entire assets and funds of the Corporation legally available for distribution shall be distributed ratably among the holders of the Preferred Stock in proportion to the preferential amount each such holder is otherwise entitled to receive.

(b) **Remaining Assets.** Upon the completion of the distribution required by Section 2(a) above, if assets remain in the Corporation, the holders of the Common

Stock of the Corporation shall ratably receive all of the remaining assets of the Corporation based on the number of shares of Common Stock held by each.

(c) **Escrow and Contingency Payments.** In the event of a Liquidation Transaction, if any portion of the consideration payable to the stockholders of the Corporation is placed into escrow and/or is payable to the stockholders of the Corporation subject to contingencies, the transaction documents shall provide that (i) the portion of such consideration that is not placed in escrow and not subject to any contingencies (the "Initial Consideration") shall be allocated among the holders of capital stock of the Corporation in accordance with Sections 2(a) and 2(b) as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event and (ii) any additional consideration which becomes payable to the stockholders of the Corporation upon release from escrow or satisfaction of contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Sections 2(a) and 2(b) after taking into account the previous payment of the Initial Consideration as part of the same transaction.

(d) **Certain Acquisitions.**

(i) **Deemed Liquidation.** For purposes of this Section 2, a "Liquidation Transaction" shall (A) mean any liquidation, dissolution, or winding up of the Corporation, or (B) be deemed to occur if the Corporation shall sell, convey, exclusively license or otherwise dispose of all or substantially all of its property or business or merge with or into or consolidate with any other corporation, limited liability company or other entity (other than a wholly-owned subsidiary of the Corporation) (the latter Liquidation Transaction, a "Deemed Liquidation"), provided, however, that none of the following shall be considered a Liquidation Transaction: (1) a merger effected exclusively for the purpose of changing the domicile of the Corporation, (2) an equity financing in which the Corporation is the surviving corporation, or (3) a transaction in which the stockholders of the Corporation immediately prior to the transaction own 50% or more of the voting stock of the surviving corporation following the transaction (taking into account only stock of the Corporation held by such stockholders prior to the transaction).

(ii) **Valuation of Consideration.** In the event of a Deemed Liquidation, if the consideration received by the Corporation is other than cash, its value will be deemed its fair market value. Any securities shall be valued as follows:

(A) Securities not subject to investment letter or other similar restrictions on free marketability:

(1) If traded on a securities exchange or The Nasdaq Stock Market (" Nasdaq"), the value shall be based on the formula specified in the definitive agreements for the Liquidation Transaction or, if no such formula exists, then the value of such securities shall be based on a formula approved by the Board of Directors and derived from the closing prices of the securities on such exchange or Nasdaq over a specified time period;

(2) If actively traded over-the-counter, the value shall be based on the formula specified in the definitive agreements for the Liquidation Transaction or, if no such formula exists, then the value of such securities shall be based on a formula approved by the Board of Directors and derived from the closing bid or sales prices (whichever is applicable) of such securities over a specified time period; and

(3) If there is no active public market, the value shall be the fair market value thereof, as determined in good faith by the Board of Directors.

(B) The method of valuation of securities subject to investment letter or other restrictions on free marketability (other than restrictions arising solely by virtue of a stockholder's status as an affiliate or former affiliate) shall be to make an appropriate discount from the market value determined as specified above in Section 2(d)(ii)(A) to reflect the approximate fair market value thereof, as determined in good faith by the Board of Directors.

(iii) **Notice of Liquidation Transaction.** The Corporation shall give each holder of record of Preferred Stock written notice of any impending Liquidation Transaction not later than 10 days prior to the stockholders' meeting called to approve such Liquidation Transaction, or 10 days prior to the closing of such Liquidation Transaction, whichever is earlier, and shall also notify such holders in writing of the final approval of such Liquidation Transaction. The first of such notices shall describe the material terms and conditions of the impending Liquidation Transaction and the provisions of this Section 2, and the Corporation shall thereafter give such holders prompt notice of any material changes. Unless such notice requirements are waived, the Liquidation Transaction shall not take place sooner than 20 days after the Corporation has given the first notice provided for herein or sooner than 20 days after the Corporation has given notice of any material changes provided for herein. Notwithstanding the other provisions of this Restated Certificate, all notice periods or requirements in this Restated Certificate may be shortened or waived, either before or after the action for which notice is required, upon the written consent of the holders of at least sixty percent (60%) of the Preferred Stock that are entitled to such notice rights, voting together as a single class.

(iv) **Effect of Noncompliance.** In the event the requirements of this Section 2(d) are not complied with, the Corporation shall forthwith either cause the closing of the Liquidation Transaction to be postponed until the requirements of this Section 2 have been complied with, or cancel such Liquidation Transaction, in which event the rights, preferences, privileges and restrictions of the holders of Preferred Stock shall revert to and be the same as such rights, preferences, privileges and restrictions existing immediately prior to the date of the first notice referred to in Section 2(d)(iii).

3. **Redemption.** The Preferred Stock is not redeemable at the option of the holder thereof.

4. **Conversion.** The holders of the Preferred Stock shall have conversion rights as follows (the " Conversion Rights"):

(a) **Right to Convert.**

(i) Subject to Section 4(c), each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such share, at the office of the Corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by (i) for the Series A Preferred Stock, dividing $2.50 by the Conversion Price applicable to such share, determined as hereafter provided, in effect on the date the certificate is surrendered for conversion, (ii) for the Series B Preferred Stock, dividing $4.00 by the Conversion Price applicable to such share, determined as hereafter provided, in effect on the date the certificate is surrendered for conversion and (iii) for the Series C Preferred Stock, dividing $0.9857 by the Conversion Price applicable to such share, determined as hereafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share of Series A Preferred Stock shall be $2.50 (which conversion price shall be adjusted upon sale of Series C Preferred Stock pursuant to the Series C Preferred Stock Purchase Agreement dated on or about the date of filing this Certificate of Incorporation (the "Series C Purchase Agreement")). The initial Conversion Price per share of Series B Preferred Stock shall be $4.00 (which conversion price shall be adjusted upon sale of Series C Preferred Stock pursuant to the Series C Purchase Agreement). The initial Conversion Price per share of Series C Preferred Stock shall be $0.9857. All such initial Conversion Prices shall be subject to adjustment as set forth in Section 4(d).

(ii) In connection with a future equity financing event or events in which the Corporation issues and sells equity securities at an original issue price of less than $0.9857 per share (a " Qualified Financing"), each share of Series C Preferred Stock shall be convertible, at the election of the holders of at least sixty percent (60%) of the then outstanding shares of Series C Preferred Stock (the "Requisite Series C Holders"), into shares of the equity securities issued and sold by the Corporation in the Qualified Financing (the "Next Round Stock") at a conversion ratio of one share of Series C Preferred Stock converting into the number of shares of Next Round Stock equal to $0.9857 divided by the price per share of the Next Round Stock. The conversion shall be effective at the closing of such Qualified Financing if such conversion has been so elected. The election to convert shares of Series C Preferred Stock into shares of the Next Round Stock shall be made in accordance with, and subject to, the provisions set forth in Section 4(c)(ii). The conversion right of the Series C Preferred Stock under this Section 4(a)(ii) shall terminate at the point when the Corporation has raised gross proceeds in future equity financing events (excluding the first $15,370,864.84 but including any additional amounts raised pursuant to that certain Series C Preferred Stock Purchase Agreement, dated on or about November 23, 2009, by and between the Corporation and the parties thereto) in an amount equal to at least $15,000,000 (the " Gross Raise Amount"). For the avoidance of doubt, in the event that there are multiple Qualified Financings prior to the Corporation raising the Gross Raise Amount, then upon the initial closing of each Qualified Financing, if the Requisite Series C Holders have not yet elected to convert into the Next Round Stock, the Requisite Series C Holders may elect to do so, provided that the Requisite Series C Holders are only entitled to one election pursuant to this Section 4(a)(ii). Upon the election and conversion of the Series C Preferred Stock into the Next Round Stock, the option to convert any shares into Next Round Stock pursuant to this Section 4(a)(ii) shall cease.

(b) **Automatic Conversion.** Each share of Preferred Stock shall automatically be converted into shares of Common Stock at the Conversion Price at the time in effect for such share immediately upon the earlier of (i) except as provided below in Section 4(c), immediately prior to and in connection with the closing of the Corporation's sale of its Common Stock in a firm commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended (the "Securities Act"), the public offering price of which is not less than $3.00 (as adjusted for stock splits, stock dividends, reclassification and the like) and which results in aggregate gross cash proceeds to the Corporation of not less than $30,000,000 (before deduction of underwriting discounts and commissions), or (ii) the date specified by written consent or agreement of the holders of at least 60% of the then outstanding shares of Preferred Stock, voting together as a single class.

(c) **Mechanics of Conversion.**

(i) **Conversion to Common Stock**. Before any holder of Preferred Stock shall be entitled to convert such Preferred Stock into shares of Common Stock, the holder shall surrender the certificate or certificates therefor, duly endorsed (or a reasonably acceptable affidavit and indemnity undertaking in the case of a lost, stolen or destroyed certificate), at the office of the Corporation or of any transfer agent for such series of Preferred Stock, and shall give written notice to the Corporation at its principal corporate office, of the election to convert the same and shall state therein the name or names in which the certificate or certificates for shares of Common Stock are to be issued. The Corporation shall, as soon as practicable thereafter, issue and deliver at such office to such holder of Preferred Stock, or to the nominee or nominees of such holder, a certificate or certificates for the number of shares of Common Stock to which such holder shall be entitled as aforesaid and a certificate for the remaining number of shares of Preferred Stock, as the case may be, if less than all of the Preferred Stock, as the case may be, evidenced by the certificate were surrendered. Such conversion shall be deemed to have been made immediately prior to the close of business on (i) the date of such surrender of the shares of Preferred Stock to be converted or (ii) if applicable, the date of automatic conversion specified in Section 4(b) above, and the person or persons entitled to receive the shares of Common Stock issuable upon such conversion shall be treated for all purposes as the record holder or holders of such shares of public Common Stock as of such date. If the conversion is in connection with an underwritten public offering of securities registered pursuant to the Securities Act the conversion may, at the option of any holder tendering such Preferred Stock for conversion, be conditioned upon the closing with the underwriters of the sale of securities pursuant to such offering, in which event any persons entitled to receive Common Stock upon conversion of such Preferred Stock shall not be deemed to have converted such Preferred Stock until immediately prior to the closing of such sale of securities.

(ii) **Conversion to Next Round Stock**. Unless such notice period is waived by at least sixty percent (60%) of the holders of the Series C Preferred Stock, at least ten (10) business days prior to each initial closing of a Qualified Financing, the Corporation shall provide all holders of Series C Preferred Stock written notice of the Qualified Financing. In order to be eligible to convert shares of Series C Preferred Stock into shares of the Next Round Stock pursuant to Section 4(a)(ii) above, at least five (5) business days prior to such closing of

the Qualified Financing, holders representing at least sixty percent (60%) of the Series C Preferred Stock shall provide written notice to the Corporation and to all other holders of Series C Preferred Stock of the election to convert all shares of Series C Preferred Stock into shares of the Next Round Stock pursuant to Section 4(a)(ii). Each holder of Series C Preferred Stock shall surrender the certificate or certificates therefor, duly endorsed (or a reasonably acceptable affidavit and indemnity undertaking in the case of a lost, stolen or destroyed certificate), at the office of the Corporation or of any transfer agent for such series of Series C Preferred Stock, and provide the Corporation notice of the name or names in which the certificate or certificates for shares of the Next Round Stock are to be issued. Moreover, each holder shall also become a party and subject to all of the agreements and other terms of the Qualified Financing and otherwise agree to execute and deliver such other documents and certificates as are generally requested and provided by other purchasers of Next Round Stock. The Corporation shall, as soon as practicable thereafter and upon compliance of such holder with the requirements of this Section 4(c)(ii), issue and deliver at such office to such holder of such Series C Preferred Stock, or to the nominee or nominees of such holder, a certificate or certificates for the number of shares of the Next Round Stock equal to the number of shares of Series C Preferred Stock as determined pursuant to Section 4(a)(ii) above. Such conversion shall be deemed to have been made immediately prior to the close of business on the later of (i) the date of such surrender of the shares of the Series C Preferred Stock to be converted or (ii) the effective date of conversion specified in Section 4(a)(ii) above, and the person or persons entitled to receive the shares of the Next Round Stock issuable upon such conversion shall be treated for all purposes as the record holder or holders of such shares of the Next Round Stock as of such date. Regardless of whether the holder of Series C Preferred Stock has duly endorsed and surrendered the certificate of certificates therefore, and become a party and subject to all of the agreements and other terms of the Qualified Financing, such holder shall thereafter forfeit any rights associated with such shares of Series C Preferred Stock, including but not limited to conversion rights, liquidation rights and dividend rights, and the sole rights of such holder in connection with such shares of Series C Preferred Stock previously held shall instead be the rights associated with the Next Round Stock.

(d) **Conversion Price Adjustments of Preferred Stock for Certain Dilutive Issuances, Splits and Combinations.** The Conversion Price of the Preferred Stock shall be subject to adjustment from time to time as follows:

(i) **Issuance of Additional Stock below Purchase Price.**

(A) **Adjustment for Series A Preferred Stock or Series B Preferred Stock.**

(1) If the Corporation should issue, at any time after the date upon which any shares of Series C Preferred Stock were first issued (the "Purchase Date"), any Additional Stock (as defined below) without consideration or for a consideration per share less than Conversion Price of the Series A Preferred Stock or Series B Preferred Stock, respectively, in effect immediately prior to the issuance of such Additional Stock, the Conversion Price applicable to Series A Preferred Stock or Series B Preferred Stock in effect immediately prior to each such issuance shall automatically be adjusted as set forth in this Section 4(d)(i)(A), unless otherwise provided in this Section 4(d)(i).

(2) Whenever the Conversion Price of the Series A Preferred Stock or Series B Preferred Stock is adjusted pursuant to this Section 4(d)(i)(A), the new Conversion Price for such series shall be determined by multiplying the Conversion Price then in effect for such series by a fraction, (x) the numerator of which shall be the number of shares of Common Stock outstanding immediately prior to such issuance (the " Outstanding Common") plus the number of shares of Common Stock that the aggregate consideration received by the Corporation for such issuance would purchase at such applicable Conversion Price; and (y) the denominator of which shall be the number of shares of Outstanding Common plus the number of shares of such Additional Stock. For purposes of the foregoing calculation, the term "Outstanding Common" shall include shares of Common Stock deemed issued pursuant to Section 4(d)(i)(F) below.

(B) **Adjustment for Series C Preferred Stock.**

(1) Until such time as the Corporation has raised the Gross Raise Amount, any issuances or deemed issuances of Additional Stock, after the Purchase Date, for consideration per share less than the Conversion Price of the Series C Preferred Stock in effect on the date and immediately prior to such issuance, shall cause the then existing Conversion Price of the Series C Preferred Stock to forthwith be adjusted to equal the Effective Price (as hereinafter defined).

(2) At any time or from time to time after the Corporation has raised the Gross Raise Amount, any issuances or deemed issuances of Additional Stock, after the Purchase Date, for no consideration or a consideration per share less than the then existing Conversion Price of the Series C Preferred Stock, the new Conversion Price for such series shall be determined by multiplying the Conversion Price then in effect for such series by a fraction, (x) the numerator of which shall be the number of shares of Outstanding Common plus the number of shares of Common Stock that the aggregate consideration received by the Corporation for such issuance would purchase at such Conversion Price; and (y) the denominator of which shall be the number of shares of Outstanding Common plus the number of shares of such Additional Stock. For purposes of the foregoing calculation, the term "Outstanding Common" shall include shares of Common Stock deemed issued pursuant to Section 4(d)(i)(F) below.

(3) The "Effective Price" of Additional Stock for purposes of this Section 4(d)(i)(B) shall mean the quotient determined by dividing the total number of Additional Stock issued or sold, or deemed to have been issued or sold by the Corporation under this Section 4(d)(i), into the Aggregate Consideration (as such term is defined below) received, or deemed to have been received by the Corporation for such Additional Stock. In the event that the number of shares of Additional Stock or the Effective Price cannot be ascertained at the time of issuance, such Additional Stock shall be deemed issued immediately upon the occurrence of the first event that makes such number of shares or the Effective Price, as applicable, ascertainable.

(4) For the purpose of making any adjustment required under this Section 4(d)(i)(B), the aggregate consideration received by the Corporation

for any issue or sale of securities (the "Aggregate Consideration") shall be defined as: (A) to the extent it consists of cash, be computed at the gross amount of cash received by the Corporation before deduction of any underwriting or similar commissions, compensation or concessions paid or allowed by the Corporation in connection with such issue or sale and without deduction of any expenses payable by the Corporation, (B) to the extent it consists of property other than cash, be computed at the fair value of that property as determined in good faith by the Board of Directors, including at least two of the Preferred Director Representatives then in office, and (C) if (x) Additional Stock, (y) Preferred Stock or other stock, options, warrants, purchase rights or other securities convertible into, Additional Stock ("Convertible Securities") or (z) rights or options to purchase either Additional Stock or Convertible Securities are issued or sold together with other stock or securities or other assets of the Corporation for a consideration which covers both, be computed as the portion of the consideration so received that may be reasonably determined in good faith by the Board of Directors to be allocable to such Additional Stock, Convertible Securities or rights or options.

(C) **Definition of "Additional Stock".** For purposes of this Section 4(d)(i), "Additional Stock" shall mean any shares of Common Stock issued (or deemed to have been issued pursuant to Section 4(d)(i)(F)) by the Corporation after the Purchase Date) other than;

(1) Common Stock issued pursuant to stock dividends, stock splits or similar transactions, as described in Section 4(d)(ii) hereof;

(2) Common Stock issued or issuable to employees, officers, consultants or directors of the Corporation or other persons performing services for the Corporation, pursuant to any stock option plan or agreement or other stock incentive program or agreement of the Corporation as may be approved by the Board of Directors, including at least two of the Preferred Director Representatives then in office;

(3) Capital stock, or options or warrants to purchase capital stock, issued to financial institutions or lessors in connection with commercial credit arrangements, equipment financings, commercial property lease transactions or similar transactions, provided such issuances are for other than primarily equity financing purposes and provided further that the terms of which are approved by the Board of Directors, including at least two of the Preferred Director Representatives then in office;

(4) Common Stock or Preferred Stock issuable upon exercise of warrants, notes, or other convertible securities outstanding as of the date of this Restated Certificate;

(5) Common Stock issued upon conversion of the Preferred Stock;

(6) Common Stock issued or issuable in a public offering prior to or in connection with which all outstanding shares of Preferred Stock will be automatically converted to Common Stock; and

(7) Capital stock issued or issuable to an entity as a component of any business relationship with such entity for the purpose of (A) joint venture, technology licensing or development activities, (B) distribution, supply or manufacture of the Corporation's products or services, (C) any equipment loan or leasing arrangement, real property leasing arrangement or debt financing, or (D) a merger or asset purchase with such entity, provided in each case that the terms of such business relationship with such entity are approved by the Board of Directors, including at least two of the Preferred Director Representatives then in office.

(D) **No Fractional Adjustments.** No adjustment of the Conversion Price for the Preferred Stock shall be made in an amount less than one cent per share, provided that any adjustments which are not required to be made by reason of this sentence shall be carried forward and shall be either taken into account in any subsequent adjustment made prior to three years from the date of the event giving rise to the adjustment being carried forward, or shall be made at the end of three years from the date of the event giving rise to the adjustment being carried forward.

(E) **Determination of Consideration.** In the case of the issuance of Common Stock for cash, the consideration shall be deemed to be the amount of cash paid therefor before deducting any reasonable discounts, commissions or other expenses allowed, paid or incurred by the Corporation for any underwriting or otherwise in connection with the issuance and sale thereof. In the case of the issuance of the Common Stock for a consideration in whole or in part other than cash, the consideration other than cash shall be deemed to be the fair value thereof as determined by the Board of Directors irrespective of any accounting treatment.

(F) **Deemed Issuances of Common Stock.** In the case of the issuance (whether before, on or after the applicable Purchase Date) of securities or rights convertible into, or entitling the holder thereof to receive directly or indirectly, additional shares of Common Stock (the "Common Stock Equivalents"), the following provisions shall apply for all purposes of this Section 4(d)(i):

(1) The aggregate maximum number of shares of Common Stock deliverable upon conversion, exchange or exercise (assuming the satisfaction of any conditions to convertibility, exchangeability or exercisability, including, without limitation, the passage of time, but without taking into account potential antidilution adjustments) of any Common Stock Equivalents and subsequent conversion, exchange or exercise thereof shall be deemed to have been issued at the time such securities were issued or such Common Stock Equivalents were issued and for a consideration equal to the consideration, if any, received by the Corporation for any such securities and related Common Stock Equivalents (excluding any cash received on account of accrued interest or accrued dividends), plus the minimum additional consideration, if any, to be received by the Corporation (without taking into account potential antidilution adjustments) upon the conversion, exchange or exercise of any Common Stock Equivalents (the consideration in each case to be determined in the manner provided in Section 4(d)(i)(F).

(2) In the event of any change in the number of shares of Common Stock deliverable or in the consideration payable to the Corporation upon conversion, exchange or exercise of any Common Stock Equivalents, other than a change resulting from the antidilution provisions thereof, the Conversion Price of the Preferred Stock, to the extent in any way affected by or computed using such Common Stock Equivalents, shall be recomputed to reflect such change, but no further adjustment shall be made for the actual issuance of Common Stock or any payment of such consideration upon the conversion, exchange or exercise of such Common Stock Equivalents.

(3) Upon the termination or expiration of the convertibility, exchangeability or exercisability of any Common Stock Equivalents, the Conversion Price of the Preferred Stock, to the extent in any way affected by or computed using such Common Stock Equivalents, shall be recomputed to reflect the issuance of only the number of shares of Common Stock (and Common Stock Equivalents that remain convertible, exchangeable or exercisable) actually issued upon the conversion, exchange or exercise of such Common Stock Equivalents.

(4) The number of shares of Common Stock deemed issued and the consideration deemed paid therefor pursuant to Section 4(d)(i)(F)(1) shall be appropriately adjusted to reflect any change, termination or expiration of the type described in either Section 4(d)(i)(F)(2) or 4(d)(i)(F)(3).

(G) **No Increased Conversion Price.** Notwithstanding any other provisions of this Section (4)(d)(i), except to the limited extent provided for in Sections 4(d)(i)(F)(2) and 4(d)(i)(F)(3), no adjustment of the Conversion Price pursuant to this Section 4(d)(i) shall have the effect of increasing the Conversion Price above the Conversion Price in effect immediately prior to such adjustment.

(ii) **Stock Splits and Dividends.** In the event the Corporation should at any time after the Purchase Date fix a record date for the effectuation of a split or subdivision of the outstanding shares of Common Stock or the determination of holders of Common Stock entitled to receive a dividend or other distribution payable in additional shares of Common Stock or Common Stock Equivalents without payment of any consideration by such holder for the additional shares of Common Stock or the Common Stock Equivalents (including the additional shares of Common Stock issuable upon conversion or exercise thereof), then, as of such record date (or the date of such dividend distribution, split or subdivision if no record date is fixed), the Conversion Price of the Preferred Stock shall be appropriately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase of the aggregate of shares of Common Stock outstanding and those issuable with respect to such Common Stock Equivalents with the number of shares issuable with respect to Common Stock Equivalents determined from time to time in the manner provided for deemed issuances in Section 4(d)(i)(F).

(iii) **Reverse Stock Splits.** If the number of shares of Common Stock outstanding at any time after the Purchase Date is decreased by a combination of the outstanding shares of Common Stock, then, following the record date of such combination, the

Conversion Price of the Preferred Stock shall be appropriately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in outstanding shares.

(e) **Other Distributions.** In the event the Corporation shall declare a distribution (other than a subdivision, combination or merger or sale of assets transaction provided for elsewhere in this Section 4 or in Section 2 of this Article IV(B)) payable in securities of other persons, evidences of indebtedness issued by the Corporation or other persons, assets (excluding cash dividends) or options or rights not referred to in Section 4(d)(i) or 4(d)(ii), then, in each such case for the purpose of this Section 4(e), the holders of the Preferred Stock shall be entitled to a proportionate share of any such distribution as though they were the holders of the number of shares of Common Stock of the Corporation into which their shares of Preferred Stock are convertible as of the record date fixed for the determination of the holders of Common Stock of the Corporation entitled to receive such distribution.

(f) **Recapitalizations.** If at any time or from time to time there shall be a recapitalization of the Common Stock (other than a subdivision, combination or merger or sale of assets transaction provided for elsewhere in this Section 4 or in Section 2 of this Article IV(B)) provision shall be made so that the holders of the Preferred Stock shall thereafter be entitled to receive upon conversion of such Preferred Stock the number of shares of stock or other securities or property of the Corporation or otherwise, to which a holder of Common Stock deliverable upon conversion would have been entitled on such recapitalization. In any such case, appropriate adjustment shall be made in the application of the provisions of this Section 4 with respect to the rights of the holders of such Preferred Stock after the recapitalization to the end that the provisions of this Section 4 (including adjustment of the Conversion Price then in effect and the number of shares purchasable upon conversion of such Preferred Stock) shall be applicable after that event and be as nearly equivalent as practicable.

(g) **No Impairment.** The Corporation will not, through any reorganization, recapitalization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed hereunder by the Corporation, but will at all times in good faith assist in the carrying out of all the provisions of this Section 4 and in the taking of all such action as may be necessary or appropriate in order to protect the Conversion Rights of the holders of Preferred Stock against impairment.

(h) **No Fractional Shares and Certificate as to Adjustments**.

(i) No fractional shares shall be issued upon the conversion of any share or shares of the Preferred Stock, and the number of shares of Common Stock to be issued shall be rounded down to the nearest whole share. The number of shares issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the number of shares of Common Stock issuable upon such aggregate conversion. If the conversion would result in any fractional share, the Corporation shall, in lieu of issuing any such fractional share, pay the holder thereof an

amount in cash equal to the fair market value of such fractional share on the date of conversion, as determined in good faith by the Board of Directors.

(ii) Upon the occurrence of each adjustment or readjustment of the Conversion Price of the Preferred Stock pursuant to this Section 4, the Corporation, at its expense, shall promptly compute such adjustment or readjustment in accordance with the terms hereof and prepare and furnish to each holder of such Preferred Stock a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, upon the written request at any time of any holder of Preferred Stock, furnish or cause to be furnished to such holder a like certificate setting forth (A) such adjustment and readjustment, (B) the Conversion Price for the Series A Preferred Stock, the Series B Preferred Stock or the Series C Preferred Stock, as the case may be, at the time in effect, and (C) the number of shares of Common Stock and the amount, if any, of other property which at the time would be received upon the conversion of a share of the Series A Preferred Stock, the Series B Preferred Stock or the Series C Preferred Stock, as the case may be.

(i) **Notices of Record Date.** In the event of any taking by the Corporation of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend (other than a cash dividend) or other distribution, any right to subscribe for, purchase or otherwise acquire any shares of stock of any class or any other securities or property, or to receive any other right, the Corporation shall mail to each holder of Preferred Stock, at least 10 days prior to the date specified therein, a notice specifying the date on which any such record is to be taken for the purpose of such dividend, distribution or right, and the amount and character of such dividend, distribution or right.

(j) **Reservation of Stock Issuable Upon Conversion.** The Corporation shall at all times reserve and keep available out of its authorized but unissued shares of Common Stock, solely for the purpose of effecting the conversion of the shares of the Series A Preferred Stock, the Series B Preferred Stock and the Series C Preferred Stock, such number of its shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of such series of Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of such series of Preferred Stock, in addition to such other remedies as shall be available to the holder of such Preferred Stock, the Corporation will take such corporate action as may, in the opinion of its counsel, be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to this Restated Certificate.

(k) **Notices.** Any notice required by the provisions of this Section 4 to be given to the holders of shares of Preferred Stock shall be deemed given if deposited in the United States mail, postage prepaid, and addressed to each holder of record at his address appearing on the books of the Corporation.

(l) **Waiver of Adjustment to Conversion Price.** Notwithstanding anything herein to the contrary, any downward adjustment of the Conversion Price of any series

of Preferred Stock may be waived, either prospectively or retroactively and either generally or in a particular instance, by the consent or vote of the holders of at least sixty percent (60%) of the outstanding shares of Preferred Stock. Any such waiver shall bind all future holders of shares of such series of Preferred Stock.

5. **Voting Rights**.

(a) Except as expressly provided by this Restated Certificate or as provided by law, the holders of Preferred Stock shall have the same voting rights as the holders of Common Stock and shall be entitled to notice of any stockholders' meeting in accordance with the Bylaws of the Corporation, and the holders of Common Stock and the Preferred Stock shall vote together as a single class on all matters. Each holder of Common Stock shall be entitled to one vote for each share of Common Stock held, and each holder of Preferred Stock shall be entitled to the number of votes equal to the number of shares of Common Stock into which such shares of Preferred Stock could be converted. Fractional votes shall not, however, be permitted and any fractional voting rights available on an as-converted basis (after aggregating all shares into which shares of Preferred Stock held by each holder could be converted) shall be rounded to the nearest whole number (with one-half being rounded upward).

(b) At each meeting of stockholders at which members of the Board of Directors are to be elected, or whenever members of the Board of Directors are to be elected by written consent of the stockholders, (i) the holders of Series A Preferred Stock shall have a right to elect two members of the Board of Directors (the " Series A Director Representatives "); (ii) the holders of Series B Preferred Stock shall have a right to elect one member of the Board of Directors (the " Series B Director Representative") (iii) the holders of a majority of the then outstanding shares of Common Stock, voting as a single class, shall have the right to elect two members of the Board of Directors; and (iv) the holders of a majority of the then outstanding shares of Common Stock, voting as a single class, and the holders of at least sixty percent (60%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis, shall have the right to elect the remaining member of the Board of Directors. The Series A Director Representatives and the Series B Director Representative are collectively referred to herein as the " Preferred Director Representatives."

(c) In the case of any vacancy on the Board of Directors occurring because of the death, resignation or removal of a director a successor shall be elected to serve for the unexpired term of the director whose office is vacant by the vote or written consent of the holders of the class or series of shares entitled to elect such director in accordance with the provisions of Section 5(b) above.

6. **Protective Provisions.** So long as at least 500,000 shares of Preferred Stock (subject to adjustment for stock splits, stock dividends, combinations, reclassifications or the like) are outstanding, the Corporation shall not (by amendment, merger, consolidation or otherwise) without first obtaining the approval (by vote or written consent, as provided by law) of the holders of at least at least sixty percent (60%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as converted basis:

(a) amend or waive any provision of the Corporation's Restated Certificate or Bylaws so as to either (i) alter or change the rights, preferences or privileges of the shares of Preferred Stock or (ii) materially and adversely affect the Preferred Stock;

(b) increase or decrease the total number of authorized shares of the Corporation's Common Stock or Preferred Stock;

(c) authorize or issue, or obligate itself to issue, any other equity security, including any security (other than Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock) convertible into or exercisable for any equity security, having a preference over, or being on a parity with, the Series C Preferred Stock, with respect to voting (other than the pari passu voting rights of Common Stock), dividends, redemption, conversion or upon liquidation;

(d) redeem, purchase or otherwise acquire (or pay into or set funds aside for a sinking fund for such purpose) any share or shares of Common Stock; provided, however, that this restriction shall not apply to the repurchase of shares of Common Stock (i) from employees, officers, directors, consultants or other persons performing services for the Corporation or any subsidiary pursuant to agreements under which the Corporation has the option to repurchase such shares at no greater than cost upon the occurrence of certain events, such as the termination of employment, or (ii) through the exercise of any right of first refusal contained in an agreement approved by the Board of Directors;

(e) effect a Liquidation Transaction;

(f) change the number of authorized directors; or

(g) declare or pay a dividend on the Common Stock or the Preferred Stock.

7. **Status of Converted Stock.** In the event any shares of Preferred Stock shall be converted pursuant to Section 4 hereof, the shares so converted shall be cancelled and shall not be issuable by the Corporation. This Restated Certificate shall be appropriately amended to effect the corresponding reduction in the Corporation's authorized capital stock.

(C) **Common Stock.**

1. **Dividend Rights.** Subject to the prior rights of holders of all classes of stock at the time outstanding having prior rights as to dividends, the holders of the Common Stock shall be entitled to receive, when and as declared by the Board of Directors, out of any assets of the Corporation legally available therefor, such dividends as may be declared from time to time by the Board of Directors, subject to a vote by the holders of at least sixty percent (60%) of the outstanding shares of Preferred Stock, voting together as a single class on an as converted basis, to approve such dividends.

2. **Liquidation Rights.** Upon the occurrence of a Liquidation Transaction, the assets of the Corporation shall be distributed as provided in Section 2 of Article IV(B).

3. **Redemption.** The Common Stock is not redeemable at the option of the holder thereof.

4. **Voting Rights.** Each holder of Common Stock shall have the right to one vote per share of Common Stock, and shall be entitled to notice of any stockholders' meeting in accordance with the Bylaws of the Corporation, and shall be entitled to vote upon such matters and in such manner as may be provided by law. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of shares of stock representing a majority of the votes represented by all outstanding shares of stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the Delaware General Corporation Law.

ARTICLE V

The Board of Directors of the Corporation is expressly authorized to make, alter or repeal Bylaws of the Corporation.

ARTICLE VI

Elections of directors need not be by written ballot unless otherwise provided in the Bylaws of the Corporation.

ARTICLE VII

(A) To the fullest extent permitted by the Delaware General Corporation Law, as the same exists or as may hereafter be amended, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director.

(B) The Corporation shall indemnify to the fullest extent permitted by law any person made or threatened to be made a party to an action or proceeding, whether criminal, civil, administrative or investigative, by reason of the fact that he, his testator or intestate is or was a director or officer of the Corporation or any predecessor of the Corporation, or serves or served at any other enterprise as a director or officer at the request of the Corporation or any predecessor to the Corporation.

(C) Neither any amendment nor repeal of this Article VII, nor the adoption of any provision of the Corporation's Certificate of Incorporation inconsistent with this Article VII, shall eliminate or reduce the effect of this Article VII in respect of any matter occurring, or any action or proceeding accruing or arising or that, but for this Article VII, would accrue or arise, prior to such amendment, repeal or adoption of an inconsistent provision."

* * *

The foregoing Amended and Restated Certificate of Incorporation has been duly adopted by this corporation's Board of Directors and stockholders in accordance with the applicable provisions of Sections 228, 242 and 245 of the Delaware General Corporation Law.

Executed at Palo Alto, California, on November 23, 2009.

/s/ Thomas A. Schreck
Thomas A. Schreck
President and Chief Executive Officer

CERTIFICATE OF AMENDMENT OF
AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
ACELRX PHARMACEUTICALS, INC.

Carter King hereby certifies that:

ONE: The original name of this corporation is "SuRx, Inc." and the date of filing of the original Certificate of Incorporation of this corporation with the Secretary of State of the State of Delaware was July 13, 2005.

TWO: He is the duly elected and acting Vice President, Finance of AcelRx Pharmaceuticals, Inc., a Delaware corporation.

THREE: The Board of Directors of the Corporation, acting in accordance with the provisions of Sections 141 and 242 of the General Corporation Law of the State of Delaware, adopted a resolution amending its Amended and Restated Certificate of Incorporation as follows:

1. Section (B)(5)(b) of Article V shall be amended to read in its entirety as follows:

"(b) At each meeting of stockholders at which members of the Board of Directors are to be elected, or whenever members of the Board of Directors are to be elected by written consent of the stockholders, (i) the holders of Series A Preferred Stock shall have a right to elect two members of the Board of Directors (the " Series A Director Representatives "); (ii) the holders of Series B Preferred Stock shall have a right to elect one member of the Board of Directors (the " Series B Director Representative") (iii) the holders of a majority of the then outstanding shares of Common Stock, voting as a single class, shall have the right to elect two members of the Board of Directors; and (iv) the holders of a majority of the then outstanding shares of Common Stock, voting as a single class, and the holders of at least sixty percent (60%) of the then outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis, shall have the right to elect the remaining members of the Board of Directors. The Series A Director Representatives and the Series B Director Representative are collectively referred to herein as the "Preferred Director Representatives."

FOUR: All other provisions of the Amended and Restated Certificate of Incorporation of this corporation shall remain in full force and effect.

FIVE: This Certificate of Amendment of Amended and Restated Certificate of Incorporation has been duly approved by the Board of Directors of this corporation.

SIX: This Certificate of Amendment of Amended and Restated Certificate of Incorporation was approved by the holders of the requisite number of shares of said corporation in accordance with Sections 228 and 242 of the Delaware General Corporation Law.

IN WITNESS WHEREOF, AcelRx Pharmaceuticals, Inc. has caused this Certificate of Amendment of Amended and Restated Certificate of Incorporation to be signed by its Vice President, Finance this 8th day of June, 2010.

ACELRX PHARMACEUTICALS, INC.

By: /s/ Carter King
Carter King
Vice President, Finance

Exhibit 3.3

BYLAWS OF
ACELRX PHARMACEUTICALS, INC.

ARTICLE I
STOCKHOLDERS

1.1 Place of Meetings. All meetings of stockholders shall be held at such place within or without the State of Delaware as may be designated from time to time by the Board of Directors or the President and Chief Executive Officer.

1.2 Annual Meeting. The annual meeting of stockholders for the election of directors and for the transaction of such other business as may properly be brought before the meeting shall be held on a date to be fixed by the Board of Directors at the time and place to be fixed by the Board of Directors and stated in the notice of the meeting.

1.3 Special Meetings. Special meetings of stockholders may be called at any time by the Board of Directors, the Chairman of the Board or the President or the holders of record of not less than 10% of all shares entitled to cast votes at the meeting, for any purpose or purposes prescribed in the notice of the meeting and shall be held at such place, on such date and at such time as the Board may fix. Business transacted at any special meeting of stockholders shall be confined to the purpose or purposes stated in the notice of meeting.

1.4 Notice of Meetings. Written notice of each meeting of stockholders, whether annual or special, shall be given not less than 10 nor more than 60 days before the date on which the meeting is to be held, to each stockholder entitled to vote at such meeting, except as otherwise provided herein or as required by law (meaning here and hereafter, as required from time to time by the Delaware General Corporation Law or the Certificate of Incorporation). The notices of all meetings shall state the place, date and hour of the meeting. The notice of a special meeting shall state, in addition, the purpose or purposes for which the meeting is called. If mailed, notice is given when deposited in the United States mail, postage prepaid, directed to the stockholder at his address as it appears on the records of the corporation.

1.5 Voting List. The officer who has charge of the stock ledger of the corporation shall prepare, at least 10 days before each meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and 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, during ordinary business hours, for a period of at least 10 days prior to the meeting, at a place within the city where the meeting is to be held, which place shall be specified in the notice of the meeting, or if not so specified, at the place where the meeting is to be held. The list shall also be produced and kept at the time and place of the meeting during the whole time of the meeting, and may be inspected by any stockholder who is present. This list shall determine the identity of the stockholders entitled to vote at the meeting and the number of shares held by each of them.

1.6 Quorum. Except as otherwise provided by law or these Bylaws, the holders of a majority of the shares of the capital stock of the corporation entitled to vote at the meeting, present in person or represented by proxy, shall constitute a quorum for the transaction of business. If a quorum shall fail to attend any meeting, the chairman of the meeting or the holders of a majority of the shares of stock entitled to vote who are present, in person or by proxy, may adjourn the meeting to another place, date or time.

If a notice of any adjourned special meeting of stockholders is sent to all stockholders entitled to vote thereat, stating that it will be held with those present constituting a quorum, then except as otherwise required by law, those present at such adjourned meeting shall constitute a quorum, and all matters shall be determined by a majority of the votes cast at such meeting.

1.7 Adjournments. Any meeting of stockholders may be adjourned to any other time and to any other place at which a meeting of stockholders may be held under these Bylaws by the Chairman of the meeting or, in the absence of such person, by any officer entitled to preside at or to act as Secretary of such meeting, or by the holders of a majority of the shares of stock present or represented at the meeting and entitled to vote, although less than a quorum. When a meeting is adjourned to another place, date or time, written notice need not be given of the adjourned meeting if the place, date and time thereof are announced at the meeting at which the adjournment is taken; provided, however, that if the date of any adjourned meeting is more than 30 days after the date for which the meeting was originally noticed, or if a new record date is fixed for the adjourned meeting, written notice of the place, date, and time of the adjourned meeting shall be .given in conformity herewith. At the adjourned meeting, the corporation may transact any business which might have been transacted at the original meeting.

1.8 Voting and Proxies. Each stockholder shall have one vote for each share of stock entitled to vote held of record by such stockholder and a proportionate vote for each fractional share so held, unless otherwise provided by law or in the Certificate of Incorporation. Each stockholder of record entitled to vote at a meeting of stockholders may vote in person or may authorize any other person or persons to vote or act for him by written proxy executed by the stockholder or his authorized agent or by a transmission permitted by law and delivered to the Secretary of the corporation. No stockholder may authorize more than one proxy for his shares. Any copy, facsimile transmission or other reliable reproduction of the writing or transmission created pursuant to this Section may be substituted or used in lieu of the original writing or transmission for any and all purposes for which the original writing or transmission could be used, provided that such copy, facsimile transmission or other reproduction shall be a complete reproduction of the entire original writing or transmission.

1.9 Action at Meeting. When a quorum is present at any meeting, any election shall be determined by a plurality of the votes cast by the stockholders entitled to vote at the election, and all other matters shall be determined by a majority of the votes cast affirmatively or negatively on the matter (or if there are two or more classes of stock entitled to vote as separate classes, then in the case of each such class, a majority of each such class present or represented and voting affirmatively or negatively on the matter) shall decide such matter, except when a different vote is required by express provision of law, the Certificate of Incorporation or these Bylaws.

All voting, including on the election of directors, but excepting where otherwise required by law, may be by a voice vote; provided, however, that upon demand therefor by a stockholder entitled to vote or his or her proxy, a stock vote shall be taken. Every stock vote shall be taken by ballot, each of which shall state the name of the stockholder or proxy voting and such other information as may be required under the procedure established for the meeting. Every vote taken by ballot shall be counted by an inspector or inspectors appointed by the chairman of the meeting. The corporation may, and to the extent required by law, shall, in advance of any meeting of stockholders, appoint one or more inspectors to act at the meeting and make a written report thereof. The corporation may designate one or more persons as an alternate inspector to replace any inspector who fails to act. If no inspector or alternate is able to act at a meeting of stockholders, the person presiding at the meeting may, and to the extent required by law, shall, appoint one or more inspectors to act at the meeting. Each inspector, before entering upon the discharge of his duties, shall take and sign an oath to faithfully execute the duties of inspector with strict impartiality and according to the best of his or her ability.

1.10 Stockholder Action Without Meeting. Any action which may be taken at any annual or special meeting of stockholders may be taken without a meeting and without prior notice, if a consent in writing, setting forth the actions so taken, is signed by the holders of outstanding shares having not less than the minimum number of votes which would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. All such consents shall be filed with the Secretary of the corporation and shall be maintained in the corporate records. Prompt notice of the taking of a corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing.

An electronic transmission consenting to an action to be taken and transmitted by a stockholder, or by a proxy holder or other person authorized to act for a stockholder, shall be deemed to be written, signed and dated for the purpose of this Section 1.10, provided that such electronic transmission sets forth or is delivered with information from which the corporation can determine (i) that the electronic transmission was transmitted by the stockholder or by a person authorized to act for the stockholder and (ii) the date on which such stockholder or authorized person transmitted such electronic transmission. The date on which such electronic transmission is transmitted shall be deemed to be the date on which such consent was signed. No consent given by electronic transmission shall be deemed to have been delivered until such consent is reproduced in paper form and until such paper form shall be delivered to the corporation by delivery to its principal place of business or an officer or agent of the corporation having custody of the books in which proceedings of meetings of stockholders are recorded.

1.11 Meetings by Remote Communication. If authorized by the Board of Directors, and subject to such guidelines and procedures as the Board may adopt, stockholders and proxy holders not physically present at a meeting of stockholders may, by means of remote communication, participate in the meeting and be deemed present in person and vote at the meeting, whether such meeting is to be held at a designated place or solely by means of remote communication, provided that (i) the corporation shall implement reasonable measures to verify that each person deemed present and permitted to vote at the meeting by means of remote communication is a stockholder or proxy holder, (ii) the corporation shall implement reasonable measures to provide such stockholders and proxy holders a reasonable opportunity to participate

in the meeting and to vote on matters submitted to the stockholders, including an opportunity to read or hear the proceedings of the meeting substantially concurrently with such proceedings, and (iii) if any stockholder or proxy holder votes or takes other action at the meeting by means of remote communication, a record of such vote or other action shall be maintained by the corporation.

ARTICLE II
BOARD OF DIRECTORS

2.1 General Powers. The business and affairs of the corporation shall be managed by or under the direction of a Board of Directors, who may exercise all of the powers of the corporation except as otherwise provided by law or the Certificate of Incorporation. In the event of a vacancy in the Board of Directors, the remaining directors, except as otherwise provided by law, may exercise the powers of the full Board until the vacancy is filled.

2.2 Number and Term of Office. The number of directors shall be not less than a minimum of three (3) nor more than a maximum of seven (7) and shall be fixed from time to tune exclusively by 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 for adoption). The number of directors may be increased or decreased at any time and from time to time either by the holders of a majority of the corporation's capital stock or by a majority of the directors then in office. All directors shall hold office until the expiration of the term for which elected and until their respective successors are elected, except in the case of the death, resignation or removal of any director. Election of the directors need not be by written ballot.

2.3 Vacancies and Newly Created Directorships. Subject to the rights of the holders of any series of Preferred Stock then outstanding, newly created directorships resulting from any increase in the authorized number of directors or any vacancies in the Board of Directors resulting from death, resignation, retirement, disqualification or other cause (other than removal from office by a vote of the stockholders) may be filled only by a majority vote of the directors then in office, though less than a quorum, or by the sole remaining director, and directors so chosen shall hold office for a term expiring at the next annual meeting of stockholders. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

2.4 Resignation. Any director may resign by delivering notice in writing or by electronic transmission to the President, Chairman of the Board or Secretary. Such resignation shall be effective upon receipt unless it is specified to be effective at some other time or upon the happening of some other event.

2.5 Removal. Subject to the rights of the holders of any series of Preferred Stock then outstanding, any directors, or the entire Board of Directors, may be removed from office at any time, with or without cause, by the affirmative vote of the holders of a majority of the voting power of all of the outstanding shares of capital stock entitled to vote generally in the election of directors, voting together as a single class. Vacancies in the Board of Directors resulting from

such removal may be filled by a majority of the directors then in office, though less than a quorum, by the sole remaining director, or by the stockholders at the next annual meeting or at a special meeting called in accordance with Section 1.3 above. Directors so chosen shall hold office until the next annual meeting of stockholders.

2.6 Regular Meetings. Regular meetings of the Board of Directors may be held without notice at such time and place, either within or without the State of Delaware, as shall be determined from time to time by the Board of Directors; provided that any director who is absent when such a determination is made shall be given notice of the determination. A regular meeting of the Board of Directors may be held without notice immediately after and at the same place as the annual meeting of stockholders.

2.7 Special Meetings. Special meetings of the Board of Directors may be called by the Chairman of the Board, the President or two or more directors and may be held at any time and place, within or without the State of Delaware.

2.8 Notice of Special Meetings. Notice of any special meeting of directors shall be given to each director by the Secretary or by the officer or one of the directors calling the meeting. Notice shall be duly given to each director by (i) giving notice to such director in person or by telephone, electronic transmission or voice message system at least 24 hours in advance of the meeting, (ii) sending a facsimile, or delivering written notice by hand, to his last known business or home address at least 24 hours in advance of the meeting, or (iii) mailing written notice to his last known business or home address at least three days in advance of the meeting, A notice or waiver of notice of a meeting of the Board of Directors need not specify the purposes of the meeting. Unless otherwise indicated in the notice thereof, any and all business may be transacted at a special meeting.

2.9 Participation in Meetings by Telephone Conference Calls or Other Methods of Communication . Directors or any members of any committee designated by the directors may participate in a meeting of the Board of Directors or such committee 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 by such means shall constitute presence in person at such meeting,

2.10 Quorum. A majority of the total number of authorized directors shall constitute a quorum at any meeting of the Board of Directors. In the event one or more of the directors shall be disqualified to vote at any meeting, then the required quorum shall be reduced by one for each such director so disqualified; provided, however, that in no case shall less than 1/3 of the number so fixed constitute a quorum. In the absence of a quorum at any such meeting, a majority of the directors present may adjourn the meeting from time to time without further notice other than announcement at the meeting, until a quorum shall be present. Interested directors may be counted in determining the presence of a quorum at a meeting of the Board of Directors or at a meeting of a committee which authorizes a particular contract or transaction.

2.11 Action at Meeting. At any meeting of the Board of Directors at which a quorum is present, the vote of a majority of those present shall be sufficient to take any action, unless a different vote is specified by law, the Certificate of Incorporation or these Bylaws.

2.12 Action by Written Consent. Any action required or permitted to be taken at any meeting of the Board of Directors or of any committee of the Board of Directors may be taken without a meeting if all members of the Board or committee, as the case may be, consent to the action in writing or by electronic transmission, and the writings or electronic transmissions are filed with the minutes of proceedings of the Board 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.

2.13 Committees. The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the corporation, with such lawfully delegated powers and duties as it therefor confers, to serve at the pleasure of the Board. The Board 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. In the absence or disqualification of a member of a committee, the member or members of the committee 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. Any such committee, to the extent provided in the resolution of the Board of Directors and subject to the provisions of the Delaware General Corporation Law, 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. Each such committee shall keep minutes and make such reports as the Board of Directors may from time to time request. Except as the Board of Directors may otherwise determine, any committee may make rules for the conduct of its business, but unless otherwise provided by such rules, its business shall be conducted as nearly as possible in the same manner as is provided in these Bylaws for the Board of Directors.

2.14 Compensation of Directors. Directors may be paid such compensation for their services and such reimbursement for expenses of attendance at meetings as the Board of Directors may from time to time determine. No such payment shall preclude any director from serving the corporation or any of its parent or subsidiary corporations in any other capacity and receiving compensation for such service.

2.15 Nomination of Director Candidates. Subject to the rights of holders of any class or series of Preferred Stock then outstanding, nominations for the election of Directors may be made by (i) the Board of Directors or a duly authorized committee thereof or (ii) any stockholder entitled to vote in the election of Directors.

ARTICLE III
OFFICERS

3.1 Enumeration. The officers of the corporation shall consist of a Chief Executive Officer, a President, a Secretary, a Chief Financial Officer/Treasurer and such other officers with such other titles as the Board of Directors shall determine, including, at the discretion of the

Board of Directors, a Chairman of the Board and one or more Vice Presidents and Assistant Secretaries. The Board of Directors may appoint such other officers as it may deem appropriate.

3.2 Election. Officers shall be elected annually by the Board of Directors at its first meeting following the annual meeting of stockholders. Officers may be appointed by the Board of Directors at any other meeting.

3.3 Qualification. No officer need be a stockholder. Any two or more offices may be held by the same person.

3.4 Tenure. Except as otherwise provided by law, by the Certificate of Incorporation or by these Bylaws, each officer shall hold office until his successor is elected and qualified, unless a different term is specified in the vote appointing him, or until his earlier death, resignation or removal.

3.5 Resignation and Removal. Any officer may resign by delivering his written resignation to the corporation at its principal office or to the President or Secretary. Such resignation shall be effective upon receipt unless it is specified to be effective at some other time or upon the happening of some other event. Any officer elected by the Board of Directors may be removed at any time, with or without cause, by the Board of Directors.

3.6 Chairman of the Board. The Board of Directors may appoint a Chairman of the Board. If the Board of Directors appoints a Chairman of the Board, he shall perform such duties and possess such powers as are assigned to him by the Board of Directors. Unless otherwise provided by the Board of Directors, he shall preside at all meetings of the stockholders, and, if he is a director, at all meetings of the Board of Directors.

3.7 President. The President shall, subject to the direction of the Board of Directors, have responsibility for the general management and control of the business and affairs of the corporation and shall perform all duties and have all powers which are commonly incident to the office of President or which are delegated to him or her by the Board of Directors. Unless otherwise designated by the Board of Directors, the President shall be the Chief Executive Officer of the corporation. The President shall, in the absence of or because of the inability to act of the Chairman of the Board, perform all duties of the Chairman of the Board and preside at all meetings of the Board of Directors and of stockholders. The President shall perform such other duties and shall have such other powers as the Board of Directors may from time to time prescribe. He or she shall have power to sign stock certificates, contracts and other instruments of the corporation which are authorized and shall have general supervision and direction of all of the other officers, employees and agents of the corporation, other than the Chairman of the Board.

3.8 Vice Presidents. Any Vice President shall perform such duties and possess such powers as the Board of Directors or the President may from time to time prescribe. In the event of the absence, inability or refusal to act of the President, the Vice President (or if there shall be more than one, the Vice Presidents in the order determined by the Board of Directors) shall perform the duties of the President and when so performing shall have at the powers of and be subject to all the restrictions upon the President. The Board of Directors may assign to any Vice

President the title of Executive Vice President, Senior Vice President or any other title selected by the Board of Directors.

3.9 Secretary and Assistant Secretaries. The Secretary shall perform such duties and shall have such powers as the Board of Directors or the President may from time to time prescribe. In addition, the Secretary shall perform such duties and have such powers as are incident to the office of the Secretary, including, without limitation, the duty and power to give notices of all meetings of stockholders and special meetings of the Board of Directors, to keep a record of the proceedings of all meetings of stockholders and the Board of Directors, to maintain a stock ledger and prepare lists of stockholders and their addresses as required, to be custodian of corporate records and the corporate seal and to affix and attest to the same on documents.

Any Assistant Secretary shall perform such duties and possess such powers as the Board of Directors, the Chief Executive Officer, the President or the Secretary may from time to time prescribe. In the event of the absence, inability or refusal to act of the Secretary, the Assistant Secretary (or if there shall be more than one, the Assistant Secretaries in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Secretary.

In the absence of the Secretary or any Assistant Secretary at any meeting of stockholders or directors, the person presiding at the meeting shall designate a temporary secretary to keep a record of the meeting.

3.10 Chief Financial Officer. Unless otherwise designated by the Board of Directors, the Chief Financial Officer shall be the Treasurer. The Chief Financial Officer shall perform such duties and shall have such powers as may from time to time be assigned to him by the Board of Directors, the Chief Executive Officer or the President. In addition, the Chief Financial Officer shall perform such duties and have such powers as are incident to the office of chief financial officer, including without limitation, the duty and power to keep and be responsible for all funds and securities of the corporation, to maintain the financial records of the corporation, to deposit funds of the corporation in depositories as authorized, to disburse such funds as authorized, to make proper accounts of such funds, and to render as required by the Board of Directors accounts of all such transactions and of the financial condition of the corporation.

3.11 Salaries. Officers of the corporation shall be entitled to such salaries, compensation or reimbursement as shall be fixed or allowed from time to time by the Board of Directors.

3.12 Delegation of Authority. The Board of Directors may from time to time delegate the powers or duties of any officer to any other officers or agents, notwithstanding any provision hereof.

ARTICLE IV
CAPITAL STOCK

4.1 Issuance of Stock. Unless otherwise voted by the stockholders and subject to the provisions of the Certificate of Incorporation, the whole or any part of any unissued balance of

the authorized capital stock of the corporation or the whole or any part of any unissued balance of the authorized capital stock of the corporation held in its treasury may be issued, sold, transferred or otherwise disposed of by vote of the Board of Directors in such manner, for such consideration and on such terms as the Board of Directors may determine.

4.2 Certificates of Stock. Every holder of stock of the corporation shall be entitled to have a certificate, in such form as may be prescribed by law and by the Board of Directors, certifying the number and class of shares owned by him in the corporation. Each such certificate shall be signed by, or in the name of the corporation by, the Chairman or Vice Chairman, if any, of the Board of Directors, or the President or a Vice President, and the Treasurer or an Assistant Treasurer, or the Secretary or an Assistant Secretary of the corporation. Any or all of the signatures on the certificate may be a facsimile.

Each certificate for shares of stock which are subject to any restriction on transfer pursuant to the Certificate of Incorporation, the Bylaws, applicable securities laws or any agreement among any number of shareholders or among such holders and the corporation shall have conspicuously noted on the face or back of the certificate either the full text of the restriction or a statement of the existence of such restriction.

4.3 Transfers. Except as otherwise established by rules and regulations adopted by the Board of Directors, and subject to applicable law, shares of stock may be transferred on the books of the corporation by the surrender to the corporation or its transfer agent of the certificate representing such shares properly endorsed or accompanied by a written assignment or power of attorney properly executed, and with such proof of authority or authenticity of signature as the corporation or its transfer agent may reasonably require. Except as may be otherwise required by law, the Certificate of Incorporation or the Bylaws, the corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes, including the payment of dividends and the right to vote with respect to such stock, regardless of any transfer, pledge or other disposition of such stock until the shares have been transferred on the books of the corporation in accordance with the requirements of these Bylaws.

4.4 Lost, Stolen or Destroyed Certificates. The corporation may issue a new certificate of stock in place of any previously issued certificate alleged to have been lost, stolen, or destroyed, upon such terms and conditions as the Board of Directors may prescribe, including the presentation of reasonable evidence of such loss, theft or destruction and the giving of such indemnity as the Board of Directors may require for the protection of the corporation or any transfer agent or registrar.

4.5 Record Date. The Board of Directors may fix in advance a record date for the determination of the stockholders entitled to notice of or to vote at any meeting of stockholders or to express consent (or dissent) to corporate action in writing without a meeting, or entitled to receive payment of any dividend or other distribution or allotment of any rights in respect of any change, concession or exchange of stock, or for the purpose of any other lawful action. Such record date shall not be more than 60 nor less than 10 days before the date of such meeting, nor more than 60 days prior to any other action to which such record date relates.

If no record date is fixed, 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 before the day on which notice is given, or, if notice is waived, at the close of business on the day before the day on which the meeting is held. The record date for determining stockholders entitled to express consent to corporate action in writing without a meeting when no prior action by the Board of Directors is necessary, shall be the day on which the first written consent is expressed. The record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating to such purpose.

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.

ARTICLE V
GENERAL PROVISIONS

5.1 Fiscal Year. The fiscal year of the corporation shall be as fixed by the Board of Directors.

5.2 Corporate Seal. The corporate seal shall be in such form as shall be approved by the Board of Directors.

5.3 Waiver of Notice. Whenever any notice whatsoever is required to be given by law, by the Certificate of Incorporation or by these Bylaws, a waiver of such notice either in writing signed by the person entitled to such notice or such person's duly authorized attorney, or by electronic transmission or any other method permitted under the Delaware General Corporation Law, whether before, at or after the time stated in such waiver, or the appearance of such person or persons at such meeting in person or by proxy, shall be deemed equivalent to such notice.

5.4 Actions with Respect to Securities of Other Corporations. Except as the Board of Directors may otherwise designate, the Chief Executive Officer or President or any officer of the corporation authorized by the Chief Executive Officer or President shall have the power to vote and otherwise act on behalf of the corporation, in person or proxy, and may waive notice of, and act as, or appoint any person or persons to act as, proxy or attorney-in-fact to this corporation (with or without power of substitution) at any meeting of stockholders or shareholders (or with respect to any action of stockholders) of any other corporation or organization, the securities of which may be held by this corporation and otherwise to exercise any and all rights and powers which this corporation may possess by reason of this corporation's ownership of securities in such other corporation or other organization.

5.5 Evidence of Authority. A certificate by the Secretary, or an Assistant Secretary, or a temporary Secretary, as to any action taken by the stockholders, directors, a committee or any officer or representative of the corporation shall as to all persons who rely on the certificate in good faith be conclusive evidence of such action.

5.6 Certificate of Incorporation. All references in these Bylaws to the Certificate of Incorporation shall be deemed to refer to the Certificate of Incorporation of the corporation, as amended and in effect from time to time.

5.7 Severability. Any determination that any provision of these Bylaws is for any reason inapplicable, illegal or ineffective shall not affect or invalidate any other provision of these Bylaws.

5.8 Pronouns. All pronouns used in these Bylaws shall be deemed to refer to the masculine, feminine or neuter, singular or plural, as the identity of the person or persons may require.

5.9 Notices. Except as otherwise specifically provided herein or required by law, all notices required to be given to any stockholder, director, officer, employee or agent shall be in writing and may in every instance be effectively given by hand delivery to the recipient thereof, by depositing such notice in the mails, postage paid, or by sending such notice by facsimile or other electronic transmission in the manner provided in Section 232 of the Delaware General Corporation Law, or by commercial courier service. Any such notice shall be addressed to such stockholder, director, officer, employee or agent at his or her last known address as the same appears on the books of the corporation. The time when such notice shall be deemed to be given shall be the time such notice is received by such stockholder, director, officer, employee or agent, or by any person accepting such notice on behalf of such person, if delivered by hand, facsimile, other electronic transmission or commercial courier service, or the time such notice is dispatched, if delivered through the mails.

5.10 Reliance Upon Books, Reports and Records. Each director, each member of any committee designated by the Board of Directors, and each officer of the corporation shall, in the performance of his duties, be fully protected in relying in good faith upon the books of account or other records of the corporation, including reports made to the corporation by any of its officers, by an independent certified public accountant, or by an appraiser selected with reasonable care.

5.11 Time Periods. In applying any provision of these Bylaws which require that an act be done or not done a specified number of days prior to an event or that an act be done during a period of a specified number of days prior to an event, calendar days shall be used, the day of the doing of the act shall be excluded, and the day of the event shall be included.

5.12 Facsimile Signatures. In addition to the provisions for use of facsimile signatures elsewhere specifically authorized in these Bylaws, facsimile signatures of any officer or officers of the corporation may be used whenever and as authorized by the Board of Directors or a committee thereof.

5.13 Annual Report. For so long as the corporation has fewer than 100 holders of record of its shares, the mandatory requirement of an annual report under Section 1501 of the California Corporations Code is hereby expressly waived.

ARTICLE VI
AMENDMENTS

6.1 By the Board of Directors. Except as is otherwise set forth in these Bylaws, these Bylaws may be altered, amended or repealed or new Bylaws may be adopted by the affirmative vote of a majority of the directors present at any regular or special meeting of the Board of Directors at which a quorum is present.

6.2 By the Stockholders. Except as otherwise set forth in these Bylaws, these Bylaws may be altered, amended or repealed or new Bylaws may be adopted by the affirmative vote of the holders of at least a majority of the shares of the capital stock of the corporation issued and outstanding and entitled to vote at any annual meeting of stockholders, or at any special meeting of stockholders, provided notice of such alteration, amendment, repeal or adoption of new Bylaws shall have been stated in the notice of such special meeting.

ARTICLE VII
INDEMNIFICATION OF DIRECTORS AND OFFICERS

7.1 Right to Indemnification. Each person who was or is made a party or is threatened to be made a party to or is involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative ("proceeding"), by reason of the fact that he or she or a person of whom he or she is the legal representative, 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, or as a controlling person of a partnership, joint venture, trust or other enterprise, including service with respect to employee benefit plans, whether the basis of such proceeding is alleged action in an official capacity as a director or officer, or in any other capacity while serving as a director or officer, shall be indemnified and held harmless by the corporation to the fullest extent authorized by the Delaware General Corporation Law, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the corporation to provide broader indemnification rights than said Law permitted the corporation to provide prior to such amendment) against all expenses, liability and loss reasonably incurred or suffered by such person in connection therewith and such indemnification shall continue as to a person who has ceased to be a director or officer and shall inure to the benefit of his or her heirs, executors and administrators; provided, however, that except as provided in Section 7.2 of this Article VII, the corporation shall indemnify any such person seeking indemnity in connection with a proceeding (or part thereof) initiated by such person only if (a) such indemnification is expressly required to be made by law, (b) the proceeding (or part thereof) was authorized by the Board of Directors of the corporation, (c) such indemnification is provided by the corporation, in its sole discretion, pursuant to the powers vested in the corporation under the Delaware General Corporation Law, or (d) the proceeding (or part thereof) is brought to establish or enforce a right to indemnification under an indemnity agreement or any other statute or law or otherwise as required under Section 145 of the Delaware General Corporation Law. The rights hereunder shall be contract rights and shall include the right to be paid expenses incurred in defending any such proceeding

in advance of its final disposition; provided, however, that, unless the Delaware General Corporation Law then so prohibits, the payment of such expenses incurred by a director or officer of the corporation in his or her capacity as a director or officer (and not in any other capacity in which service was or is tendered by such person while a director or officer, including, without limitation, service to an employee benefit plan) in advance of the final disposition of such proceeding, shall be made only upon delivery to the corporation of an undertaking, by or on behalf of such director or officer, to repay all amounts so advanced if it should be determined ultimately that such director or officer is not entitled to be indemnified under this Section or otherwise.

7.2 Right of Claimant to Bring Suit. If a claim under Section 7.1 is not paid in full by the corporation within 90 days after a written claim has been received by the corporation, the claimant may at any time thereafter bring suit against the corporation to recover the unpaid amount of the claim and, if such suit is not frivolous or brought in bad faith, the claimant shall be entitled to be paid also the expense of prosecuting such claim. It shall be a defense to any such action (other than an action brought to enforce a claim for expenses incurred in defending any proceeding in advance of its final disposition where the required undertaking, if any, has been tendered to this corporation) that the claimant has not met the standards of conduct which make it permissible under the Delaware General Corporation Law for the corporation to indemnify the claimant for the amount claimed. 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 he or she has met the applicable standard of conduct set forth in the Delaware General Corporation 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.

7.3 Indemnification of Employees and Agents. The corporation may, to the extent authorized from time to time by the Board of Directors, grant rights to indemnification, and to the advancement of related expenses, to any employee or agent of the corporation to the fullest extent of the provisions of this Article with respect to the indemnification of and advancement of expenses to directors and officers of the corporation.

7.4 Non-Exclusivity of Rights. The rights conferred on any person in Sections 7.1 and 7.2 shall not be exclusive of any other right which such persons may have or hereafter acquire under any statute, provision of the Certificate of Incorporation, bylaw, agreement, vote of stockholders or disinterested directors or otherwise.

7.5 Indemnification Contracts. The Board of Directors is authorized to enter into a contract with any director, officer, employee or agent of the corporation, or any person serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, including employee benefit plans, providing for indemnification rights equivalent to or, if the Board of Directors so determines, greater than, those provided for in this Article VII.

7.6 Insurance. The corporation may maintain insurance to the extent reasonably available, at its expense, to protect itself and any such director, officer, employee or agent of the corporation or another corporation, partnership, joint venture, trust or other enterprise against any such expense, liability or loss, whether or not the corporation would have the power to indemnify such person against such expense, liability or loss under the Delaware General Corporation Law.

7.7 Effect of Amendment. Any amendment, repeal or modification of any provision of this Article VII by the stockholders and the directors of the corporation shall not adversely affect any right or protection of a director or officer of the corporation existing at the time of such amendment, repeal or modification.

Exhibit 4.3

ACELRX PHARMACEUTICALS, INC.

SECOND AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

November 23, 2009

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ACELRX PHARMACEUTICALS, INC.

SECOND AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

This Second Amended and Restated Investors' Rights Agreement (the " Agreement") is made as of the 23rd day of November, 2009, by and among AcelRx Pharmaceuticals, Inc., a Delaware corporation (the " Company"), the investors listed on Exhibit A hereto (each, an "Investor"), the holders of Series B Preferred Stock of the Company listed on Exhibit B hereto (the "Series B Holders") and the holders of Series A Preferred Stock of the Company listed on Exhibit C hereto (the "Series A Holders", and collectively with the Series B Holders and the Investors, the "Parties").

RECITALS

In connection with the sale and issuance of the Series A Preferred Stock of the Company, the Company and the Series A Holders entered into that certain Investors' Rights Agreement, dated as of August 15, 2006 (the "Investors' Rights Agreement"), pursuant to which the Series A Holders were granted the right to cause the Company to register shares of Common Stock issued or issuable to them, among other rights, as set forth in the Investors' Rights Agreement.

In connection with the sale and issuance of the Series B Preferred Stock of the Company, the Company, the Series A Holders and the Series B Holders entered into that certain First Amended and Restated Investors' Rights Agreement, dated as of February 4, 2008 (the "Prior Agreement"), providing for the amendment and restatement of the Investors' Rights Agreement and pursuant to which the Series A Holders and Series B Holders were granted the right to cause the Company to register shares of Common Stock issued or issuable to them, among other rights, as set forth in the Prior Agreement.

The Company and the Investors are parties to the Series C Preferred Stock Purchase Agreement of even date herewith (the "Purchase Agreement"). In order to induce the Investors to purchase Series C Preferred Stock of the Company and invest funds in the Company pursuant to the Purchase Agreement, the Company, the Series A Holders, the Series B Holders and the Investors hereby agree that this Agreement shall govern the rights of the Investors to cause the Company to register shares of Common Stock issued or issuable to them, among other rights, as set forth herein.

The Company, the Series A Holders and the Series B Holders desire to amend and restate the Prior Agreement, pursuant to Section 3.4 thereof, to provide the Investors with such registration rights and such other rights set forth herein.

AGREEMENT

The parties hereby agree to amend and restate the Prior Agreement in its entirety as follows:

1. **Registration Rights.** The Company covenants and agrees as follows:

1.1 **Definitions.** For purposes of this Section 1:

(a) "Affiliated Fund" means, with respect to a Holder that is a limited liability company or a limited liability partnership, a fund or entity managed by the same manager or managing member or general partner or management company or by an entity controlling, controlled by, or under common control with such manager or managing member or general partner or management company. For purposes of this Agreement, Kaiser Foundation Hospitals and The Permanente Federation LLC – Series G shall be deemed to be Affiliated Funds of each other;

(b) "Exchange Act" means the Securities Exchange Act of 1934, as amended (and any successor thereto) and the rules and regulations promulgated thereunder;

(c) "Excluded Registration" means a registration statement relating solely to the sale of securities of participants in a Company stock plan, a registration relating to a corporate reorganization or transaction under Rule 145 of the Securities Act, or a registration in which the only common stock being registered is common stock issuable upon conversion of debt securities which are also being registered;

(d) "Form S-3" means such form under the Securities Act as in effect on the date hereof or any successor form under the Securities Act that permits significant incorporation by reference of the Company's subsequent public filings under the Exchange Act;

(e) "Holder" means any person or entity owning or having the right to acquire Registrable Securities or any assignee thereof in accordance with Section 1.12 of this Agreement;

(f) "Major Investor" means any Holder that holds at least 200,000 shares of Preferred Stock (as defined below) or the Common Stock issued upon conversion thereof (subject to adjustment for stock splits, stock dividends, combinations, reclassifications or the like). A Major Investor includes any general partners, managing members and affiliates of a Major Investor, including Affiliated Funds;

(g) "Preferred Stock" means shares of Series A Preferred Stock of the Company, Series B Preferred Stock of the Company and Series C Preferred Stock of the Company.

(h) "Qualified IPO" means a firm commitment underwritten public offering by the Company of shares of its Common Stock prior to or in connection with which all the then-outstanding shares of Preferred Stock are automatically converted into shares of Common Stock pursuant to the Restated Charter (as defined below);

(i) "Register," "registered," and "registration" refer to a registration effected by preparing and filing a registration statement or similar document in compliance with the Securities Act, and the declaration or ordering of effectiveness of such registration statement or document;

(j) "Registrable Securities" means (i) the shares of Common Stock issuable or issued upon conversion of Preferred Stock held by the Holders and any assignee thereof in accordance with Section 1.12 of this Agreement, and (ii) any other shares of Common Stock of the Company issued as (or issuable upon the conversion or exercise of any warrant, right or other security which is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares listed in (i); excluding, however, in all cases any Registrable Securities sold in a transaction in which the rights under this Agreement are not assigned, or any shares for which registration rights have terminated pursuant to Section 1.15 of this Agreement;

(k) The number of shares of "Registrable Securities then outstanding" shall be determined by the number of shares of Common Stock outstanding which are, and the number of shares of Common Stock issuable pursuant to then exercisable or convertible securities which are, Registrable Securities;

(l) "Restated Charter" means the Company's Amended and Restated Certificate of Incorporation, as amended from time to time;

(m) "SEC" means the Securities and Exchange Commission; and

(n) "Securities Act" means the Securities Act of 1933, as amended (and any successor thereto) and the rules and regulations promulgated thereunder.

1.2 **Request for Registration.**

(a) If the Company shall receive at any time after the earlier of (i) the fourth anniversary of the date hereof, or (ii) six months after the effective date of the Qualified IPO, a written request from the Holders of at least sixty percent (60%) of the Registrable Securities then outstanding (the "Initiating Holders") that the Company file a registration statement under the Securities Act covering the registration of Registrable Securities with an anticipated aggregate offering price to the public of at least $10,000,000, then the Company shall, within 20 days after receiving such request, give written notice of such request to all Holders and shall, subject to the limitations of subsection 1.2(b), use all commercially reasonable efforts to cause to be registered under the Securities Act all of the Registrable Securities that each such Holder has requested to be registered within 20 days after the mailing of such notice by the Company.

(b) If the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request and the Company shall include such information in the written notice referred to in subsection 1.2(a). The underwriter will be selected by the Company, which underwriter shall be reasonably acceptable to the holders of at least sixty percent (60%) of the outstanding shares of the Registrable Securities that are to be included in the underwriting. In such event, the right of any Holder to include his Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting (unless otherwise mutually agreed by at least

sixty percent (60%) of the outstanding shares held by the Initiating Holders and such Holder) to the extent provided herein. The Company and all Holders proposing to distribute their securities through such underwriting shall enter into an underwriting agreement in customary form with the underwriter or underwriters selected for such underwriting. Notwithstanding any other provision of this Section 1.2, if the underwriter advises the Company in good faith that marketing factors require a limitation of the number of shares to be underwritten, then the Company shall so advise all Holders of Registrable Securities which would otherwise be underwritten pursuant hereto, and the number of shares of Registrable Securities that may be included in the underwriting shall be allocated among all participating Holders thereof, including the Initiating Holders, in proportion (as nearly as practicable) to the amount of Registrable Securities of the Company owned by each participating Holder. In no event shall any Registrable Securities be excluded from such underwriting unless all other securities are first excluded from such offering. Any Registrable Securities excluded from or withdrawn from such underwriting shall be withdrawn from the registration.

(c) Notwithstanding the foregoing, if the Company shall furnish to the Initiating Holders a certificate signed by the President of the Company stating that in the good faith judgment of the Board of Directors of the Company it would be seriously detrimental to the Company and its stockholders for such registration statement to be filed, the Company shall have the right to defer such filing for a period of not more than 45 days after receipt of the request of the Initiating Holders; provided, however, that the Company may not utilize this right or the similar right set forth in Section 1.4(b)(iii) more than twice in any 12-month period, and provided, further, that the Company shall not register any securities for the account of itself or any other stockholder during each such 45-day period (other than in a Qualified IPO or an Excluded Registration).

(d) In addition, the Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to this Section 1.2:

(i) After the Company has effected two (2) registrations pursuant to this Section 1.2(a), provided, however, that such registrations have been declared or ordered effective and that either (A) the conditions of Section 1.5(a) have been satisfied, or (B) the registration statements remain effective and there are no stop orders in effect to such registration statements;

(ii) During the period starting with the date 90 days prior to the Company's good faith estimate of the date of filing of, and ending on a date 180 days after the effective date of, a registration subject to Section 1.3 hereof unless such offering is not the initial public offering of the Company's securities, in which case, ending on a date 90 days after the effective date of such registration subject to Section 1.3 hereof; provided that the Company is actively employing in good faith all commercially reasonable efforts to cause such registration statement to become effective; or

(iii) If the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Section 1.4 below.

1.3 **Company Registration.**

(a) If (but without any obligation to do so) the Company proposes to register (including for this purpose a registration effected by the Company for stockholders other than the Holders) any of its stock under the Securities Act in connection with the public offering of such securities solely for cash (other than an Excluded Registration), the Company shall, at such time, promptly give each Holder written notice of such registration. Upon the written request of each Holder given within 20 days after mailing of such notice by the Company in accordance with Section 3.5, the Company shall, subject to the provisions of Section 1.8, use all commercially reasonable efforts to cause to be registered under the Securities Act all of the Registrable Securities that each such Holder has requested to be registered if any stock of the Company is registered.

(b) The Company shall have the right to terminate or withdraw any registration initiated by it under this Section 1.3 prior to the effectiveness of such registration whether or not any Holder has elected to include securities in such registration. The expenses of such registration shall be borne by the Company, in accordance with Section 1.7 hereof.

1.4 **Form S-3 Registration.** In case the Company shall receive from Holders of at least 10% of Registrable Securities then outstanding a written request or requests that the Company effect a registration on Form S-3 and any related qualification or compliance with respect to all or a part of the Registrable Securities owned by such Holder or Holders, the Company will:

(a) promptly give written notice of the proposed registration, and any related qualification or compliance, to all other Holders; and

(b) use all commercially reasonable efforts to effect, as soon as practicable, such registration and all such qualifications and compliances as may be so requested and as would permit or facilitate the sale and distribution of all or such portion of such Holder's or Holders' Registrable Securities as are specified in such request, together with all or such portion of the Registrable Securities of any other Holder or Holders joining in such request as are specified in a written request given within 15 days after receipt of such written notice from the Company; provided, however, that the Company shall not be obligated to effect any such registration, qualification or compliance, pursuant to this Section 1.4: (i) if Form S-3 is not available for such offering by the Holders; (ii) if the Holders, together with the holders of any other securities of the Company entitled to inclusion in such registration, propose to sell Registrable Securities and such other securities (if any) at an aggregate price to the public of less than $1,000,000; (iii) if the Company shall furnish to the Holders a certificate signed by the President of the Company stating that in the good faith judgment of the Board of Directors of the Company, it would be seriously detrimental to the Company and its stockholders for such registration statement to be filed, the Company shall have the right to defer such filing for a period of not more than 45 days after receipt of the request of the Holder or Holders under this Section 1.4; provided, however, that the Company shall not utilize this right or the similar right set forth in Section 1.2(c) more than twice in any 12-month period; (iv) if the Company has, within the 12-month period preceding the date of such request, already effected two registrations

on Form S-3 for the Holders pursuant to this Section 1.4; (v) in any jurisdiction in which the Company would be required to qualify to do business or to execute a general consent to service of process in effecting such registration, qualification or compliance unless the Company is already qualified to do business or subject to service of process in that jurisdiction; or (vi) during the period ending 180 days after the effective date of a registration statement subject to Section 1.3.

(c) Subject to the foregoing, the Company shall file a registration statement covering the Registrable Securities and other securities so requested to be registered as soon as practicable after receipt of the request or requests of the Holders. Registrations effected pursuant to this Section 1.4 shall not be counted as demands for registration or registrations effected pursuant to Sections 1.2 or 1.3, respectively.

1.5 **Obligations of the Company.** Whenever required under this Section 1 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) Prepare and file with the SEC a registration statement with respect to such Registrable Securities and use all commercially reasonable efforts to cause such registration statement to become effective, and, upon the request of the Holders of at least sixty percent (60%) of the Registrable Securities registered thereunder, keep such registration statement effective for up to 120 days, or until the distribution described in such registration statement is completed, if earlier.

(b) Prepare and file with the SEC such amendments and supplements to such registration statement and the prospectus used in connection with such registration statement as may be necessary to comply with the provisions of the Securities Act with respect to the disposition of all securities covered by such registration statement for up to 120 days, or until the distribution described in such registration statement is completed, if earlier.

(c) Promptly notify the Holders of the effectiveness of such registration statement, and furnish to the Holders such numbers of copies of a prospectus, including any supplement to the prospectus, in conformity with the requirements of the Securities Act, and such other documents as they may reasonably request in order to facilitate the disposition of Registrable Securities owned by them.

(d) Following the effective date of such registration statement, notify the Holders of any request by the SEC that the Company amend or supplement such registration statement, or the associated prospectus.

(e) Use all commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or Blue Sky laws of such jurisdictions as shall be reasonably requested by the Holders, provided that the Company shall not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such states or jurisdictions unless the Company is already qualified to do business or subject to service of process in that jurisdiction.

(f) In the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the managing underwriter of such offering. Each Holder and other security holder participating in such underwriting shall also enter into and perform its obligations under such an agreement.

(g) Notify each Holder of Registrable Securities covered by such registration statement at any time when a prospectus relating thereto is required to be delivered under the Securities Act of the happening of any event as a result of which the prospectus included in such registration statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein not misleading in the light of the circumstances then existing, such obligation to continue for 120 days or until the distribution described in such registration statement is completed, if earlier.

(h) Cause all such Registrable Securities registered pursuant to this Section 1 to be listed on each national securities exchange or trading system on which similar securities issued by the Company are then listed.

(i) Provide a transfer agent and registrar for all Registrable Securities registered pursuant hereunder and a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration.

(j) Make generally available to its security holders, and to deliver to each Holder participating in the registration statement, an earnings statement of the Company that will satisfy the provisions of Section 11(a) of the Securities Act covering a period of 12 months beginning after the effective date of such registration statement as soon as reasonably practicable after the termination of such 12-month period.

1.6 **Information From Holders.** It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 1 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding such Holder, the Registrable Securities held by it, and the intended method of disposition of such securities as shall be required to effect the registration of such Holder's Registrable Securities. The Company shall have no obligation with respect to any registration requested pursuant to Section 1.2 or Section 1.4 of this Agreement if, as a result of the application of the preceding sentence, the anticipated aggregate offering price of the Registrable Securities to be included in the registration does not equal or exceed the anticipated aggregate offering price required to originally trigger the Company's obligation to initiate such registration as specified in subsection 1.2(a) or subsection 1.4(b)(ii), whichever is applicable.

1.7 **Expenses of Registration.** All expenses other than underwriting discounts and commissions incurred in connection with registrations, filings or qualifications pursuant to Sections 1.2, 1.3 and 1.4 including (without limitation) all registration, filing and qualification fees, printers' and accounting fees, fees and disbursements of counsel for the Company, and the reasonable fees and disbursements of one counsel for the selling Holders selected by them with the approval of the Company, which approval shall not be unreasonably

withheld, shall be borne by the Company; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Section 1.2 or 1.4 if the registration request is subsequently withdrawn at the request of the Holders of at least sixty percent (60%) of the Registrable Securities to be registered (in which case all participating Holders shall bear such expenses), unless the Holders of at least sixty percent (60%) of the Registrable Securities agree to forfeit their right to one demand registration pursuant to Section 1.2 or one right to a Form S-3 registration under Section 1.4, as the case may be; provided further, however, that if at the time of such withdrawal, the Holders (i) have learned of a material adverse change in the condition, business, or prospects of the Company that was not known to the Holders at the time of their request and (ii) have withdrawn the request with reasonable promptness following disclosure by the Company of such material adverse change, then the Holders shall not be required to pay any of such expenses and shall not forfeit their rights pursuant to Section 1.2 or Section 1.4, as the case may be.

1.8 **Underwriting Requirements.** In connection with any offering involving an underwriting of shares of the Company's capital stock, the Company shall not be required under Section 1.3 to include any of the Holders' securities in such underwriting unless they accept the terms of the underwriting as agreed upon between the Company and the underwriters selected by the Company (or by other persons entitled to select the underwriters), and then only in such quantity as the underwriters determine in their sole discretion will not jeopardize the success of the offering by the Company. If the total amount of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the amount of securities sold other than by the Company that the underwriters determine in their sole discretion is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters determine in their sole discretion will not jeopardize the success of the offering (the securities so included to be apportioned pro rata among the selling stockholders according to the total amount of securities entitled to be included therein owned by each selling stockholder or in such other proportions as shall mutually be agreed to by such selling stockholders) but in no event shall the amount of securities of the selling Holders included in the offering be reduced below 30% of the total amount of securities included in such offering, unless such offering is the initial public offering of the Company's securities, in which case, the selling stockholders may be excluded if the underwriters make the determination described above and no other stockholder's securities are included. For purposes of the preceding parenthetical concerning apportionment, for any selling stockholder which is a holder of Registrable Securities and which is a venture capital fund, or a partnership or corporation, the Affiliated Funds, partners, retired partners and stockholders of such holder, or the estates and family members of any such partners and retired partners and any trusts for the benefit of any of the foregoing persons shall be deemed to be a single "selling stockholder," and any pro-rata reduction with respect to such "selling stockholder" shall be based upon the aggregate amount of shares carrying registration rights owned by all entities and individuals included in such "selling stockholder," as defined in this sentence. Notwithstanding the foregoing, in no event shall any Registrable Securities be excluded from such offering unless all other stockholders' securities have first been excluded.

1.9 **Delay of Registration.** No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any such registration as the result of any

controversy that might arise with respect to the interpretation or implementation of this Section 1.

1.10 **Indemnification.** In the event any Registrable Securities are included in a registration statement under this Section 1:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each Holder, any underwriter (as defined in the Securities Act) for such Holder and each person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any losses, claims, damages, or liabilities (joint or several) to which they may become subject under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages, or liabilities (or actions in respect thereof) arise out of or are based upon any of the following statements, omissions or violations (collectively a "Violation"): (i) any untrue statement or alleged untrue statement of a material fact contained in such registration statement, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto, (ii) the omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading, or (iii) any violation or alleged violation by the Company of the Securities Act, the Exchange Act, any state securities law or any rule or regulation promulgated under the Securities Act, the Exchange Act or any state securities law; and the Company will pay to each such Holder, underwriter or controlling person, as incurred, any legal or other expenses reasonably incurred by them in connection with investigating or defending any such loss, claim, damage, liability, or action; provided, however, that the indemnity agreement contained in this subsection 1.10(a) shall not apply to amounts paid in settlement of any such loss, claim, damage, liability, or action if such settlement is effected without the consent of the Company (which consent shall not be unreasonably withheld), nor shall the Company be liable to any Holder, underwriter or controlling person for any such loss, claim, damage, liability, or action to the extent that it arises out of or is based upon a Violation which occurs in reliance upon and in conformity with written information furnished expressly for use in connection with such registration by any such Holder, underwriter or controlling person.

(b) To the extent permitted by law, each selling Holder will indemnify and hold harmless the Company, each of its directors, each of its officers who has signed the registration statement, each person, if any, who controls the Company within the meaning of the Securities Act, any underwriter, any other Holder selling securities in such registration statement and any controlling person of any such underwriter or other Holder, against any losses, claims, damages, or liabilities (joint or several) to which any of the foregoing persons may become subject, under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages, or liabilities (or actions in respect thereto) arise out of or are based upon any Violation, in each case to the extent (and only to the extent) that such Violation occurs in reliance upon and in conformity with written information furnished by such Holder expressly for use in connection with such registration; and each such Holder will pay, as incurred, any legal or other expenses reasonably incurred by any person intended to be indemnified pursuant to this subsection 1.10(b), in connection with investigating or defending any such loss, claim, damage, liability, or action; provided, however, that the indemnity agreement contained in this subsection 1.10(b) shall not apply to amounts paid in settlement of any such loss, claim, damage,

liability or action if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld; provided, that in no event shall any indemnity under this subsection 1.10(b) exceed the net proceeds from the offering received by such Holder, except in the case of willful fraud by such Holder.

(c) Promptly after receipt by an indemnified party under this Section 1.10 of notice of the commencement of any action (including any governmental action), such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Section 1.10, deliver to the indemnifying party a written notice of the commencement thereof and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party (together with all other indemnified parties which may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the reasonable fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such proceeding. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action, if prejudicial to its ability to defend such action, shall relieve such indemnifying party of any liability to the indemnified party under this Section 1.10, but the omission so to deliver written notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Section 1.10.

(d) If the indemnification provided for in this Section 1.10 is held by a court of competent jurisdiction to be unavailable to an indemnified party with respect to any loss, liability, claim, damage or expense referred to therein, then the indemnifying party, in lieu of indemnifying such indemnified party hereunder, shall contribute to the amount paid or payable by such indemnified party as a result of such loss, liability, claim, damage, or expense in such proportion as is appropriate to reflect the relative fault of the indemnifying party on the one hand and of the indemnified party on the other in connection with the statements or omissions that resulted in such loss, liability, claim, damage or expense as well as any other relevant equitable considerations; provided, that in no event shall any contribution by a Holder under this Subsection 1.10(d) when combined with any amounts paid by such Holder pursuant to Subsection 1.10(b) exceed the net proceeds from the offering received by such Holder, except in the case of willful fraud by such Holder. The relative fault of the indemnifying party and of the indemnified party 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 indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

(f) The obligations of the Company and Holders under this Section 1.10 shall survive the completion of any offering of Registrable Securities in a registration statement under this Section 1, and otherwise.

1.11 **Reports Under the Exchange Act.** With a view to making available to the Holders the benefits of Rule 144 promulgated under the Securities Act and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company agrees to:

(a) make and keep public information available, as those terms are understood and defined in SEC Rule 144, at all times after 90 days after the effective date of the Qualified IPO so long as the Company remains subject to the periodic reporting requirements under Sections 13 or 15(d) of the Exchange Act;

(b) take such action, including the voluntary registration of its Common Stock under Section 12 of the Exchange Act, as is necessary to enable the Holders to utilize Form S-3 for the sale of their Registrable Securities, such action to be taken as soon as practicable after the end of the fiscal year in which the first registration statement filed by the Company for the offering of its securities to the general public is declared effective;

(c) file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act; and

(d) furnish to any Holder upon request, so long as the Holder owns any Registrable Securities, (i) a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144 (at any time after 90 days after the effective date of the Qualified IPO), the Securities Act and the Exchange Act (at any time after it has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after it so qualifies), (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company, and (iii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC which permits the selling of any such securities without registration or pursuant to such form.

1.12 **Assignment of Registration Rights.** The rights to cause the Company to register Registrable Securities pursuant to this Section 1 may be assigned (but only with all related obligations) by a Holder to a transferee or assignee (i) of at least 100,000 shares of such securities (subject to adjustment for stock splits, stock dividends, reclassification or the like), (or if the transferring Holder owns less than 100,000 shares of such securities, then all Registrable Securities held by the transferring Holder), (ii) that is a subsidiary, parent, partner, limited partner, retired partner, member, retired member or stockholder of a Holder, (iii) that is an Affiliated Fund, (iv) who is a Holder's child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law (such a relation, a Holder's "Immediate Family Member", which term shall include adoptive relationships), or (v) that is a trust for the benefit of an individual Holder or such Holder's Immediate Family Member, provided the Company is, within a reasonable time

after such transfer, furnished with written notice of the name and address of such transferee or assignee and the securities with respect to which such registration rights are being assigned; and provided, further , that such assignment shall be effective only if the transferee agrees in writing to be bound by this Agreement and immediately following such transfer the further disposition of such securities by the transferee or assignee is restricted under the Securities Act. For the purposes of determining the number of shares of Registrable Securities held by a transferee or assignee, the holdings of transferees and assignees of (x) a partnership who are partners or retired partners of such partnership or (y) a limited liability company who are members or retired members of such limited liability company (including Immediate Family Members of such partners or members who acquire Registrable Securities by gift, will or intestate succession) shall be aggregated together and with the partnership or limited liability company; provided that all assignees and transferees who would not qualify individually for assignment of registration rights shall have a single attorney-in-fact for the purpose of exercising any rights, receiving notices or taking any action under Section 1.

1.13 **Limitations on Subsequent Registration Rights** . From and after the date of this Agreement, the Company shall not, without the prior written consent of the Holders of at least sixty percent (60%) of the outstanding Registrable Securities, enter into any agreement with any holder or prospective holder of any securities of the Company which would allow such holder or prospective holder (a) to include any of such securities in any registration filed under Section 1.2, Section 1.3 or Section 1.4 hereof, unless under the terms of such agreement, such holder or prospective holder may include such securities in any such registration only to the extent that the inclusion of his securities will not reduce the amount of the Registrable Securities of the Holders which is included or (b) to make a demand registration which could result in such registration statement being declared effective prior to the earlier of either of the dates set forth in subsection 1.2(a) or within 120 days of the effective date of any registration effected pursuant to Section 1.2.

1.14 **Lock-Up Agreement.**

(a) **Lock-Up Period; Agreement.** In connection with the initial public offering of the Company's securities and upon request of the Company or the underwriters managing such offering of the Company's securities, each Holder agrees not to sell, make any short sale of, loan, grant any option for the purchase of, or otherwise dispose of any securities of the Company, however or whenever acquired (other than those included in the registration) without the prior written consent of the Company or such underwriters, as the case may be, for such period of time (not to exceed 180 days but subject to such extension or extensions as may be required by the underwriters in order to publish research reports while complying with the Rule 2711 of the National Association of Securities Dealers, Inc.) from the effective date of such registration statement as may be requested by the Company or such managing underwriters and to execute an agreement reflecting the foregoing as may be requested by the underwriters at the time of the Company's initial public offering.

(b) **Limitations.** The obligations described in Section 1.14(a) shall apply only if all officers and directors of the Company and all greater than 1% stockholders enter into similar agreements, and shall not apply to a registration relating solely to employee benefit

plans, or to a registration relating solely to a transaction pursuant to Rule 145 under the Securities Act.

(c) **Stop-Transfer Instructions.** In order to enforce the foregoing covenants, the Company may impose stop-transfer instructions with respect to the securities of each Holder (and the securities of every other person subject to the restrictions in Section 1.14(a)).

(d) **Transferees Bound.** Each Holder agrees that prior to the Company's initial public offering it will not transfer securities of the Company unless each transferee agrees in writing to be bound by all of the provisions of this Section 1.14.

(e) **Legends.** Each Holder agrees that a legend reading substantially as follows shall be placed on all certificates representing all Registrable Securities of each Holder (and the shares or securities of every other person subject to the restriction contained in this Section 1.14):

THE SECURITIES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO A LOCK-UP PERIOD OF UP TO 180 DAYS AFTER THE EFFECTIVE DATE OF THE ISSUER'S REGISTRATION STATEMENT FILED UNDER THE ACT AS AMENDED, AS SET FORTH IN AN AGREEMENT BETWEEN THE COMPANY AND THE ORIGINAL HOLDER OF THESE SECURITIES, A COPY OF WHICH MAY BE OBTAINED AT THE ISSUER'S PRINCIPAL OFFICE. SUCH LOCK-UP PERIOD IS BINDING ON TRANSFEREES OF THESE SHARES.

1.15 **Termination of Registration Rights.** No Holder shall be entitled to exercise any right provided for in this Section 1 after the earlier of (i) with respect to any Holder, at such time after the Qualified IPO as Rule 144 or another similar exemption under the Securities Act is available for the sale of all of such Holder's shares during a three-month period without registration, or (ii) upon termination of the Agreement, as provided in Section 3.1.

2. **Covenants of the Company.**

2.1 **Delivery of Financial Statements.** The Company shall deliver to each Major Investor:

(a) as soon as practicable, but in any event within 180 days after the end of each fiscal year of the Company (or such longer period of time as may be required by the Company's independent public accountants), an income statement for such fiscal year, a balance sheet of the Company and statement of stockholder's equity as of the end of such year, and a statement of cash flows for such year, such year-end financial reports to be in reasonable detail, prepared in accordance with generally accepted accounting principles ("GAAP"), and audited and certified by a public accounting firm selected by the Company and reasonably acceptable to the holders of Preferred Stock;

(b) within 30 days of the end of each month, an unaudited income statement and a statement of cash flows and balance sheet for and as of the end of such month, in reasonable detail; and

(c) as soon as practicable, but in any event prior to 30 days before the end of each fiscal year, a budget and business plan for the next fiscal year, prepared on a monthly basis, and, as soon as prepared, any other updated or revised budgets for such fiscal year prepared by the Company.

2.2 **Inspection.** The Company shall permit each Major Investor, at such Major Investor's expense, to visit and inspect the Company's properties, to examine its books of account and records and to discuss the Company's affairs, finances and accounts with its officers, all at such reasonable times as may be requested by the Major Investor; provided, however, that the Company shall not be obligated pursuant to this Section 2.2 to provide access to any information which it reasonably considers to be a trade secret or similar confidential information.

2.3 **Right of First Offer.** Subject to the terms and conditions specified in this Section 2.3, the Company hereby grants to each Major Investor a right of first offer with respect to future sales by the Company of its Shares (as hereinafter defined). For purposes of this Section 2.3, Major Investor includes any general partners, managing members and affiliates of a Major Investor, including Affiliated Funds. A Major Investor who chooses to exercise the right of first offer may designate as purchasers under such right itself or its partners or affiliates, including Affiliated Funds, in such proportions as it deems appropriate.

Each time the Company proposes to offer any shares of, or securities convertible into or exercisable for any shares of, any class of its capital stock ("Shares"), the Company shall first make an offering of such Shares to each Major Investor in accordance with the following provisions:

(a) The Company shall deliver a notice (the "RFO Notice") to the Major Investors stating (i) its bona fide intention to offer such Shares, (ii) the number of such Shares to be offered, and (iii) the price and terms, if any, upon which it proposes to offer such Shares.

(b) Within 15 days after delivery of the RFO Notice, the Major Investor may elect to purchase or obtain, at the price and on the terms specified in the RFO Notice, up to that portion of such Shares which equals the proportion that the number of shares of Registrable Securities issued and held, or issuable upon conversion and exercise of all convertible or exercisable securities then held, by such Major Investor on an as-converted basis bears to the sum of (A) the total number of shares of Common Stock then outstanding (assuming full conversion and exercise of all convertible or exercisable securities) and (B) shares of Common Stock issuable to employees, consultants or directors pursuant to a stock option plan, restricted stock plan, or other stock plan approved by the Board of Directors. Such purchase shall be completed at the same closing as that of any third party purchasers or at an additional closing. The Company shall promptly, in writing, inform each Major Investor that purchases all the shares available to it (each, a " Fully-Exercising Investor") of any other Major Investor's

failure to do likewise. During the 10-day period commencing after receipt of such information, each Fully-Exercising Investor shall be entitled to obtain that portion of the Shares for which Major Investors were entitled to subscribe but which were not subscribed for by the Major Investors that is equal to the proportion that the number of shares of Common Stock issued and held, or issuable upon conversion and exercise of all convertible or exercisable securities then held, by such Fully-Exercising Investor bears to the total number of shares of Common Stock held by all Fully-Exercising Investors (assuming full conversion and exercise of all convertible or exercisable securities).

(c) The Company may, during the 45-day period following the expiration of the period provided in subsection 2.3(b) hereof, offer the remaining unsubscribed portion of the Shares to any person or persons at a price not less than, and upon terms no more favorable to the offeree than those specified in the RFO Notice. If the Company does not enter into an agreement for the sale of the Shares within such period, or if such agreement is not consummated within 60 days after the execution thereof, the right provided hereunder shall be deemed to be revived and such Shares shall not be offered unless first reoffered to the Major Investors in accordance herewith.

(d) The right of first offer in this Section 2.3 shall not be applicable to

(i) the issuance of securities in connection with stock dividends, stock splits or similar transactions;

(ii) the issuance of Common Stock, issued to or issuable to employees, consultants and directors of the Company, pursuant to any stock option plan or agreement or other stock incentive program or agreement of the Company approved by the Board of Directors of the Company, including at least two of the Preferred Director Representatives then in office;

(iii) the issuance of securities to financial institutions, equipment lessors, brokers or similar persons in connection with commercial credit arrangements, equipment financings, commercial property lease transactions or similar transactions, provided such issuances are for other than primarily equity financing purposes and provided further that the terms of which are approved by the Board of Directors of the Company, including at least two of the Preferred Director Representatives then in office;

(iv) the issuance of securities pursuant to the conversion or exercise of convertible or exercisable securities outstanding as of the date of this Agreement, including without limitation, warrants, notes or options;

(v) the issuance of the Common Stock issuable upon conversion of the Preferred Stock;

(vi) the issuance of Common Stock in a Qualified IPO;

(viii) the issuance of securities to an entity as a component of any business relationship with such entity primarily for the purpose of (A) joint venture, technology

licensing or development activities, (B) distribution, supply or manufacture of the Company's products or services, or (C) merger or asset purchase with such entity, provided that the terms of such business relationship with such entity are approved by the Board of Directors including the approval of at least two of the Preferred Director Representatives then in office; or

(ix) the issuance of securities that, with unanimous approval of the Company's Board of Directors, are not offered to any existing stockholder of the Company.

In addition to the foregoing, the right of first offer in this Section 2.3 shall not be applicable with respect to any Major Investor and any subsequent securities issuance, if (i) at the time of such subsequent securities issuance, the Major Investor is not an "accredited investor," as that term is then defined in Rule 501(a) under the Securities Act, and (ii) such subsequent securities issuance is otherwise being offered only to accredited investors.

2.4 **Qualified Small Business Stock Status.** In the event that the Company proposes to take an action or engage in a transaction that would reasonably be expected to result in the Shares no longer being "qualified small business stock" within the meaning of Section 1202(c) of the Internal Revenue Code of 1986, as amended (the " Code"), the Company shall notify the Major Investors and consult in good faith to devise a mutually agreeable and reasonable alternative course of action or transaction structure that would preserve such status. In addition, the Company shall submit to the Major Investors and to the Internal Revenue Service any reports that may be required under Section 1202(d)(1)(C) of the Code and any related Treasury Regulations. In addition, within ten (10) days after any Major Investor has delivered to the Company a written request therefor, the Company shall deliver to such Major Investor a written statement informing the Major Investor whether, in the Company's good-faith judgment after a reasonable investigation, such Major Investor's interest in the Company constitutes "qualified small business stock" as defined in Section 1202(c) of the Code, or would constitute "qualified small business stock," if determination of whether stock constitutes "qualified small business stock" were made by taking into account the modifications set forth in Section 1045(b)(4) of the Code. The Company's obligation to furnish a written statement pursuant to this Section 2.4 shall continue notwithstanding the fact that a class of the Company's stock may be traded on an established securities market.

2.5 **Stock Vesting.** Unless otherwise approved by the Board of Directors, including at least two of the Preferred Director Representatives then in office, all stock options and other stock equivalents issued after the date of this Agreement to employees, directors, consultants and service providers shall be subject to vesting as follows: (a) twenty-five percent (25%) of such stock shall vest at the end of the first year following the earlier of the date of issuance or, solely in the case of an initial grant upon commencement of services, such person's services commencement date with the Company, and (b) seventy-five percent (75%) of such stock shall vest in equal monthly installments over the remaining three (3) years. The Company shall retain a right of first refusal on transfers of Common Stock until the Company's initial public offering and the right to repurchase unvested shares at cost.

2.6 **Reservation of Next Round Stock.** The Company will at all times reserve and keep available, solely for issuance and delivery upon conversion of the Series C Preferred

Stock of the Company, all Next Round Stock (as defined in the Restated Charter) issuable from time to time upon such conversion.

2.7 **Termination of Covenants.**

(a) The covenants set forth in Sections 2.1 through Section 2.6 shall terminate as to each Holder and be of no further force or effect (i) immediately prior to the consummation of a Qualified IPO, or (ii) upon termination of the Agreement, as provided in Section 3.1.

(b) The covenants set forth in Sections 2.1 and 2.2 shall terminate as to each Holder and be of no further force or effect when the Company first becomes subject to the periodic reporting requirements of Sections 13 or 15(d) of the Exchange Act, if this occurs earlier than the events described in Section 2.7(a) above.

3. **Miscellaneous.**

3.1 **Termination.** This Agreement shall terminate, and have no further force and effect, when the Company shall consummate a transaction or series of related transactions deemed to be a Liquidation Transaction pursuant to the Restated Charter.

3.2 **Entire Agreement.** This Agreement constitutes the entire agreement between the parties hereto pertaining to the subject matter hereof, and any and all other written or oral agreements relating to the subject matter hereof existing between the parties hereto are expressly canceled. This Agreement amends and restates the Prior Agreement in its entirety and upon the effectiveness of this Agreement, the Prior Agreement shall be of no further force or effect.

3.3 **Successors and Assigns.** Except as otherwise provided in this Agreement, the terms and conditions of this Agreement shall inure to the benefit of and be binding upon the respective permitted successors and assigns of the parties (including transferees of any of the Preferred Stock or any Common Stock issued upon conversion thereof). Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and assigns any rights, remedies, obligations, or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement.

3.4 **Amendments and Waivers.** Any term of this Agreement may be amended or waived only with the written consent of the Company and the holders of at least sixty percent (60%) of the Registrable Securities then outstanding; provided, however, that if such amendment or waiver would adversely affect the rights of a specific series of Preferred Stock in a manner different from the other series of Preferred Stock, then such amendment or waiver shall require the consent of the holders of at least sixty percent (60%) of the outstanding shares of such series of Preferred Stock; and any amendment or waiver of the rights granted to the Major Investors in Section 2 above shall require the consent of the Major Investors holding at least sixty percent (60%) of the outstanding shares of Registrable Securities then held by the Major Investors. Notwithstanding the foregoing, this Agreement may be amended with only the written consent of the Company for the sole purpose of including additional purchasers of Series

C Preferred Stock as "Investors" and "Holders." Any amendment or waiver effected in accordance with this paragraph shall be binding upon each party to the Agreement, whether or not such party has signed such amendment or waiver, each future holder of all such Registrable Securities, and the Company.

3.5 **Waiver of Right of First Offer.** Each Major Investor, on behalf of itself and all other Major Investors, hereby waives the right of first offer contained in Section 2.3 of the Prior Agreement, including all notice provisions contained therein, with respect to the transactions contemplated by the Purchase Agreement, including the sale of the Series C Preferred Stock pursuant to the terms thereof.

3.6 **Notices.** Unless otherwise provided, any notice required or permitted by this Agreement shall be in writing and shall be deemed sufficient upon delivery, when delivered personally or by overnight courier or sent by facsimile, or 48 hours after being deposited in the U.S. mail, as certified or registered mail, with postage prepaid, and addressed (a) if to an Investor, at the Investor's address or facsimile number as set forth on Exhibit A hereto, or as subsequently modified by written notice, with a copy to Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP, 1200 Seaport Blvd, Redwood City, CA 94063, Attn: Marcia Hatch, (b) if to a Series B Holder, at the Series B Holder's address or facsimile number as set forth on Exhibit B hereto, (c) if to a Series A Holder, at the Series A Holder's address or facsimile number as set forth on Exhibit C hereto and (d) if to the Company, at 575 Chesapeake Drive, Redwood City, CA 94063 or fax number (650) 216-6500, or as subsequently modified by written notice, with a copy to Cooley Godward Kronish LLP, 5 Palo Alto Square, 3000 El Camino Real, Palo Alto, CA 94306, Attn: Mark Weeks.

3.7 **Severability.** If one or more provisions of this Agreement are held to be unenforceable under applicable law, such provision shall be excluded from this Agreement, and the balance of the Agreement shall be interpreted as if such provision were so excluded and shall be enforceable in accordance with its terms.

3.8 **Governing Law.** This Agreement and all acts and transactions pursuant hereto shall be governed, construed and interpreted in accordance with the laws of the State of California, without giving effect to principles of conflicts of laws.

3.9 **Counterparts.** This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

3.10 **Titles and Subtitles.** The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

3.11 **Aggregation of Stock.** All shares of the Preferred Stock held or acquired by affiliated entities or persons, including Affiliated Funds, shall be aggregated together for the purpose of determining the availability of any rights under this Agreement.

[Signature Pages Follow]

The parties have executed this Second Amended and Restated Investors' Rights Agreement as of the date first above written.

COMPANY:

ACELRX PHARMACEUTICALS, INC.

By: /s/ Thomas A. Schreck
Thomas A. Schreck, Chief Executive Officer

The parties have executed this Second Amended and Restated Investors' Rights Agreement as of the date first above written.

PARTIES:

Three Arch Partners III, L.P.
By Three Arch Management III, L.L.C.,
Its General Partner

By: /s/ Mark Wan
Mark Wan, Managing Member

Three Arch Associates III, L.P.
By Three Arch Management III, L.L.C.,
Its General Partner

By: /s/ Mark Wan
Mark Wan, Managing Member

Three Arch Partners IV, L.P.
By Three Arch Management IV, L.L.C.,
Its General Partner

By: /s/ Mark Wan
Mark Wan, Managing Member

Three Arch Associates IV, L.P.
By Three Arch Management IV, L.L.C.,
Its General Partner

By: /s/ Mark Wan
Mark Wan, Managing Member

The parties have executed this Second Amended and Restated Investors' Rights Agreement as of the date first above written.

PARTY:

Skyline Venture Partners Qualified Purchaser Fund IV, L.P.
By: Skyline Venture Management IV, LLC
Its: General Partner

By: /s/ John G. Freund
Name: John G. Freund
Its: Managing Director

The parties have executed this Second Amended and Restated Investors' Rights Agreement as of the date first above written.

PARTY:

ACP IV, L.P.
By: ACMP IV, LLC.
Its: General Partner

By: /s/ Hilary Strain
Chief Financial Officer

The parties have executed this Second Amended and Restated Investors' Rights Agreement as of the date first above written.

PARTIES:

Kaiser Foundation Hospitals

By: /s/ Thomas Meier
Name: Thomas Meier
Title: SVP & Treasurer

The Permanente Federation LLC – Series G

By: /s/ Thomas Meier
Name: Thomas Meier
Title: SVP & Treasurer

The Permanente Federation LLC – Series I

By: /s/ Glen Hentges
Name: Glen Hentges
Title: CFO

The parties have executed this Second Amended and Restated Investors' Rights Agreement as of January 22, 2010.

PARTY:

GC&H Investments, LLC

By: /s/ Mark A. Royer
Name: Mark A. Royer
Title: Chief Financial Officer

The parties have executed this Second Amended and Restated Investors' Rights Agreement as of January 22, 2010.

PARTY:

Thau Penn Trust Agreement U/A/D 2/2/2004

By: /s/ Stephen Thau
Name: Stephen Thau
Title: Trustee

EXHIBIT A

INVESTORS

Name/Address/Fax No.	No. of Shares
Initial Closing – November 23, 2009	
Three Arch Partners III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	3,325,865
Three Arch Associates III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	178,810
Three Arch Partners IV, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	3,428,964
Three Arch Associates IV, L.P 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	75,712
Skyline Venture Partners Qualified Purchaser Fund IV, L.P. 525 University Avenue Suite 520 Palo Alto, CA 94301 Fax Number: (650) 329-1090 Attention: Stephen J. Sullivan	3,663,194

ACP IV, L.P. One Embarcadero Center Suite 3700 San Francisco, CA 94111 Fax Number: (415) 362-6178 Attention: Guy P. Nohra	3,240,517
Kaiser Foundation Hospitals One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Jordan M. Kramer	557,979
The Permanente Federation LLC – Series I One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Jordan M. Kramer	557,980
<u>Second Closing – January 22, 2010</u>	
GC&H Investments, LLC c/o Cooley Godward Kronish LLC Five Palo Alto Square 3000 El Camino Real Palo Alto, CA 94306	76,088
Thau Penn Trust Agreement U/A/D 2/2/2004	1,014

EXHIBIT B

SERIES B HOLDERS

Name/Address/Fax No.	No. of Shares
Three Arch Partners III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	1,245,536
Three Arch Associates III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	66,964
Three Arch Partners IV, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	1,284,146
Three Arch Associates IV, L.P 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	28,354
Skyline Venture Partners Qualified Purchaser Fund IV, L.P. 525 University Avenue Suite 520 Palo Alto, CA 94301 Fax Number: (650) 329-1090 Attention: Stephen J. Sullivan	1,250,000

ACP IV, L.P. One Embarcadero Center Suite 3700 San Francisco, CA 94111 Fax Number: (415) 362-6178 Attention: Guy P. Nohra	875,000
John S. Osterweis, Trustee for the Osterweis Revocable Trust u/a dated 9/13/93	25,000

The Board of Trustees of the Leland Stanford Junior University (SBST-LS) 2770 Sand Hill Road Menlo Park, CA 94025 Fax Number: (650) 854-9267 Attention: Martina Poquet	12,500
VLG Investments 2008 LLC Heller Ehrman LLP 275 Middlefield Road Menlo Park, CA 94025 Fax Number: Attention: Mark Royer	6,824
Kaiser Foundation Hospitals One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Jordan M. Kramer	125,000
The Permanente Federation LLC – Series G One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Jordan M. Kramer	125,000
Goldfarb & Simens PFP U/A DTD 1/1/95 FBO David A. Goldfarb	10,220

EXHIBIT C

SERIES A HOLDERS

Name/Address/Fax No.	No. of Shares
Three Arch Partners III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	1,708,163
Three Arch Associates III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	91,837
Three Arch Partners IV, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	1,761,114
Three Arch Associates IV, L.P 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	38,886
ACP IV, L.P. One Embarcadero Center Suite 3700 San Francisco, CA 94111 Fax Number: (415) 362-6178 Attention: Guy P. Nohra	2,000,000

John S. Osterweis, Trustee for the Osterweis Revocable Trust u/a dated 9/13/93	102,333
Stephen P. Moore and Laurie D. Moore Trust dated 5/17/02	30,705
Thomas P. Moore	30,675
Michael R. Hughes and Silvia G. Hughes Trust dated 1/13/97	20,466
Albert R. Schreck	20,403
Joel W. Schreck	20,403

Thomas A. Schreck	122,420
Mason and Thomas Schreck Trust dated February 17, 1998	40,806
Goldfarb & Simens PFP U/A DTD 1/1/95 FBO David A. Goldfarb	20,370
Skyline Venture Partners Qualified Purchaser Fund IV, L.P. 525 University Avenue Suite 520 Palo Alto, CA 94301 Fax Number: (650) 329-1090 Attention: Stephen J. Sullivan	2,000,000
Kaiser Foundation Hospitals One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Jordan M. Kramer	200,000
The Permanente Federation LLC – Series G One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Jordan M. Kramer	200,000

The Board of Trustees of the Leland Stanford Junior University (SBST-LS) 2770 Sand Hill Road Menlo Park, CA 94025 Fax Number: (650) 854-9267 Attention: Martina Poquet	20,000
VLG Investments 2008 LLC Heller Ehrman LLP 275 Middlefield Road Menlo Park, CA 94025 Fax Number: Attention: Mark Royer	17,000
Thau Penn Trust Agreement U/A/D 2/2/2004	1,000

Exhibit 4.4

THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AND PURSUANT TO THE PROVISIONS OF ARTICLE 5 BELOW, MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND APPLICABLE STATE SECURITIES LAW OR, IN THE OPINION OF LEGAL COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER OF THESE SECURITIES, SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION IS EXEMPT FROM REGISTRATION.

WARRANT TO PURCHASE STOCK

Company:	ACELRX PHARMACEUTICALS, INC., a Delaware corporation
Number of Shares:	10,000
Class of Stock:	Series A Preferred
Warrant Price:	$2.50 per share
Issue Date:	March 15,2007
Expiration Date:	The 10th anniversary after the Issue Date
Credit Facility:	This Warrant is issued in connection with the Credit Agreement, dated as of March 15, 2007 (as amended from time to time, the "Loan Agreement") entered into by and among Company and WELLS FARGO BANK, N.A.

THIS WARRANT CERTIFIES THAT, for the agreed upon value of $1.00 and for good and valuable consideration, WELLS FARGO BANK, N.A. (together with any registered holder from time to time of this Warrant or any holder of the shares issuable or issued upon exercise of this Warrant, "Holder") is entitled to purchase the number of fully paid and nonassessable shares of the class of securities (the "Shares") of the Company at the Warrant Price, all as set forth above and as adjusted pursuant to Article 2 of this Warrant, subject to the provisions and upon the terms and conditions set forth in this Warrant.

ARTICLE 1. EXERCISE.

1.1 Method of Exercise. Holder may exercise this Warrant, in whole or in part, from time to time, by delivering a duly executed Notice of Exercise or Conversion in substantially the form attached as Appendix 1 to the principal office of the Company. Unless Holder is exercising the conversion right set forth in Section 1.2, Holder shall also deliver to the Company a check, wire transfer to an account designated by the Company, or other form of payment acceptable to the Company for the aggregate Warrant Price for the Shares being purchased.

1.2 Conversion Right. In lieu of exercising this Warrant as specified in Section 1.1, Holder may from time to time convert this Warrant, in whole or in part, from time to time, without payment by Holder of any Warrant Price or any cash or other consideration, into that number of shares of fully paid and nonassessable stock for which this Warrant is exercisable, including the Shares, as determined by the following formula:

$$X = \frac{A - B}{Y}$$

Where: X = the number of Shares that shall be issued to Holder.

Y = the fair market value of one Share.

A = the aggregate fair market value of the specified number of Shares designated by Holder for conversion under this Section 1.2 *(i.e.,* the number of such Shares *multiplied by* the fair market value of one Share).

B = the aggregate Warrant Price of the specified number of Shares immediately prior to the conversion pursuant to this Section 1.2 *(i.e.,* the number of such Shares *multiplied* by the Warrant Price).

The fair market value of the Shares shall be determined pursuant to Section 1.3. Such conversion shall be effective upon receipt by the Company of a duly executed Notice of Exercise or Conversion in substantially the form attached as Appendix 1, or on such later date as is specified therein (the "Conversion Date"), and, at the election of the Holder, may be made contingent upon the closing of the sale of the Company's Common Stock to the public in a public offering (a "Public Offering") pursuant to a Registration Statement under the Securities Act of 1933, amended (the "Act") or the consummation of a merger or other transaction involving the Company.

1.3 Fair Market Value. If the Company's common stock is traded in a public market and the Shares are common stock, the fair market value of each Share shall be the average closing price of a Share reported for the last five trading days immediately before Holder delivers its Notice of Exercise to the Company (or in the instance where the Warrant is exercised immediately prior to the effectiveness of the Company's initial public offering, the "price to public" per share price specified in the final prospectus relating to such offering). If the Company's common stock is traded in a public market and the Shares are preferred stock, the fair market value of a Share shall be the closing price of a share of the Company's common stock reported for the business day immediately before Holder delivers its Notice of Exercise to the Company (or, in the instance where the Warrant is exercised immediately prior to the effectiveness of the Company's initial public offering, the initial "price to public" per share price specified in the final prospectus relating to such offering), in both cases, multiplied by the number of shares of the Company's common stock into which a Share is convertible. If the Company's common stock is not traded in a public market, the Board of Directors of the Company shall determine fair market value in its reasonable good faith judgment within five (5) business days after written request by Holder.

1.4 Delivery of Certificate and New Warrant. Promptly after Holder exercises or converts this Warrant and, if applicable, the Company receives payment of the aggregate Warrant Price, the Company shall deliver to Holder certificates for the Shares acquired and, if this Warrant has not been fully exercised or converted and has not expired, a new Warrant representing the Shares not so acquired.

1.5 Replacement of Warrants. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant

and, in the case of loss, theft or destruction, on delivery of an indemnity agreement reasonably satisfactory in form and amount to the Company or, in the case of mutilation, on surrender and cancellation of this Warrant, the Company shall execute and deliver, in lieu of this Warrant, a new warrant of like tenor.

1.6 Treatment of Warrant Upon Acquisition of Company.

1.6.1 "Acquisition". For the purpose of this Warrant, "Acquisition" means any sale, or other disposition of all or substantially all of the assets of the Company, or any reorganization, consolidation, or merger of the Company where the holders of the Company's securities before the transaction beneficially own less than 50% of the outstanding voting securities of the surviving entity after the transaction.

1.6.2 Treatment of Warrant at Acquisition.

(A) In the event of an Acquisition that is not an asset sale in which (i) the value of the per share consideration paid or payable for the series and class of stock for which this Warrant is exerciseable in such Acquisition is greater than five (5) times the Exercise Price effective at the time of closing of the Acquisition, and (ii) the consideration received in such Acquisition is cash and/or shares of a publicly traded company listed on a national market or exchange, freely tradeable without restrictions within 180 days of the closing of such Acquisition, except for restrictions pursuant to Rule 144 or 145 promulgated under the Act, this Warrant shall for all purposes be deemed to be converted pursuant to Section 4.8 effective immediately prior to the consummation of such Acquisition. The Company shall provide Holder with written notice of such an Acquisition (together with such reasonable information as Holder may request in connection therewith), which is to be delivered to Holder not less than ten (10) days prior to the closing of the proposed Acquisition.

(B) Upon the written request of the Company, Holder agrees that, in the event of an Acquisition that is an "arms length" sale of all or substantially all of the Company's assets (and only its assets) to a third party that is not an Affiliate (as defined below) of the Company (a "True Asset Sale"), either (a) Holder shall exercise its conversion or purchase right under this Warrant and such exercise will be deemed effective immediately prior to the consummation of such Acquisition or (b) if Holder elects not to exercise the Warrant, this Warrant will continue until the Expiration Date if the Company continues as a going concern following the closing of any such True Asset Sale. The Company shall provide Holder with written notice of its request relating to the foregoing (together with such reasonable information as Holder may request in connection with such contemplated Acquisition giving rise to such notice), which is to be delivered to Holder not less than twenty (20) days prior to the closing of the proposed Acquisition.

(C) Upon the closing of any Acquisition other than those particularly described in subsections (A) and (B) above, the successor entity shall assume the obligations of this Warrant, and this Warrant shall be exercisable for the same securities, cash, and property as would be payable for the Shares issuable upon exercise of the unexercised portion of this Warrant as if such Shares were outstanding on the record date for the Acquisition and subsequent closing. The Warrant Price and/or number of Shares shall be adjusted accordingly.

As used herein "Affiliate" shall mean any person or entity that owns or controls directly or indirectly ten (10) percent or more of the stock of Company, any person or entity that controls or is controlled by or is under common control with such persons or entities, and each of such person's or entity's officers, directors, joint venturers or partners, as applicable.

1.7 Stock Full Paid; Reservation of Shares. All Shares that may be issued upon the exercise of the rights represented by this Warrant will, upon issuance pursuant to the terms and conditions herein, be fully paid and nonassessable, and free from all preemptive rights and taxes, liens and charges with respect to the issuance thereof. During the period within which the rights represented by this Warrant may be exercised, the Company will at all times have authorized, and reserved for the purpose of the issue upon exercise of the purchase rights evidenced by this Warrant, a sufficient number of Shares to provide for the exercise of the rights represented by this Warrant and, while the Shares are convertible preferred stock, a sufficient number of shares of its Common Stock to provide for the conversion of the Shares into Common Stock

ARTICLE 2. ADJUSTMENTS TO THE SHARES.

2.1 Stock Dividends, Splits, Etc. If the Company declares or pays a dividend on the Shares payable in Shares, then upon exercise of this Warrant, for each Share acquired, Holder shall receive, without cost to Holder, the total number and kind of securities to which Holder would have been entitled had Holder owned the Shares of record as of the date the dividend occurred. If the Company subdivides the Shares by reclassification or otherwise into a greater number of shares or takes any other action which increase the amount of stock into which the Shares are convertible, the number of shares purchasable hereunder shall be proportionately increased and the Warrant Price shall be proportionately decreased. If the outstanding shares are combined or consolidated, by reclassification or otherwise, into a lesser number of shares, the Warrant Price shall be proportionately increased and the number of Shares shall be proportionately decreased.

2.2 Reclassification, Exchange, Combinations or Substitution. Upon any reclassification, exchange, substitution, or other event that results in a change of the number and/or class of the securities issuable upon exercise or conversion of this Warrant, Holder shall be entitled to receive, upon exercise or conversion of this Warrant, the number and kind of securities and property that Holder would have received for the Shares if this Warrant had been exercised immediately before such reclassification, exchange, substitution, or other event. Such an event shall include any automatic conversion of the outstanding or issuable securities of the Company of the same class or series as the Shares to common stock pursuant to the terms of the Company's Articles or Certificate (as applicable) of Incorporation upon the closing of a registered public offering of the Company's common stock. The Company or its successor shall promptly issue to Holder an amendment to this Warrant setting forth the number and kind of such new securities or other property issuable upon exercise or conversion of this Warrant as a result of such reclassification, exchange, substitution or other event that results in a change of the number and/or class of securities issuable upon exercise or conversion of this Warrant. The amendment to this Warrant shall provide for adjustments which shall be as nearly equivalent as may be practicable to the adjustments provided for in this Article 2 including, without limitation, adjustments to the Warrant Price and to the number of securities or property issuable upon exercise of the new Warrant. The

provisions of this Section 2.2 shall similarly apply to successive reclassifications, exchanges, substitutions, or other events.

2.3 Adjustments for Diluting Issuances. The Warrant Price and the number of Shares issuable upon exercise of this Warrant or, if the Shares are preferred stock, the number of shares of common stock issuable upon conversion of the Shares, shall be subject to adjustment, from time to time in the manner set forth in the Company's Articles or Certificate of Incorporation as if the Shares were issued and outstanding on and as of the date of any such required adjustment. The provisions set forth for the Shares in the Company's Articles or Certificate (as applicable) of Incorporation relating to the above in effect as of the Issue Date may not be amended, modified or waived, without the prior written consent of Holder unless such amendment, modification or waiver affects the rights associated with the Shares in the same manner as such amendment, modification or waiver affects the rights associated with all other shares of the same series and class as the Shares granted to Holder.

2.4 No Impairment. The Company shall not, by amendment of its Articles or Certificate (as applicable) of Incorporation or through a reorganization, transfer of assets, consolidation, merger, dissolution, issue, or sale of securities or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms to be observed or performed under this Warrant by the Company, but shall at all times in good faith assist in carrying out of all the provisions of this Article 2 and in taking all such action as may be necessary or appropriate to protect Holder's rights under this Article against impairment. The foregoing notwithstanding, the Company shall not be deemed to have impaired Holder's rights if it amends its Certificate of Incorporation, or the holders of the Company's preferred stock waive their rights thereunder, in a manner that does not (individually or when considered in the context of any other actions being taken in connection with any such amendments or waivers) affect Holder in a manner different from the effect that such amendments or waivers have on the rights of other holders of the same series and class as the Shares granted to the Holder.

2.5 Fractional Shares. No fractional Shares shall be issuable upon exercise or conversion of this Warrant and the number of Shares to be issued shall be rounded down to the nearest whole Share. If a fractional share interest arises upon any exercise or conversion of the Warrant, the Company shall eliminate such fractional share interest by paying Holder the amount computed by multiplying the fractional interest by the fair market value of a full Share.

2.6 Certificate as to Adjustments. Upon each adjustment of the Warrant Price, the Company shall promptly notify Holder in writing, and, at the Company's expense, promptly compute such adjustment, and furnish Holder with a certificate of its Chief Financial Officer setting forth such adjustment and the facts upon which such adjustment is based. The Company shall, upon written request, furnish Holder a certificate setting forth the Warrant Price in effect upon the date thereof and the series of adjustments leading to such Warrant Price.

ARTICLE 3. REPRESENTATIONS AND COVENANTS OF THE COMPANY.

3.1 Representations and Warranties. The Company represents and warrants to Holder as follows:

(a) The initial Warrant Price referenced on the first page of this Warrant is not greater than the effective price per share at which the Shares were last issued in an arms-length transaction in which at least $500,000 of the Shares were sold.

(b) All Shares which may be issued upon the exercise of the purchase right represented by this Warrant, and all securities, if any, issuable upon conversion of the Shares, shall, upon issuance, be duly authorized, validly issued, fully paid and nonassessable, and free of any liens and encumbrances except for restrictions on transfer provided for herein or under applicable federal and state securities laws.

(c) The Capitalization Table previously provided to Holder remains true and complete in all material respects as of the Issue Date.

3.2 Notice of Certain Events. If the Company proposes at any time (a) to declare any dividend or distribution upon any of its stock, whether in cash, property, stock, or other securities and whether or not a regular cash dividend; (b) to offer the holders of the Company's Series A Preferred Stock (or any series or class of capital stock into which shares have been automatically converted) the right to purchase any equity securities of the Company (or other securities convertible into such capital stock), other than (i) pursuant to the Company's stock option or other compensatory plans, (ii) in connection with commercial credit arrangements or equipment financings, or (iii) in connection with strategic transactions for purposes other than capital raising; (c) to effect any reclassification or recapitalization of any of its stock; (d) to merge or consolidate with or into any other corporation, or sell, or convey all or substantially all of its assets, or to liquidate, dissolve or wind up; or (e) offer holders of registration rights the opportunity to participate in an underwritten public offering of the Company's securities for cash, then, in connection with each such event, the Company shall give Holder: (1) at least 10 days prior written notice of the date on which a record will be taken for such dividend, distribution, or subscription rights (and specifying the date on which the holders of common stock will be entitled thereto) or for determining rights to vote, if any, in respect of the matters referred to in (a) and (b) above; (2) in the case of the matters referred to in (c) and (d) above at least 10 days prior written notice of the date when the same will take place (and specifying the date on which the holders of common stock will be entitled to exchange their common stock for securities or other property deliverable upon the occurrence of such event); and (3) in the case of the matter referred to in (e) above, the same notice as is given to the holders of such registration rights. Company will also provide information requested by Holder reasonably necessary to enable Holder to comply with Holder's accounting or reporting requirements.

3.3 Registration Under Securities Act of 1933, as amended. The Company agrees that the Shares or, if the Shares are convertible into common stock of the Company, such common stock, shall have certain "piggyback," registration rights and S-3 registration rights pursuant to and as set forth in Sections 1.3 and 1.4 of the Company's Investor Rights Agreement, dated as of August 15, 2006 (the "Investors' Rights Agreement"). The provisions set forth in the Company's Investors' Right

Agreement relating to the above in effect as of the Issue Date may not be amended, modified or waived without the prior written consent of Holder unless such amendment, modification or waiver affects the rights associated with the shares of common stock into which the Shares are convertible in the same manner as such amendment, modification, or waiver affects the rights associated with all other shares of the same series and class as the Shares granted to Holder.

3.4 No Stockholder Rights. Except as provided in this Warrant, Holder will not have any rights as a stockholder of the Company until the exercise of this Warrant.

ARTICLE 4. MISCELLANEOUS.

4.1 Term. This Warrant is exercisable in whole or in part at any time and from time to time on or before the Expiration Date.

4.2 Legends. This Warrant and the Shares (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) shall be imprinted with a legend in substantially the following form:

> THIS WARRANT AND THE SHARES ISSUABLE HEREUNDER HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR THE SECURITIES LAWS OF ANY STATE AND, EXCEPT AND PURSUANT TO THE PROVISIONS OF ARTICLE 5 BELOW, MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED UNLESS AND UNTIL REGISTERED UNDER SAID ACT AND APPLICABLE STATE SECURITIES LAW OR, IN THE OPINION OF LEGAL COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER OF THESE SECURITIES, SUCH OFFER, SALE OR TRANSFER, PLEDGE OR HYPOTHECATION IS EXEMPT FROM REGISTRATION.

4.3 Compliance with Securities Laws on Transfer. This Warrant and the Shares issuable upon exercise of this Warrant (and the securities issuable, directly or indirectly, upon conversion of the Shares, if any) may not be transferred or assigned in whole or in part without compliance with applicable federal and state securities laws by the transferor and the transferee (including, without limitation, the delivery of investment representation letters and legal opinions reasonably satisfactory to the Company, as reasonably requested by the Company). The Company shall not require WELLS FARGO BANK, N.A. ("Bank") to provide an opinion of counsel if the transfer is to any affiliate of Bank. Additionally, the Company shall also not require an opinion of counsel if there is no material question as to the availability of current information as referenced in Rule 144(c), Holder represents that it has complied with Rule 144(d) and (e) in reasonable detail, the selling broker represents that it has complied with Rule 144(f), and the Company is provided with a copy of Holder's notice of proposed sale.

4.4 Transfer Procedure. After receipt by Bank of the executed Warrant, Bank may in its sole discretion transfer all of this Warrant to any affiliate of Bank by execution of an Assignment substantially in the form of Appendix 2. Subject to the provisions of Article 4.3 and upon providing the Company with written notice, such affiliate and any subsequent Holder may transfer all or part of this Warrant or the Shares

issuable upon exercise of this Warrant (or the Shares issuable directly or indirectly, upon conversion of the Shares, if any) to any transferee, provided, however, in connection with any such transfer, any subsequent Holder will give the Company notice of the portion of the Warrant being transferred with the name, address and taxpayer identification number of the transferee and Holder will surrender this Warrant to the Company for reissuance to the transferee(s) (and Holder if applicable). The Company may refuse to transfer this Warrant or the Shares to any person who directly competes with the Company, unless, in either case, the stock of the Company is publicly traded.

4.5 Notices. All notices and other communications from the Company to Holder, or vice versa, shall be deemed delivered and effective when given personally or mailed by first-class registered or certified mail, postage prepaid, at such address as may have been furnished to the Company or Holder, as the case may (or on the first business day after transmission by facsimile) be, in writing by the Company or such Holder from time to time. Effective upon receipt of the fully executed Warrant and the initial transfer described in Section 4.4 above, all notices to Holder shall be addressed as follows until the Company receives notice of a change of address in connection with a transfer or otherwise:

WELLS FARGO BANK, NATIONAL ASSOCIATION
400 Hamilton Avenue
Palo Alto, CA 94301
Attn: Christopher Wagner

Notice to the Company shall be addressed as follows until Holder receives notice of a change in address:

ACELRX PHARMACEUTICALS, INC.
575 Chesapeake Drive
Redwood City, CA 94063
Attn: Carter King, Vice President- Finance
Fax: 650-216-3501

4.6 Waiver. This Warrant and any term hereof may be changed, waived, discharged or terminated only by an instrument in writing signed by the party against which enforcement of such change, waiver, discharge or termination is sought.

4.7 Attorneys' Fees. In the event of any dispute between the parties concerning the terms and provisions of this Warrant, the party prevailing in such dispute shall be entitled to collect from the other party all costs incurred in such dispute, including reasonable attorneys' fees.

4.8 Automatic Conversion upon Acquisition or Expiration . In the event that, on the Expiration Date or immediately prior to the consummation of an Acquisition of the type described in Section 1.6.2(A), the fair market value of one Share (or other security issuable upon the exercise hereof) as determined in accordance with Section 1.3 above is greater than the Warrant Price then in effect, then this Warrant shall automatically be deemed on and as of the Expiration Date, or immediately prior to such consummation, as the case may be, to be converted pursuant to Section 1.2 above as to all Shares (or such other securities) for which it shall not previously have been exercised

or converted, and the Company shall promptly deliver a certificate representing the Shares (or such other securities) issued upon such conversion to Holder.

4.9 Counterparts. This Warrant may be executed in counterparts, all of which together shall constitute one and the same agreement.

4.10 Governing Law. This Warrant shall be governed by and construed in accordance with the laws of the State of California, without giving effect to its principles regarding conflicts of law.

"COMPANY"

ACELRX PHARMACEUTICALS, INC.

By: /s/ Thomas A. Schreck
Name: Thomas A. Schreck
Title: CEO

By: _____ Date: April 6, 2007
Name:
Title:

"HOLDER"

WELLS FARGO BANK, N.A.

By: /s/ Christopher Wagner
Name: Christopher Wagner
Title: Vice President

SCHEDULE 1

CAPITALIZATION TABLE

[See attached.]

APPENDIX 1

NOTICE OF EXERCISE OR CONVERSION

1. Holder elects to purchase _____ shares of the Common/Series ____ Preferred [strike one] Stock of ACELRX PHARMACEUTICALS, INC. pursuant to the terms of the attached Warrant, and tenders payment of the purchase price of the shares in full.

[or]

1. Holder elects to convert the attached Warrant into shares of the Common/Series ____ Preferred [strike one] Stock of ACELRX PHARMACEUTICALS, INC. pursuant to the terms of the attached Warrant. This conversion is exercised for _____ of the Shares covered by the Warrant.

[Strike paragraph that does not apply.]

2. Please issue a certificate or certificates representing the shares in the name specified below:

_____
Holder's Name

_____

_____
(Address)

HOLDER:

_____

By:_____

Name:_____

Title:_____

(Date):_____

APPENDIX 2

ASSIGNMENT

For value received, WELLS FARGO BANK, N.A. hereby sells, assigns and transfers unto

Name:
Address:

Tax ID:

that certain Warrant to Purchase Stock issued by ACELRX PHARMACEUTICALS, INC. (the "Company"), on February __, 2007 (the "Warrant") together with all rights, title and interest therein.

WELLS FARGO BANK, N.A.

By: _____

Name: _____

Title: _____

Date: _____

Exhibit 4.5

EXECUTION COPY

THIS WARRANT HAS NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED OR ANY STATE SECURITIES LAWS. NO SALE OR DISPOSITION MAY BE EFFECTED WITHOUT (i) EFFECTIVE REGISTRATION STATEMENTS RELATED THERETO, (ii) AN OPINION OF COUNSEL OR OTHER EVIDENCE, REASONABLY SATISFACTORY TO THE COMPANY, THAT SUCH REGISTRATIONS ARE NOT REQUIRED, (iii) RECEIPT OF NO-ACTION LETTERS FROM THE APPROPRIATE GOVERNMENTAL AUTHORITIES, OR (iv) OTHERWISE COMPLYING WITH THE PROVISIONS OF SECTION 8 OF THIS WARRANT.

ACELRX PHARMACEUTICALS, INC.

WARRANT TO PURCHASE PREFERRED STOCK

For value received and subject to the provisions set forth in this warrant (this "***Warrant***"), **PINNACLE VENTURES II EQUITY HOLDINGS, L.L.C.** and its assigns are entitled to purchase from **ACELRX PHARMACEUTICALS, INC.,** a Delaware corporation (the "***Company***"):

Shares of Preferred Stock:	See Section 1 (f)
Exercise Price:	See Section 1 (c)
Term of Warrant:	10 years from the Warrant Date
Warrant Date:	September 16, 2008

The number of Shares for which this Warrant is exercisable and the Exercise Price may be adjusted as specified in Section 5.

1. **Definitions.** As used herein, capitalized terms not otherwise defined herein shall have the meanings set forth in the introductory paragraph of this Warrant or the following meanings:

(a) "***Applicable Stock***" means (i) (A) if the Exercise Price is the Series B Price, then the Company's presently authorized Series B Preferred Stock, or (B) if the Exercise Price is the Next Round Price, then the series of convertible preferred stock sold in the Company's next Qualified Financing, (ii) after the conversion of all of the outstanding shares of such series of preferred stock into Common Stock, either automatically or by vote of the requisite holders thereof, the Company's Common Stock, and (iii) upon any conversion, exchange, reclassification or change, any security into which the securities described in clauses (i) or (ii) of this definition may be converted, exchanged, reclassified or otherwise changed.

(b) "***Common Stock***" means the common stock of the Company.

(c) "***Exercise Price***" means the exercise price per share of Applicable Stock and shall equal the lesser of (i) the Series B Price or (ii) the Next Round Price if the Company completes a Qualified Financing after the Warrant Date and prior to the exercise of any portion of this Warrant.

(d) "***Holder***" means the initial holder of this Warrant set forth in the first paragraph of this Warrant and any other person or entity which becomes a holder of this Warrant pursuant to the terms of this Warrant.

(e) "***Next Round Price***" means the price per share of the equity securities sold in the Company's next Qualified Financing after the Warrant Date.

(f) "***Number of Shares***" means that number of shares for which this Warrant is exercisable and shall equal the Warrant Coverage divided by the Exercise Price, if such Shares are Preferred Stock, or the Common Stock Equivalent thereof, if such Shares have been converted to Common Stock.

(g) "***Public Acquisition***" means any consolidation or merger of the Company with another corporation, or the sale of all or substantially all of its assets to another corporation which is effected such that (i) the holders of Applicable Stock shall be entitled to receive cash or shares of stock that are of a publicly traded company listed on a national market or exchange which may be sold without restrictions after the close of such event, (ii) the Company's stockholders own less than 50% of the voting securities of the surviving entity, (iii) the surviving entity does not assume other options or warrants of the Company and (iv) at the time of such event the effective per share price for the Applicable Stock is at least ten dollars ($10.00).

(h) "***Qualified Financing***" means the sale after the date hereof and prior to the Company's initial public offering, of a series of convertible preferred stock of the Company to purchasers resulting in gross proceeds to the Company of not less than $10,000,000 (excluding any bridge debt financing except to the extent actually converted to equity in the Company).

(i) "***Series B Price***" means $4.0000 per share.

(j) "***Shares***" means the shares of Applicable Stock of Company issuable upon exercise of this Warrant.

(k) "***Warrant Coverage***" initially means $600,000; *provided however,* that upon any Advance under the Loan Agreement, Warrant Coverage means the sum of: (i) $600,000 plus (ii) 2.5% times the amount of all Advances made under the Loan Agreement.

(l) "***Warrant Date***" means the date of this Warrant specified in the introductory paragraph of this Warrant.

2. **Term.** The right to purchase Applicable Stock upon exercise hereof is exercisable at any time and from time to time from the Warrant Date until earlier to occur of the following: (a) the tenth anniversary of the Warrant Date, (b) a Public Acquisition, or (c) five (5) years after the closing of a Public Offering pursuant to a Registration Statement under the Act and at the time of such event the effective per share price for the Applicable Stock is at least ten dollars ($10).

3. **Payment and Exercise.**

(a) Methods of Exercise. The purchase right represented by this Warrant may be exercised by the Holder, in whole or in part and from time to time, at the election of the Holder, by (a) the surrender of this Warrant (with the notice of exercise substantially in the form attached hereto as Exhibit A duly completed and executed) at the principal office of the Company and by the payment to the Company, by check, or by wire transfer to an account designated by the Company of an amount equal to the then applicable Exercise Price multiplied by the number of Shares then being purchased (the "***Aggregate Purchase Price***"), (b) if in connection with a registered public offering of the Company's securities, the surrender of this Warrant (with the notice of exercise form attached hereto as Exhibit B duly completed and executed) at the principal office of the Company together with notice of arrangements reasonably satisfactory to the Company for payment to the Company from the proceeds of the sale of shares to be sold by the Holder in such public offering of the Aggregate Purchase Price; or (c) exercise of the "net issuance" right provided for in Section 3(b) hereof. The person or persons in whose name(s) any certificate(s) representing Shares of Applicable Stock shall be issuable upon exercise of this Warrant shall be deemed to have become the holder(s) of record of, and shall be treated for all purposes as the record holder(s) of, the Shares represented thereby (and such

Shares shall be deemed to have been issued) immediately prior to the close of business on the date or dates upon which this Warrant is exercised. In the event of any exercise of the rights represented by this Warrant, certificates for the Shares so purchased shall be delivered to the Holder as soon as possible and in any event within thirty (30) days after such exercise and, unless this Warrant has been fully exercised or expired, a new Warrant representing the portion of the Shares, if any, with respect to which this Warrant shall not then have been exercised shall also be issued to the Holder as soon as possible and in any event within such thirty-day period; provided, however, that at such time as the Company is subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, if requested by the Holder, the Company shall cause its transfer agent to deliver the certificate representing Shares issued upon exercise of this Warrant to a broker or other person (as directed by the Holder exercising this Warrant) within the time period required to settle any trade made by the Holder after exercise of this Warrant.

(b) Right to Convert Warrant into Stock; Net Issuance.

(i) Net Issuance Right. In addition to and without limiting the rights of the Holder under the terms of this Warrant, the Holder shall have the right to convert this Warrant or any portion thereof (the ***"Net Issuance Right"***) into shares of Applicable Stock as provided in this Section 3(b) at any time or from time to time during the term of this Warrant. Upon exercise of the Net Issuance Right with respect to a particular number of shares subject to this Warrant (the ***"Converted Warrant Shares"***), the Company shall deliver to the Holder (without payment by the Holder of any exercise price or any cash or other consideration) that number of shares of fully paid and nonassessable Applicable Stock as is determined according to the following formula:

$$X = \frac{A - B}{Y}$$

Where:

X = the number of shares of Applicable Stock that shall be issued to Holder

Y = the fair market value of one share of Applicable Stock

A = the aggregate fair market value of the specified number of Converted Warrant Shares (*i.e.,* the number of Converted Warrant Shares *multiplied by* the fair market value of one Converted Warrant Share)

B = the aggregate Exercise Price of the specified number of Converted Warrant Shares immediately prior to the exercise of the Net Issuance Right *(i.e.,* the number of Converted Warrant Shares *multiplied by* the Exercise Price)

No fractional shares shall be issuable upon exercise of the Net Issuance Right, and, if the number of shares to be issued determined in accordance with the foregoing formula is other than a whole number, the Company shall pay to the Holder an amount in cash equal to the fair market value of the resulting fractional share on the Conversion Date (as hereinafter defined). For purposes of Section 10 of this Warrant, shares issued pursuant to the Net Issuance Right shall be treated as if they were issued upon the exercise of this Warrant.

(ii) Exercise of Net Issuance Right. The Net Issuance Right may be exercised by the Holder by the surrender of this Warrant at the principal office of the Company together with a written statement (which may be in the form of Exhibit A or Exhibit B hereto) specifying that the Holder thereby intends to exercise the Net Issuance Right and indicating the number of shares subject to this Warrant which are being surrendered (referred to in Section 3(b)(i) hereof as the Converted Warrant Shares) in exercise of the Net Issuance Right. Such conversion shall be effective upon receipt by the Company of this Warrant together with the aforesaid written statement, or on such later date as is specified therein (the "***Conversion Date***"), and, at the election of the Holder, may be made contingent upon the closing of the sale of the Company's Common Stock to the public in a public offering (a "***Public Offering***") pursuant to a Registration Statement under the Securities Act of 1933, amended (the *"**Act**"*). Certificates for the shares issuable upon

exercise of the Net Issuance Right and, if applicable, a new warrant evidencing the balance of the shares remaining subject to this Warrant, shall be issued as of the Conversion Date and shall be delivered to the Holder within thirty (30) days following the Conversion Date.

(iii) Determination of Fair Market Value. For purposes of this Section 3(b), "fair market value" of a share of Applicable Stock (which shall be Common Stock if the Applicable Stock has been converted into Common Stock) as of a particular date (the "***Determination Date***") shall mean:

(1) If the Net Issuance Right is exercised in connection with and contingent upon a Public Offering, and if the Company's Registration Statement relating to such Public Offering (" ***Registration Statement***") has been declared effective by the Securities and Exchange Commission, then the initial "price to the public" specified in the final prospectus with respect to such offering.

(2) If the Net Issuance Right is not exercised in connection with and contingent upon a Public Offering, then as follows:

(A) If traded on a securities exchange, then the fair market value shall be the average of the closing prices of the Common Stock on such exchange over the five trading days immediately prior to the Determination Date;

(B) If traded on the Nasdaq Stock Market or other over- the-counter system, then the fair market value shall be the average of the closing bid prices of the Common Stock over the five trading days immediately prior to the Determination Date; and

(C) If there is no public market, then fair market value shall be determined in good faith by the Company's Board of Directors.

In making a determination under clauses (A) or (B) above, if on the Determination Date, five trading days have not passed since the Company's initial Public Offering then the fair market value of the Common Stock shall be the average closing prices or closing bid prices, as applicable, for the shorter period beginning on and including the date of the initial Public Offering and ending on the trading day prior to the Determination Date (or if such period includes only one trading day the closing price or closing bid price, as applicable, for such trading day). If closing prices or closing bid prices are no longer reported by a securities exchange or other trading system, the closing price or closing bid price shall be that which is reported by such securities exchange or other trading system at 4:00 p.m. New York City time on the applicable trading day.

(c) Exercise Prior to Expiration. To the extent this Warrant is not previously exercised as to all of the Shares subject hereto, and if the fair market value of one share of the Applicable Stock is greater than the Exercise Price then in effect, this Warrant shall be deemed automatically exercised pursuant to Section 3(b) (even if not surrendered) immediately before its expiration, including but not limited to expiration pursuant to Section 2. For purposes of such automatic exercise, the fair market value of one share of the Applicable Stock upon such expiration shall be determined pursuant to Section 3(b)(iii). To the extent this Warrant or any portion thereof is deemed automatically exercised pursuant to this Section 3(c), the Company agrees to promptly notify the Holder of the number of Shares, if any, the Holder is to receive by reason of such automatic exercise.

4. Stock Fully Paid; Reservation of Shares. All Shares that may be issued upon the exercise of the rights represented by this Warrant will, upon issuance pursuant to the terms and conditions herein, be fully paid and nonassessable, and free from all preemptive rights and taxes, liens and charges with respect to the issuance thereof. During the period within which the rights represented by this Warrant may be exercised, the Company will at all times have authorized, and reserved for the purpose of the issue upon exercise of the purchase rights evidenced by this Warrant, a sufficient number of shares of its Applicable Stock to provide for the exercise of the rights represented by this Warrant and, while the Applicable Stock is convertible preferred stock, a sufficient number of shares of its Common Stock to provide for the conversion of the Applicable Stock into Common Stock.

5. Adjustment of Exercise Price and Number of Shares. The number and kind of securities purchasable upon the exercise of this Warrant and the Exercise Price shall be subject to adjustment from time to time upon the occurrence of certain events, as follows:

(a) Reclassification or Merger. In case of any reclassification or change of securities of the class issuable upon exercise of this Warrant (other than a change in par value, or from par value to no par value, or from no par value to par value, or as a result of a subdivision or combination), or in case of any merger of the Company with or into another entity (other than a merger with another entity in which the Company is the acquiring and the surviving entity and which does not result in any reclassification or change of outstanding securities issuable upon exercise of this Warrant), or in case of any sale of all or substantially all of the assets of the Company, the Company, or such successor or purchasing corporation, as the case may be, shall duly execute and deliver to the Holder a new Warrant (in form and substance satisfactory to the Holder), or the Company shall make appropriate provision without the issuance of a new Warrant, so that the Holder shall have the right to receive upon exercise of this Warrant, at a total purchase price not to exceed that payable upon the exercise of the unexercised portion of this Warrant, and in lieu of the shares of Applicable Stock theretofore issuable upon exercise of this Warrant, the kind and amount of shares of stock, other securities, money and property receivable upon such reclassification, change, merger or sale by a holder of the number of shares of Applicable Stock then purchasable under this Warrant. The provisions of this Section 5(a) shall similarly apply to successive reclassifications, changes, mergers and sales.

(b) Subdivision or Combination of Shares. If the Company at any time while this Warrant remains outstanding and unexpired shall subdivide or combine its outstanding shares of Applicable Stock, the Exercise Price shall be proportionately decreased and the number of Shares issuable hereunder shall be proportionately increased in the case of a subdivision and the Exercise Price shall be proportionately increased and the number of Shares issuable hereunder shall be proportionately decreased in the case of a combination.

(c) Stock Dividends and Other Distributions. If the Company at any time while this Warrant is outstanding and unexpired shall (i) pay a dividend with respect to Applicable Stock payable in Applicable Stock, then the Exercise Price shall be adjusted, from and after the date of determination of shareholders entitled to receive such dividend or distribution, to that price determined by multiplying the Exercise Price in effect immediately prior to such date of determination by a fraction (A) the numerator of which shall be the total number of shares of Applicable Stock outstanding immediately prior to such dividend or distribution, and (B) the denominator of which shall be the total number of shares of Applicable Stock outstanding immediately after such dividend or distribution; or (ii) make any other distribution with respect to Applicable Stock (except any distribution specifically provided for in Sections 5(a) and 5(b)), then, in each such case, provision shall be made by the Company such that the Holder shall receive upon exercise of this Warrant a proportionate share of any such dividend or distribution as though it were the holder of the Applicable Stock as of the record date fixed for the determination of the shareholders of the Company entitled to receive such dividend or distribution.

(d) Adjustment of Number of Shares. Upon each adjustment in the Exercise Price, the number of Shares of Applicable Stock purchasable hereunder shall be adjusted, to the nearest whole share, to the product obtained by multiplying the number of Shares purchasable immediately prior to such adjustment in the Exercise Price by a fraction, the numerator of which shall be the Exercise Price immediately prior to such adjustment and the denominator of which shall be the Exercise Price immediately thereafter.

(e) Antidilution Rights. The other antidilution rights applicable to the Shares of Applicable Stock purchasable hereunder are set forth in the Company's Certificate of Incorporation, as amended through the Warrant Date, a true and complete copy of which is attached hereto as Exhibit C (the "***Charter***"). The Company shall promptly provide the Holder with any restatement, amendment, modification or waiver of the Charter promptly after the same has been made.

6. Notice of Adjustments. Whenever the Exercise Price or the number of Shares purchasable hereunder shall be adjusted pursuant to Section 5 hereof, the Company shall make a certificate signed by its chief financial officer setting forth, in reasonable detail, the event requiring the adjustment, the amount of the

adjustment, the method by which such adjustment was calculated, and the Exercise Price and the number of Shares purchasable hereunder after giving effect to such adjustment, and shall cause copies of such certificate to be delivered to the Holder. In addition, whenever the conversion price or conversion ratio of the Applicable Stock shall be adjusted, the Company shall make a certificate signed by its chief financial officer setting forth, in reasonable detail, the event requiring the adjustment, the amount of the adjustment, the method by which such adjustment was calculated, and the conversion price or ratio of the Applicable Stock after giving effect to such adjustment, and shall cause copies of such certificate to be delivered to the Holder.

7. Fractional Shares. No fractional shares of Applicable Stock will be issued in connection with any exercise hereunder, but in lieu of such fractional shares the Company shall make a cash payment therefor based on the fair market value of the Applicable Stock on the date of exercise as reasonably determined in good faith by the Company's Board of Directors.

8. Compliance with Act; Disposition of Warrant or Shares of Applicable Stock .

(a) Compliance with Act. The Holder, by acceptance hereof, agrees that this Warrant, and the shares of Applicable Stock to be issued upon exercise hereof and any Common Stock issued upon conversion thereof are being acquired for investment and that the Holder will not offer, sell or otherwise dispose of this Warrant, or any shares of Applicable Stock to be issued upon exercise hereof or any Common Stock issued upon conversion thereof except under circumstances which will not result in a violation of the Act or any applicable state securities laws. Upon exercise of this Warrant, unless the Shares being acquired are registered under the Act and any applicable state securities laws or an exemption from such registration is available, the Holder shall confirm in writing that the shares of Applicable Stock so purchased (and any shares of Common Stock issued upon conversion thereof) are being acquired for investment and not with a view toward distribution or resale in violation of the Act and shall confirm such other matters related thereto as may be reasonably requested by the Company. This Warrant and all shares of Applicable Stock issued upon exercise of this Warrant (unless registered under the Act and any applicable state securities laws) shall be stamped or imprinted with a legend in substantially the following form:

"THE SECURITIES EVIDENCED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR ANY STATE SECURITIES LAWS. NO SALE OR DISPOSITION MAY BE EFFECTED WITHOUT (i) EFFECTIVE REGISTRATION STATEMENTS RELATED THERETO, (ii) AN OPINION OF COUNSEL OR OTHER EVIDENCE, REASONABLY SATISFACTORY TO THE COMPANY, THAT SUCH REGISTRATIONS ARE NOT REQUIRED, (iii) RECEIPT OF NO-ACTION LETTERS FROM THE APPROPRIATE GOVERNMENTAL AUTHORITIES, OR (iv) OTHERWISE COMPLYING WITH THE PROVISIONS OF SECTION 8 OF THE WARRANT UNDER WHICH THESE SECURITIES WERE ISSUED, DIRECTLY OR INDIRECTLY."

Said legend shall be removed by the Company, upon the request of the Holder, at such time as the restrictions on the transfer of the applicable security shall have terminated.

(b) Disposition of Warrant or Shares. With respect to any offer, sale or other disposition of this Warrant or any shares of Applicable Stock acquired pursuant to the exercise of this Warrant prior to registration of such Warrant or shares, the Holder agrees to give written notice to the Company prior thereto, describing briefly the manner thereof, together with a written opinion of counsel, if requested by the Company, or other evidence, if reasonably satisfactory to the Company, to the effect that such offer, sale or other disposition may be effected without registration or qualification (under the Act as then in effect or any federal or state securities law then in effect) of this Warrant or such shares of Applicable Stock and indicating whether or not under the Act certificates for this Warrant or such shares of Applicable Stock to be sold or otherwise disposed of require any restrictive legend as to applicable restrictions on transferability in order to ensure compliance with such law. Upon receiving such written notice and reasonably satisfactory opinion or other evidence, the Company, as promptly as practicable but no later than fifteen (15) days after receipt of the written notice, shall notify the Holder that the Holder may sell or otherwise dispose of this Warrant or such shares of Applicable Stock, all in accordance with the terms of the notice delivered to the Company. If a determination has been made pursuant to this Section 8(b) that the opinion of counsel or other evidence is not

reasonably satisfactory to the Company, the Company shall so notify the Holder promptly with details thereof after such determination has been made. Notwithstanding the foregoing, this Warrant or such shares of Applicable Stock may, as to such federal laws, be offered, sold or otherwise disposed of in accordance with Rule 144 or 144A under the Act, provided that the Company shall have been furnished with such information as the Company may reasonably request to provide a reasonable assurance that the provisions of Rule 144 or 144A have been satisfied. Each certificate representing this Warrant or the shares of Applicable Stock thus transferred (except a transfer pursuant to Rule 144 or 144A) shall bear a legend as to the applicable restrictions on transferability in order to ensure compliance with such laws, unless in the aforesaid opinion of counsel for the Holder, such legend is not required in order to ensure compliance with such laws. The Company may issue stop transfer instructions to its transfer agent in connection with such restrictions.

(c) Applicability of Restrictions. Neither any restrictions of any legend described in this Warrant nor the requirements of Section 8(b) above shall apply to any transfer of, or grant of a security interest in, this Warrant (or the Applicable Stock or Common Stock obtainable upon exercise thereof) or any part hereof (i) to a partner of the Holder if the Holder is a partnership or to a member of or other holder of an interest in the Holder if the Holder is a limited liability company, (ii) to a partnership of which the Holder is a partner or to a limited liability company of which the Holder is a member or other holder of an interest, or (iii) to any affiliate of the Holder if the Holder is a corporation; provided, however, in any such transfer, if applicable, the transferee shall on the Company's request agree in writing to be bound by the terms of this Warrant as if an original holder hereof.

9. Rights as Shareholders; Information. No Holder, as a holder of this Warrant, shall be entitled to vote or receive dividends or be deemed the holder of Applicable Stock or any other securities of the Company which may at any time be issuable upon the exercise hereof for any purpose, nor shall anything contained herein be construed to confer upon the Holder, as such, any of the rights of a shareholder of the Company or any right to vote for the election of directors or upon any matter submitted to shareholders at any meeting thereof, or to receive dividends or subscription rights or otherwise until this Warrant shall have been exercised and the Shares purchasable upon the exercise hereof shall have become deliverable, as provided herein. Notwithstanding the foregoing, the Company will transmit to the Holder such information, documents and reports as are generally distributed to the holders of any class or series of the securities of the Company concurrently with the distribution thereof to the shareholders.

10. Registration Rights. The Company grants registration rights to the Holder for any Applicable Stock of the Company (after its conversion to Common Stock) obtained upon exercise of this Warrant, comparable to the registration rights granted to the investors in that certain First Amended and Restated Investors' Rights Agreement dated February 4, 2008, (the "***Investor Rights Agreement***"), with the following exceptions and clarifications:

(1) The Holder will not have the right to demand registration (other than a registration on Form S-3 or any successor form), but can otherwise participate in any registration demanded by others.

(2) The Holder will be subject to the same provisions regarding indemnification as contained in the Investor Rights Agreement.

(3) The registration rights are freely assignable by the Holder in connection with a permitted transfer of this Warrant or the Shares.

11. Notice Rights.

(a) Acquisition Transactions. The Company shall provide the Holder with at least twenty (20) days' written notice prior to closing thereof of the terms and conditions of any of the following transactions (to the extent the Company has notice thereof): (i) the sale, lease, exchange, conveyance or other disposition of all or substantially all of the Company's property or business, or (ii) its merger into or consolidation with any other corporation (other than a wholly-owned subsidiary of the Company), or any transaction (including a

merger or other reorganization) or series of related transactions, in which more than 50% of the voting power of the Company is disposed of.

(b) Dividends and Repurchases. The Company shall provide the Holder with at least ten (10) days notice prior to the record date of any cash dividend with respect to or offer to repurchase the Applicable Stock.

(c) Liquidation. The Company shall provide the Holder with at least ten (10) days notice prior to any voluntary or involuntary dissolutions, liquidation or winding-up of the Company.

12. Representations and Warranties. The Company represents and warrants to the Holder as follows:

(a) This Warrant has been duly authorized and executed by the Company and is a valid and binding obligation of the Company enforceable in accordance with its terms, subject to laws of general application relating to bankruptcy, insolvency and the relief of debtors and the rules of law or principles at equity governing specific performance, injunctive relief and other equitable remedies.

(b) The Shares have been duly authorized and reserved for issuance by the Company and, when issued in accordance with the terms hereof, will be validly issued, fully paid and nonassessable and free from preemptive rights.

(c) The rights, preferences, privileges and restrictions granted to or imposed upon the Applicable Stock and the holders thereof are as set forth in the Charter, and on the Warrant Date, each share of the Applicable Stock represented by this Warrant is convertible into one share of Common Stock.

(d) The shares of Common Stock issuable upon conversion of the Shares have been duly authorized and reserved for issuance by the Company and, when issued in accordance with the terms of the Charter will be validly issued, fully paid and nonassessable.

(e) The execution and delivery of this Warrant are not, and the issuance of the Shares upon exercise of this Warrant in accordance with the terms hereof will not be, inconsistent with the Company's Charter or by-laws, do not and will not contravene any law, governmental rule or regulation, judgment or order applicable to the Company, and do not and will not conflict with or contravene any provision of, or constitute a default under, any indenture, mortgage, contract or other instrument of which the Company is a party or by which it is bound or require the consent or approval of, the giving of notice to, the registration or filing with or the taking of any action in respect of or by, any Federal, state or local government authority or agency or other person, except for the filing of notices pursuant to federal and state securities laws, which filings will be effected by the time required thereby.

(f) There are no actions, suits, audits, investigations or proceedings pending or, to the knowledge of the Company, threatened against the Company in any court or before any governmental commission, board or authority which, if adversely determined, could have a material adverse effect on the ability of the Company to perform its obligations under this Warrant.

(g) The number of shares of Common Stock of the Company outstanding on the date hereof, on a fully diluted basis (assuming the conversion of all outstanding convertible securities and the exercise of all outstanding options and warrants), does not exceed [20 million] shares.

13. Market Stand-Off Agreement. During the period commencing on the date of the final prospectus relating to the Company's Initial Offering and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days) or such longer period, not to exceed an additional 18 days, if requested by the lead underwriter to comply with FINRA Rule 2711, the Holder hereby agrees that it will not (i) lend, offer, pledge, 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 Common Stock, any securities convertible into or exercisable or exchangeable for Common Stock or any other securities of the Company held immediately prior to the effectiveness of the registration statement for such offering, or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Common Stock or other securities of the Company, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash or otherwise. The foregoing provisions of this Section 12 shall apply only to the Company's initial offering of equity securities, shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, and shall only be applicable to the Holders if all officers, directors and greater than two percent (2%) stockholders of the Company and all holders of other warrants enter into similar agreements. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to the Applicable Stock and shares issued upon conversion thereof of the Holder or any future transferee (and the shares or securities of every other person subject to the foregoing restriction) until the end of such period. The Holder agrees to execute a market stand-off agreement with the underwritier(s) of Common Stock (or other securities) of the Company in customary form considtent with the provisions of this Section 12. For purposes of this Section 12, the term "Initial Offering" shall mean the Company's first firm commitment underwritten public offering of its Common Stock under the Act.

14. Information Rights. The Company shall provide to the Holder the financial statements specified in this Section 14 prepared in accordance with generally accepted accounting principles, consistently applied (except, in the case of unaudited financial statements, for the absence of footnotes and normal year-end adjustments); provided, however, that after the effective date of the initial registration statement covering a public offering to the Company's securities, this Section 14 shall terminate. As soon as practicable (and in any event within 45 days after the end of each fiscal quarter or such longer time approved by the company's Board of Directors, an unaudited balance sheet as of the end of such fiscal quarter and unaudited statements of income or loss, retained earnings or deficit, cash flows and capital structure of the Company for such quarter. As soon as practicable (and in any event within 180 days after the end of each fiscal year, audited balance sheets as of the end of such year (consolidated if applicable) and related statements of income or loss, retained earnings or deficit, cash flows and capital structure of the Company for such year, setting forth in comparative form the corresponding figures for the preceding fiscal year, and accompanied by an audit report and unqualified opinion of the independent certified public accountants of recognized national or regional standing selected by the Company.

15. Modification and Waiver. This Warrant and any provision hereof may be changed, waived, discharged or terminated only by an instrument in writing signed by the party against which enforcement of the same is sought.

16. Notices. Any notice, request, communication or other document required or permitted to be given or delivered to the Holder or the Company shall be delivered, or shall be sent by certified or registered mail, postage prepaid, or overnight courier or delivered personally to the Holder at its address as shown on the books of the Company or to the Company at the address indicated therefor on the signature page of this Warrant.

17. Binding Effect on Successors. This Warrant shall be binding upon any corporation succeeding the Company by merger, consolidation or acquisition of all or substantially all of the Company's assets, and all of the obligations of the Company relating to the Applicable Stock issuable upon the exercise or conversion of this Warrant shall survive the exercise, conversion and termination of this Warrant and all of the covenants and agreements of the Company shall inure to the benefit of the successors and assigns of the Holder.

18. Lost Warrants or Stock Certificates. The Company covenants to the Holder that, upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant or any stock certificate and, in the case of any such loss, theft or destruction, upon receipt of an indemnity reasonably satisfactory to the Company, or in the case of any such mutilation upon surrender and cancellation of such Warrant or stock certificate, the Company will make and deliver a new Warrant or stock certificate, of like tenor, in lieu of the lost, stolen, destroyed or mutilated Warrant or stock certificate.

19. Descriptive Headings. The descriptive headings of the various Sections of this Warrant are inserted for convenience only and do not constitute a part of this Warrant. The language in this Warrant shall be construed as to its fair meaning without regard to which party drafted this Warrant.

20. Governing Law. This Warrant shall be construed and enforced in accordance with, and the rights of the parties shall be governed by, the laws of the State of California.

21. Survival of Representations, Warranties and Agreements. All representations and warranties of the Company and the Holder contained herein shall survive the Warrant Date, the exercise or conversion of this Warrant (or any part hereof) or the termination or expiration of rights hereunder. All agreements of the Company and the Holder contained herein shall survive indefinitely until, by their respective terms, they are no longer operative.

22. Remedies. In case any one or more of the covenants and agreements contained in this Warrant shall have been breached, the Holder (in the case of a breach by the Company), or the Company (in the case of a breach by the Holder), may proceed to protect and enforce their or its rights either by suit in equity and/or by action at law, including, but not limited to, an action for damages as a result of any such breach and/or an action for specific performance of any such covenant or agreement contained in this Warrant.

23. No Impairment of Rights. The Company will not, by amendment of its Charter or through any other means, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such action as may be necessary or appropriate in order to protect the rights of the Holder against impairment.

24. Severability. The invalidity or unenforceability of any provision of this Warrant in any jurisdiction shall not affect the validity or enforceability of such provision in any other jurisdiction, or affect any other provision of this Warrant, which shall remain in full force and effect.

25. Recovery of Litigation Costs. If any legal action or other proceeding is brought for the enforcement of this Warrant, or because of an alleged dispute, breach, default, or misrepresentation in connection with any of the provisions of this Warrant, the successful or prevailing party or parties shall be entitled to recover reasonable attorneys' fees and other costs incurred in that action or proceeding, in addition to any other relief to which it or they may be entitled.

26. Entire Agreement; Modification. This Warrant constitutes the entire agreement between the parties pertaining to the subject matter contained in it and supersedes all prior and contemporaneous agreements, representations, and undertakings of the parties, whether oral or written, with respect to such subject matter.

The Company has caused this Warrant to be duly executed and delivered as of the Warrant Date specified above.

ACELRX PHARMACEUTICALS, INC.

By /s/ Thomas A. Schreck

Title CEO

Address: AcelRx Pharmaceuticals, Inc.
575 Chesapaeke Drive
Redwood City, CA 94063

EXECUTION COPY

EXHIBIT A

NOTICE OF EXERCISE

To: ACELRX PHARMACEUTICALS, INC. (the "Company")

1. The undersigned hereby:

☐ elects to purchase _____ shares of [Applicable Stock] [Common Stock] of the Company pursuant to the terms of the attached Warrant, and tenders herewith payment of the purchase price of such shares in full, or

☐ elects to exercise its net issuance rights pursuant to Section 3(b) of the attached Warrant with respect to _____ Shares of [Applicable Stock] [Common Stock].

2. Please issue a certificate or certificates representing _____ shares in the name of the undersigned or in such other name or names as are specified below:

_____
(Name)

_____

_____
(Address)

3. The undersigned represents that the aforesaid shares are being acquired for the account of the undersigned for investment and not with a view to, or for resale in connection with, the distribution thereof and that the undersigned has no present intention of distributing or reselling such shares, all except as in compliance with applicable securities laws.

_____
(Signature)

_____
(Date)

EXHIBIT B

NOTICE OF EXERCISE

To: ACELRX PHARMACEUTICALS, INC. (the "Company")

1. Contingent upon and effective immediately prior to the closing (the "Closing") of the Company's public offering contemplated by the Registration Statement on Form S___, filed _____, 200__, the undersigned hereby:

☐ elects to purchase _____ shares of [Applicable Stock] [Common Stock] of the Company (or such lesser number of shares as may be sold on behalf of the undersigned at the Closing) pursuant to the terms of the attached Warrant, or

☐ elects to exercise its net issuance rights pursuant to Section 3(b) of the attached Warrant with respect to _____ Shares of [Applicable Stock] [Common Stock].

2. Please deliver to the custodian for the selling shareholders a stock certificate representing such shares.

3. The undersigned has instructed the custodian for the selling shareholders to deliver to the Company $ _____ or, if less, the net proceeds due the undersigned from the sale of shares in the aforesaid public offering. If such net proceeds are less than the purchase price for such shares, the undersigned agrees to deliver the difference to the Company prior to the Closing.

_____
(Signature)

_____
(Date)

EXHIBIT C

CHARTER

Exhibit 4.6

THIS CONVERTIBLE PROMISSORY NOTE HAS NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"). NO SALE OR DISPOSITION MAY BE EFFECTED EXCEPT IN COMPLIANCE WITH RULE 144 UNDER THE SECURITIES ACT OR AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR AN OPINION OF COUNSEL FOR THE HOLDER SATISFACTORY TO THE PAYOR THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE SECURITIES ACT OR RECEIPT OF A NO-ACTION LETTER FROM THE SECURITIES AND EXCHANGE COMMISSION.

THIS CONVERTIBLE PROMISSORY NOTE AND THE RIGHTS AND OBLIGATIONS EVIDENCED HEREBY ARE SUBORDINATE IN THE MANNER AND TO THE EXTENT SET FORTH IN SECTION 9 HEREOF, AND EACH HOLDER OF THIS CONVERTIBLE PROMISSORY NOTE, BY ITS ACCEPTANCE HEREOF, SHALL BE BOUND BY THE PROVISIONS THEREOF.

CONVERTIBLE PROMISSORY NOTE

$_____ **September 14, 2010**
Redwood City, California

For value received **ACELRX PHARMACEUTICALS, INC.,** a Delaware corporation ("***Payor***") promises to pay to _____ or its assigns ("***Holder***") the principal sum of _____ with interest on the outstanding principal amount at the rate of four percent (4.0%) per annum, compounded annually. Interest shall commence with the date hereof and shall continue until paid in full or converted. Interest shall be computed on the basis of a year of three hundred sixty days (360) days for the actual number of days elapsed.

1. Purchase Agreement. This convertible promissory note (the "***Note***") is issued as part of a series of similar notes (collectively, the "***Notes***") issued or issuable pursuant to the terms of that certain Note and Warrant Purchase Agreement, dated September 14, 2010, as it may be amended from time to time (the "***Agreement***") to the persons and entities listed on the Schedule of Purchasers thereof (collectively, the "***Holders***"). Any capitalized terms used but not defined herein shall have the meanings ascribed to them in the Agreement.

2. Application of Payments. All payments of interest and principal shall be in lawful money of the United States of America and shall be made pro rata among all Holders. All payments under this Note shall be applied first to accrued interest, and thereafter to principal.

3. Conversion.

(a) Maturity Date; Mandatory Conversion upon a Qualified Financing . In the event that Payor issues and sells shares of its Equity Securities (as defined hereinafter) on or before September 14, 2011 (the "***Maturity Date***"), which shall be subject to extension as provided in Section 4 hereof, in an equity financing with total proceeds to Payor of not less than fifteen million dollars ($15,000,000) (excluding the conversion of the Notes) (a "***Qualified Financing***"), then the outstanding balance of this Note (including interest accrued hereunder) shall automatically convert in whole without any further action by the Holder into such Equity Securities at a conversion price equal to the price per share paid by the investors purchasing the Equity Securities and on the same terms and conditions as given to the investors in the Qualified Financing. For purposes of this Note, the following terms shall have the meanings as set forth:

(i) "***Equity Securities***" shall mean Payor's Preferred Stock or any securities conferring the right to purchase Payor's Preferred Stock or securities convertible into, or exchangeable for

(with or without additional consideration), Payor's Preferred Stock (excluding the Note and the Warrant), issued in the Qualified Financing, following the date hereof, except that such defined term shall not include any security granted, issued and/or sold by Payor to any employee, director or consultant in such capacity.

(b) Mandatory Conversion Upon a Initial Offering. If the Payor sells shares in a firm-commitment underwritten initial public offering prior to a Qualified Financing (the "***IPO***"), the outstanding balance of this Note (including interest accrued hereunder) shall automatically convert, effective immediately prior to the closing of the IPO, in whole without any further action by the Holder into the shares of stock issued by the Payor in the IPO at a conversion price equal to eighty percent (80%) of the gross public offering price per share of the stock sold by Payor in the IPO.

(c) Optional Conversion Upon a Corporate Transaction. To the extent this Note remains outstanding and has not been earlier converted pursuant to Sections 3(a) or 3(b) above, Payor shall provide the Holder ten (10) days advance written notice of the closing of any proposed Liquidation Transaction (as such term is defined in the Payor's Amended and Restated Certificate of Incorporation, as amended), and upon the election of the Requisite Holders to convert all of the Notes evidenced by the delivery of a written notice of such election to Payor at least two (2) business days prior to the closing of such proposed Liquidation Transaction, the outstanding balance of this Note (including interest accrued hereunder) shall automatically convert in whole without any further action by the Holder into shares of Payor's Series C Preferred Stock at the original issue price for such stock, as adjusted for stock splits, stock dividends, reclassification and the like, which as of the date hereof is equal to $0.9857 per share (the " ***Series C Price***").

(d) Mandatory Conversion Upon Consent of Requisite Holders . To the extent this Note remains outstanding after the Maturity Date and has not been earlier converted pursuant to Sections 3(a), 3(b) or 3(c) above, then upon the election of the Requisite Holders to convert all of the Notes evidenced by the delivery of a written notice of such election to Payor at any time after (30) days following the Maturity Date, the outstanding balance of this Note (including interest accrued hereunder) shall automatically convert in whole without any further action by the Holder into shares of Payor's Series C Preferred Stock at the Series C Price (a "***Maturity Conversion***").

4. Due On Maturity Date. Unless this Note has been converted in accordance with the terms of Section 3 above, the entire outstanding principal balance and all unpaid accrued interest shall become fully due and payable on the Maturity Date; *provided, however*, the Maturity Date may be extended with the consent of the Requisite Holders.

5. Prepayment. Payor may not prepay this Note prior to the Maturity Date unless the Requisite Holders consent to such prepayment, in which case, this Note may be prepaid by Payor without penalty.

6. Events of Default. If there shall be any Event of Default hereunder, at the option and upon the declaration of the Requisite Holders and upon written notice to the Payor (which election and notice shall not be required in the case of an Event of Default under Section 6(c) or 6(d)), this Note shall accelerate and all principal and unpaid accrued interest shall become due and payable. The occurrence of any one or more of the following shall constitute an Event of Default:

(a) Payor fails to pay timely any of the principal amount due under this Note on the date the same becomes due and payable or any accrued interest or other amounts due under this Note on the date the same becomes due and payable and such payment shall remain unpaid thirty (30) days following the due date;

(b) Payor shall default in its performance of any covenant under the Agreement and such failure remains unremedied for thirty (30) days following Payor's receipt of notice of such default;

(c) Payor files any petition or action for relief under any bankruptcy, reorganization, insolvency or moratorium law or any other law for the relief of, or relating to, debtors, now or hereafter in effect, or makes any assignment for the benefit of creditors or takes any corporate action in furtherance of any of the foregoing; or

(d) An involuntary petition is filed against Payor (unless such petition is dismissed or discharged within sixty (60) days under any bankruptcy statute now or hereafter in effect, or a custodian, receiver, trustee, assignee for the benefit of creditors (or other similar official) is appointed to take possession, custody or control of any property of Payor.

7. Waiver of Demand. Payor hereby waives demand, notice, presentment, protest and notice of dishonor.

8. Governing Law. This Note shall be governed by construed and under the laws of the State of California, as applied to agreements among California residents, made and to be performed entirely within the State of California, without giving effect to conflicts of laws principles.

9. Subordination. The payment of all amounts owed under this Note and all other obligations, liabilities or indebtedness of every nature of Payor to Holder pursuant to this Note, whether now existing or hereafter arising (collectively, the " ***Subordinated Debt***") is hereby subordinated to the payment in full in cash of all Senior Debt (as defined below), and no payments or other distributions whatsoever in respect of any Subordinated Debt shall be made by the Payor and no property or assets of the Payor shall be applied to the purchase, redemption or other acquisition or retirement of any Subordinated Debt, until the Senior Debt shall have been indefeasibly paid in full in cash and discharged and all financing arrangements between the Payor and all of the Senior Lenders (as defined below) under any document or instrument evidencing or securing Senior Debt have been terminated, and all obligations under any letter of credit issued by any Senior Lender for the account of Payor shall have terminated or expired; *provided, however*, nothing in this Section 9 shall prevent or otherwise prohibit Holder from converting the indebtedness evidenced by this Note pursuant to Section 3 of this Note. As used herein, (a) "***Senior Debt***" shall mean any and all obligations, indebtedness and liabilities now or hereafter owing or due from Payor to any Senior Lender howsoever created, arising or evidenced, whether direct or indirect, absolute or contingent, due or to become due, now existing pursuant to that certain Loan and Security Agreement dated September 16, 2008, among Payor, the Lenders and Pinnacle Ventures, L.L.C., as agent to the Lenders (the "***Loan and Security Agreement***"); and (b) "***Senior Lenders***" shall mean the lenders identified on Schedule 1 (the "***Lenders***") to the Loan and Security Agreement.

10. Amendment. Any term of this Note may be amended or waived with the written consent of Payor and the Requisite Holders, provided that all Notes are similarly affected. Upon the effectuation of any amendment or waiver in conformance with this Section 10, Payor shall promptly given written notice thereof to the Holders of the Notes who have not previously consented thereto in writing.

11. Transfer. This Note may be transferred only upon its surrender to Payor for registration of transfer, duly endorsed, or accompanied by a duly executed written instrument of transfer in form satisfactory to Payor. Thereupon, this Note shall be reissued to, and registered in the name of, the transferee, or a new Note for like principal amount and interest shall be issued to, and registered in the name of, the transferee. Interest and principal shall be paid solely to the registered holder of this Note. Such payment shall constitute full discharge of Payor's obligation to pay such interest and principal.

12. Notices. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient, if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) 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 Payor at the address listed below and to Holder at the address designated on the records of Payor or at such other address as Payor or Holder may designate by ten (10) days' advance written notice to the other parties hereto.

13. Expenses. Payor hereby agrees, subject only to any limitation imposed by applicable law, to pay all expenses, including reasonable attorneys' fees and legal expenses, incurred by the holder of this Note ("***Costs***") in endeavoring to collect any amounts payable hereunder which are not paid when due, whether by declaration or otherwise. Payor agrees that any delay on the part of Holder in exercising any rights hereunder will not operate as a waiver of such rights. Holder shall not by any act, delay, omission or otherwise be deemed to have waived any of its rights or remedies, and no waiver of any kind shall be valid unless in writing and signed by the party or parties waiving such rights or remedies.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, Payor has executed this Convertible Promissory Note as of the date first written above.

PAYOR:

ACELRX PHARMACEUTICALS, INC.

By: _____

Richard King
Chief Executivel Officer

Address: 575 Chesapeake Drive
Redwood City, CA 94063

Exhibit 4.7

THIS WARRANT AND THE UNDERLYING SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"). THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO SUCH SECURITIES UNDER THE SECURITIES ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED.

ACELRX PHARMACEUTICALS, INC.

WARRANT TO PURCHASE PREFERRED STOCK

No. PW-___ **September 14, 2010**

THIS CERTIFIES THAT, for value received, _____, with its principal office at _____, or its permitted assigns (the "***Holder***"), is entitled to subscribe for and purchase from **ACELRX PHARMACEUTICALS, INC.**, a Delaware corporation, with its principal office at 575 Chesapeake Drive, Redwood City, CA 94063 (the "***Company***") the Exercise Shares at the Exercise Price (each subject to adjustment as provided herein). This Warrant is being issued pursuant to that certain Note and Warrant Purchase Agreement, dated as of September 14, 2010, among Holder and the Company, and the other parties named therein (the "***Purchase Agreement***"). The aggregate number of Exercise Shares that Holder may purchase by exercising this warrant is equal to twenty-five percent (25%) of the Loan Amount advanced to the Company by the Holder at the applicable Closing (as defined in the Purchase Agreement) on the date hereof, in accordance with the Purchase Agreement, divided by the Exercise Price (subject to adjustment pursuant to the terms hereof, including but not limited to adjustments pursuant to Section 5 below).

1. DEFINITIONS. As used herein, the following terms shall have the following respective meanings:

(a) "***Exercise Period***" shall mean the period commencing with the date hereof and ending on September 14, 2017, unless sooner terminated in accordance with Section 7 below.

(b) "***Exercise Price***" shall mean (a) if the Exercise Shares are the type of Preferred Stock issued in the Qualified Financing, an amount equal to the per share selling price of shares of that stock issued in the Qualified Financing and (b) if the Exercise Shares are Series C Preferred Stock, the Series C Price, subject in each case to adjustment pursuant to Section 5 hereof.

(c) "***Exercise Shares***" shall mean (i) if the Qualified Financing is closed on or before the Maturity Date, the Preferred Stock sold in the Qualified Financing and (ii) (x) if the Qualified Financing is not closed on or before the Maturity Date, (y) if an Initial Offering or Liquidation Transaction occurs prior to the closing of the Qualified Financing or (z) in the event of a Maturity Conversion, the Series C Preferred Stock. The number and character of shares of Exercise Shares are subject to adjustment as provided herein and the term "Exercise Shares" shall include stock and other securities and property at any time receivable or issuable upon exercise of this Warrant in accordance with its terms.

(d) "***Initial Offering***" shall mean the first firm commitment underwritten public offering of its common stock registered under the Securities Act.

(e) "***Investor Rights Agreement***" shall mean the Amended and Restated Investor Rights Agreement, by and among the Company and the persons and entities listed on Exhibit A thereto, dated as of November 23, 2009, as may be amended from time to time.

(f) "***Liquidation Transaction***" shall have the meaning set forth in the Restated Certificate.

(g) "***Maturity Conversion***" shall have the meaning set forth in the Notes.

(h) "***Maturity Date***" shall have the meaning set forth in the Notes.

(i) "***Notes***" shall have the meaning set forth in the Purchase Agreement.

(j) "***Loan Amount***" shall have the meaning set forth in the Purchase Agreement.

(k) "***Preferred Stock***" shall mean the preferred stock of the Company.

(l) "***Qualified Financing***" shall have the meaning set forth in the Notes.

(m) "***Requisite Holders***" shall have the meaning set forth in the Purchase Agreement.

(n) "***Restated Certificate***" shall mean the Company's Amended and Restated Certificate of Incorporation, as it may be amended from time to time.

(o) "***Securities Act***" shall mean the Securities Act of 1933, as amended.

(p) "***Series C Preferred Stock***" shall mean the Series C Preferred Stock of the Company.

(q) "***Series C Price***" shall have the meaning set forth in the Notes, which as of the date hereof is equal to $0.9857.

2. EXERCISE OF WARRANT.

2.1 General. The rights represented by this Warrant may be exercised in whole or in part at any time during the Exercise Period, by delivery of the following to the Company at its address set forth above (or at such other address as it may designate by notice in writing to the Holder):

(a) An executed Notice of Exercise in the form attached hereto as **EXHIBIT A**;

(b) Payment of the Exercise Price either (i) in cash or by check, or (ii) by cancellation of indebtedness; and

(c) This Warrant.

Upon the exercise of the rights represented by this Warrant, a certificate or certificates for the Exercise Shares so purchased, registered in the name of the Holder or persons affiliated with the Holder, if the Holder so designates, shall be issued and delivered to the Holder within a reasonable time after the rights represented by this Warrant shall have been so exercised. In the event that this Warrant is being exercised for less than all of the then-current number of Exercise Shares purchasable hereunder, the Company shall, concurrently with the issuance by the Company of the number of Exercise Shares for which this Warrant is then being exercised, issue a new Warrant exercisable for the remaining number of Exercise Shares purchasable hereunder.

The person in whose name any certificate or certificates for Exercise Shares are to be issued upon exercise of this Warrant shall be deemed to have become the holder of record of such shares on the date on which this Warrant was surrendered and payment of the Exercise Price was made, irrespective of the date of delivery of such certificate or certificates, except that, if the date of such surrender and payment is

a date when the stock transfer books of the Company are closed, such person shall be deemed to have become the holder of such shares at the close of business on the next succeeding date on which the stock transfer books are open.

2.2 Net Exercise. In lieu of exercising this Warrant by payment of cash, the Holder may elect to receive shares equal to the value (as determined below) of this Warrant (or the portion thereof being canceled) by surrender of this Warrant at the principal office of the Company together with the properly endorsed Notice of Exercise in which event the Company shall issue to the Holder a number of Exercise Shares computed using the following formula:

$$X = \frac{Y\ (A-B)}{A}$$

Where X = the number of Exercise Shares to be issued to the Holder

Y = the number of Exercise Shares purchasable under the Warrant or, if only a portion of the Warrant is being exercised, that portion of the Warrant being canceled (at the date of such calculation)

A = the fair market value of one Exercise Share (at the date of such calculation)

B = Exercise Price (as adjusted to the date of such calculation)

For purposes of the above calculation, the fair market value of one Exercise Share shall be determined by the Company's Board of Directors in good faith; provided, however, that in the event that this Warrant is exercised pursuant to this Section 2.2 in connection with the Initial Offering of the Company's Common Stock, the fair market value per share shall be the product of (i) the per share offering price to the public in the Initial Offering, and (ii) the number of shares of Common Stock into which each Exercise Share is convertible at the time of such exercise.

3. COVENANTS OF THE COMPANY.

3.1 Covenants as to Exercise Shares. The Company covenants and agrees that all Exercise Shares that may be issued upon the exercise of the rights represented by this Warrant will, upon issuance, be validly issued and outstanding, fully paid and nonassessable, and free from all taxes, liens and charges with respect to the issuance thereof. The Company further covenants and agrees that the Company will at all times during the Exercise Period, have authorized and reserved, free from preemptive rights, a sufficient number of shares of the series of equity securities comprising the Exercise Shares to provide for the exercise of the rights represented by this Warrant. If at any time during the Exercise Period the number of authorized but unissued shares of such series of the Company's equity securities shall not be sufficient to permit exercise of this Warrant, the Company will take such corporate action as may, in the opinion of its counsel, be necessary to increase its authorized but unissued shares of such series of the Company's equity securities to such number of shares as shall be sufficient for such purposes.

3.2 Notices of Record Date. In the event of any taking by the Company of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend or other distribution, the Company shall mail to the Holder, at least ten (10) days prior to the date specified herein, a notice specifying the date on which any such record is to be taken for the purpose of such dividend or distribution.

4. REPRESENTATIONS OF HOLDER.

4.1 Acquisition of Warrant for Personal Account. The Holder represents and warrants that it is acquiring the Warrant and the Exercise Shares solely for its account for investment and not with a view to or for sale or distribution of said Warrant or Exercise Shares or any part thereof. The Holder also represents that the entire legal and beneficial interests of the Warrant and Exercise Shares the Holder is acquiring is being acquired for, and will be held for, its account only.

4.2 Securities Are Not Registered.

(a) The Holder understands that the Warrant and the Exercise Shares have not been registered under the Securities Act on the basis that no distribution or public offering of the stock of the Company is to be effected. The Holder realizes that the basis for the exemption may not be present if, notwithstanding its representations, the Holder has a present intention of acquiring the securities for a fixed or determinable period in the future, selling (in connection with a distribution or otherwise), granting any participation in, or otherwise distributing the securities. The Holder has no such present intention.

(b) The Holder recognizes that the Warrant and the Exercise Shares must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. The Holder recognizes that the Company has no obligation to register the Warrant or the Exercise Shares of the Company, or to comply with any exemption from such registration.

(c) The Holder is aware that neither the Warrant nor the Exercise Shares may be sold pursuant to Rule 144 adopted under the Securities Act unless certain conditions are met, including, among other things, the existence of a public market for the shares, the availability of certain current public information about the Company, the resale following the required holding period under Rule 144 and the number of shares being sold during any three month period not exceeding specified limitations. Holder is aware that the conditions for resale set forth in Rule 144 have not been satisfied and that the Company presently has no plans to satisfy these conditions in the foreseeable future.

4.3 Disposition of Warrant and Exercise Shares.

(a) The Holder further agrees not to make any disposition of all or any part of the Warrant or Exercise Shares in any event unless and until:

(i) The Company shall have received a letter secured by the Holder from the Securities and Exchange Commission stating that no action will be recommended to the Commission with respect to the proposed disposition;

(ii) There is then in effect a registration statement under the Securities Act covering such proposed disposition and such disposition is made in accordance with said registration statement; or

(iii) The Holder shall have notified the Company of the proposed disposition and shall have furnished the Company with a detailed statement of the circumstances surrounding the proposed disposition, and if reasonably requested by the Company, the Holder shall have furnished the Company with an opinion of counsel, reasonably satisfactory to the Company, for the Holder to the effect that such disposition will not require registration of such Warrant or Exercise Shares under the Securities Act or any applicable state securities laws. The Company agrees that it will not require an opinion of counsel with respect to transactions under Rule 144 of the Securities Act, except in unusual circumstances.

(b) The Holder understands and agrees that all certificates evidencing the shares to be issued to the Holder may bear the following legend:

THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "***SECURITIES ACT***"). THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO THE SECURITIES UNDER THE SECURITIES ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED.

4.4 Accredited Investor Status. The Holder is an "accredited investor" as defined in Regulation D promulgated under the Securities Act.

5. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF EXERCISE SHARES.

5.1 Changes in Securities. In the event of changes in the series of equity securities of the Company comprising the Exercise Shares by reason of stock dividends, splits, recapitalizations, reclassifications, combinations or exchanges of shares, separations, reorganizations, liquidations, or the like, the number and class of Exercise Shares available under the Warrant in the aggregate and the Aggregate Exercise Price shall be correspondingly adjusted to give the Holder of the Warrant, on exercise for the same Aggregate Exercise Price, the total number, class, and kind of shares as the Holder would have owned had the Warrant been exercised prior to the event and had the Holder continued to hold such shares until after the event requiring adjustment; provided, however, that such adjustment shall not be made with respect to, and this Warrant shall terminate if not exercised prior to, the events set forth in Section 7 below. For purposes of this Section 5, the "***Aggregate Exercise Price***" shall mean the aggregate Exercise Price payable in connection with the exercise in full of this Warrant. The form of this Warrant need not be changed because of any adjustment in the number of Exercise Shares subject to this Warrant.

5.2 Automatic Conversion. Upon the automatic conversion of all outstanding shares of the series of equity securities comprising the Exercise Shares, this Warrant shall become exercisable for that number of shares of Common Stock of the Company into which the Exercise Shares would then be convertible, so long as such shares, if this Warrant had been exercised prior to such automatic conversion, would have been converted into shares of the Company's Common Stock pursuant to the Restated Certificate. In such case, all references to "Exercise Shares" shall mean shares of the Company's Common Stock issuable upon exercise of this Warrant, as appropriate.

6. FRACTIONAL SHARES. No fractional shares shall be issued upon the exercise of this Warrant as a consequence of any adjustment pursuant hereto. All Exercise Shares (including fractions) to be issued upon exercise of this Warrant shall be aggregated for purposes of determining whether the exercise would result in the issuance of any fractional share. If, after aggregation, the exercise would result in the issuance of a fractional share, the Company shall, in lieu of issuance of any fractional share, pay the Holder otherwise entitled to such fraction a sum in cash equal to the product resulting from multiplying the then current fair market value of one Exercise Share by such fraction.

7. EARLY TERMINATION. In the event of, at any time during the Exercise Period, an Initial Offering or a Liquidation Transaction, the Company shall provide to the Holder ten (10) days' advance written notice of such Initial Offering or Liquidation Transaction, and this Warrant shall terminate unless exercised immediately prior to the date such Initial Offering is closed or the closing of such Liquidation Transaction.

8. REGISTRATION RIGHTS. To the extent the Holder is a party to the Investor Rights Agreement, the Exercise Shares issuable upon exercise of this Warrant shall be deemed "Registrable Securities" for all purposes under the Investor Rights Agreement and shall be subject to the rights and covenants therein.

9. MARKET STAND-OFF AGREEMENT. The Holder acknowledges and agrees that any and all shares of common stock of the Company acquired by Holder pursuant to the exercise of this Warrant shall be irrevocably and unconditionally subject to the "Market Stand-Off" provision set forth in Section 5 of the Purchase Agreement.

10. NO STOCKHOLDER RIGHTS. This Warrant in and of itself shall not entitle the Holder to any voting rights or other rights as a stockholder of the Company.

11. TRANSFER OF WARRANT. Subject to applicable laws and the restriction on transfer set forth on the first page of this Warrant, this Warrant and all rights hereunder are transferable in full only, by the Holder in person or by duly authorized attorney, upon delivery of this Warrant and the form of assignment attached hereto as **EXHIBIT B** to any transferee designated by Holder. The transferee shall sign an investment letter in form and substance satisfactory to the Company.

12. LOST, STOLEN, MUTILATED OR DESTROYED WARRANT. If this Warrant is lost, stolen, mutilated or destroyed, the Company may, on such terms as to indemnity or otherwise as it may reasonably impose (which shall, in the case of a mutilated Warrant, include the surrender thereof), issue a new Warrant of like denomination and tenor as the Warrant so lost, stolen, mutilated or destroyed. Any such new Warrant shall constitute an original contractual obligation of the Company, whether or not the allegedly lost, stolen, mutilated or destroyed Warrant shall be at any time enforceable by anyone.

13. AMENDMENT. Any term of this Warrant may be amended or waived with the written consent of the Company and the Requisite Holders, provided that all Warrants are similarly affected. Upon the effectuation of any such amendment or waiver in conformance with this Section 13, the Company shall promptly give written notice thereof to the record holders of the Warrants who have not previously consented thereto in writing.

14. NOTICES. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient, if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) 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 Company at the address listed above and to Holder at the address listed above or at such other address as the Company or Holder may designate by ten (10) days' advance written notice to the other parties hereto.

15. ACCEPTANCE. Receipt of this Warrant by the Holder shall constitute acceptance of and agreement to all of the terms and conditions contained herein.

16. GOVERNING LAW. This Warrant and all rights, obligations and liabilities hereunder shall be governed by and construed under the laws of the State of California as applied to agreements among California residents, made and to be performed entirely within the State of California without giving effect to conflicts of laws principles.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its duly authorized officer as of the date first written above.

ACELRX PHARMACEUTICALS, INC.

By: _____

Richard King
Chief Executive Officer

EXHIBIT A

NOTICE OF EXERCISE

TO: ACELRX PHARMACEUTICALS, INC.

(1) ☐ The undersigned hereby elects to purchase _____ shares of Preferred Stock (as such term is defined in the foregoing Warrant) (the "***Exercise Shares***") of **ACELRX PHARMACEUTICALS, INC.** (the "***Company***") pursuant to the terms of the attached Warrant, and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any; or

☐ The undersigned hereby elects to purchase _____ shares of Preferred Stock (as such term is defined in the foregoing Warrant) (the "***Exercise Shares***") of **ACELRX PHARMACEUTICALS, INC.** (the "***Company***") pursuant to the terms of the net exercise provisions set forth in Section 2.1 of the attached Warrant, and shall tender payment of all applicable transfer taxes, if any.

(2) Please issue a certificate or certificates representing said Exercise Shares in the name of the undersigned or in such other name as is specified below:

_____
(Name)

_____

_____
(Address)

(3) The undersigned represents that (i) the aforesaid Exercise Shares are being acquired for the account of the undersigned for investment and not with a view to, or for resale in connection with, the distribution thereof and that the undersigned has no present intention of distributing or reselling such shares; (ii) the undersigned is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision regarding its investment in the Company; (iii) the undersigned is experienced in making investments of this type and has such knowledge and background in financial and business matters that the undersigned is capable of evaluating the merits and risks of this investment and protecting the undersigned's own interests; (iv) the undersigned understands that Exercise Shares issuable upon exercise of this Warrant have not been registered under the Securities Act of 1933, as amended (the "***Securities Act***"), by reason of a specific exemption from the registration provisions of the Securities Act, which exemption depends upon, among other things, the bona fide nature of the investment intent as expressed herein, and, because such securities have not been registered under the Securities Act, they must be held indefinitely unless subsequently registered under the Securities Act or an exemption from such registration is available; (v) the undersigned is aware that the aforesaid Exercise Shares may not be sold pursuant to Rule 144 adopted under the Securities Act unless certain conditions are met and until the undersigned has held the shares for the time period prescribed by Rule 144, that among the conditions for use of the Rule is the availability of current information to the public about the Company and the Company has not made such information available and has no present plans to do so; and (vi) the undersigned agrees not to make any disposition of all or any part of the aforesaid shares of Exercise Shares unless and until there is then in effect a registration statement under the Securities Act covering such proposed disposition and such disposition is made in accordance with said registration statement, or, if reasonably requested by the Company, the undersigned has provided the Company with an opinion of counsel satisfactory to the Company, stating that such registration is not required.

_____ _____
(Date) (Signature)

_____
(Print name)

EXHIBIT B

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____
(Please Print)

Address: _____
(Please Print)

Dated: _____, 20__

Holder's
Signature: _____

Holder's
Address: _____

NOTE: The signature to this Assignment Form must correspond with the name as it appears on the face of the Warrant, without alteration or enlargement or any change whatever. Officers of corporations and those acting in a fiduciary or other representative capacity should file proper evidence of authority to assign the foregoing Warrant.

Exhibit 10.2

ACELRX PHARMACEUTICALS, INC.
2006 STOCK PLAN

1. **ESTABLISHMENT, AMENDMENT, PURPOSE AND TERM OF PLAN.**

1.1 **Establishment.** The AcelRx Pharmaceuticals, Inc. 2006 Stock Plan (the *"**Plan**"*) was established effective as of August 15, 2006.

1.2 **Amendment.** The Plan was amended and restated on each of February 1, 2008 and November 23, 2009, and on each such date, following the approval of the Board and stockholders of the Company.

1.3 **Purpose.** The purpose of the Plan is to advance the interests of the Participating Company Group and its stockholders by providing an incentive to attract, retain and reward persons performing services for the Participating Company Group and by motivating such persons to contribute to the growth and profitability of the Participating Company Group. The Company intends that the Plan comply with Section 409A of the Code (including any amendments or replacements of such section), and the Plan shall be so construed.

1.4 **Term of Plan.** The Plan shall continue in effect until its termination by the Board; provided, however, that all Awards shall be granted, if at all, within ten (10) years from the earlier of the date the Plan is adopted by the Board or the date the Plan is duly approved by the stockholders of the Company.

2. **DEFINITIONS AND CONSTRUCTION.**

2.1 **Definitions.** Whenever used herein, the following terms shall have their respective meanings set forth below:

(a) "***Award***" means an Option or Stock Purchase Right granted under the Plan.

(b) *"**Award Agreement**"* means a written or electronic agreement between the Company and a Participant setting forth the terms, conditions and restrictions of the Award granted to the Participant.

(c) *"**Board**"* means the Board of Directors of the Company. If one or more Committees have been appointed by the Board to administer the Plan, *"**Board**"* also means such Committee(s).

(d) *"**Cause**"* means, unless such term or an equivalent term is otherwise defined with respect to an Award by the Participant's Award Agreement or written contract of employment or service, any of the following: (i) the Participant's theft, dishonesty, willful misconduct, breach of fiduciary duty for personal profit, or falsification of any Participating Company documents or records; (ii) the Participant's material failure to abide by a Participating Company's code of conduct or other policies (including, without limitation, policies relating to confidentiality and reasonable workplace conduct); (iii) the Participant's

unauthorized use, misappropriation, destruction or diversion of any tangible or intangible asset or corporate opportunity of a Participating Company (including, without limitation, the Participant's improper use or disclosure of a Participating Company's confidential or proprietary information); (iv) any intentional act by the Participant which has a material detrimental effect on a Participating Company's reputation or business; (v) the Participant's repeated failure or inability to perform any reasonable assigned duties after written notice from a Participating Company of, 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 a Participating Company, 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 with a Participating Company.

(e) *"**Change in Control**"* means, unless such term or an equivalent term is otherwise defined with respect to an Award by the Participant's Award Agreement or written contract of employment or service, the occurrence of any of the following:

(i) an Ownership Change Event or a series of related Ownership Change Events (collectively, a *"**Transaction**"*) in which the stockholders of the Company immediately before the Transaction do not retain immediately after the Transaction, in substantially the same proportions as their ownership of shares of the Company's voting stock immediately before the Transaction, direct or indirect beneficial ownership of more than fifty percent (50%) of the total combined voting power of the outstanding voting securities of the Company or, in the case of an Ownership Change Event described in Section 2.1(t)(iii), the entity to which the assets of the Company were transferred (the *"**Transferee**"*), as the case may be; or

(ii) the liquidation or dissolution of the Company.

For purposes of the preceding sentence, indirect beneficial ownership shall include, without limitation, an interest resulting from ownership of the voting securities of one or more corporations or other business entities which own the Company or the Transferee, as the case may be, either directly or through one or more subsidiary corporations or other business entities. The Board shall have the right to determine whether multiple sales or exchanges of the voting securities of the Company or multiple Ownership Change Events are related, and its determination shall be final, binding and conclusive.

(f) *"**Code**"* means the Internal Revenue Code of 1986, as amended, and any applicable regulations promulgated thereunder.

(g) *"**Committee**"* means the compensation committee or other committee of the Board duly appointed to administer the Plan and having such powers as shall be specified by the Board. Unless the powers of the Committee have been specifically limited, the Committee shall have all of the powers of the Board granted herein, including, without limitation, the power to amend or terminate the Plan at any time, subject to the terms of the Plan and any applicable limitations imposed by law.

(h) *"**Company**"* means AcelRx Pharmaceuticals, Inc., a Delaware corporation, or any successor corporation thereto.

(i) *"**Consultant**"* means a person engaged to provide consulting or advisory services (other than as an Employee or a Director) to a Participating Company, provided that the identity of such person, the nature of such services or the entity to which such services are provided would not preclude the Company from offering or selling securities to such person pursuant to the Plan in reliance on either the exemption from registration provided by Rule 701 under the Securities Act or, if the Company is required to file reports pursuant to Section 13 or 15(d) of the Exchange Act, registration on a Form S-8 Registration Statement under the Securities Act.

(j) *"**Director**"* means a member of the Board or of the board of directors of any other Participating Company.

(k) *"**Disability**"* means the inability of the Participant, in the opinion of a qualified physician acceptable to the Company, to perform the major duties of the Participant's position with the Participating Company Group because of the sickness or injury of the Participant.

(l) *"**Employee**"* means any person treated as an employee (including an Officer or a Director who is also treated as an employee) in the records of a Participating Company and, with respect to any Incentive Stock Option granted to such person, who is an employee for purposes of Section 422 of the Code; provided, however, that neither service as a Director nor payment of a director's fee shall be sufficient to constitute employment for purposes of the Plan. The Company shall determine in good faith and in the exercise of its discretion whether an individual has become or has ceased to be an Employee and the effective date of such individual's employment or termination of employment, as the case may be. For purposes of an individual's rights, if any, under the terms of the Plan as of the time of the Company's determination of whether or not the individual is an Employee, all such determinations by the Company shall be final, binding and conclusive as to such rights, if any, notwithstanding that the Company or any court of law or governmental agency subsequently makes a contrary determination as to such individual's status as an Employee.

(m) *"**Exchange Act**"* means the Securities Exchange Act of 1934, as amended.

(n) *"**Fair Market Value**"* means, as of any date, the value of a share of Stock or other property as determined by the Board, in its discretion, or by the Company, in its discretion, if such determination is expressly allocated to the Company herein, subject to the following:

(i) If, on such date, the Stock is listed on a national or regional securities exchange or market system, the Fair Market Value of a share of Stock shall be the closing price of a share of Stock (or the mean of the closing bid and asked prices of a share of Stock if the Stock is so quoted instead) as quoted on the Nasdaq National Market, The Nasdaq SmallCap Market or such other national or regional securities exchange or market system

constituting the primary market for the Stock, as reported in The Wall Street Journal or such other source as the Company deems reliable. If the relevant date does not fall on a day on which the Stock has traded on such securities exchange or market system, the date on which the Fair Market Value shall be established shall be the last day on which the Stock was so traded prior to the relevant date, or such other appropriate day as shall be determined by the Board, in its discretion.

(ii) If, on such date, the Stock is not listed on a national or regional securities exchange or market system, the Fair Market Value of a share of Stock shall be as determined by the Board in good faith without regard to any restriction other than a restriction which, by its terms, will never lapse, and subject to the applicable requirements, if any, of Section 409A of the Code and Section 260.140.50 of Title 10 of the California Code of Regulations.

(o) *"**Incentive Stock Option**"* means an Option intended to be (as set forth in the Award Agreement) and which qualifies as an incentive stock option within the meaning of Section 422(b) of the Code.

(p) *"**Insider**"* means an Officer, a Director of the Company or other person whose transactions in Stock are subject to Section 16 of the Exchange Act.

(q) *"**Nonstatutory Stock Option**"* means an Option not intended to be (as set forth in the Award Agreement) or which does not qualify as an Incentive Stock Option.

(r) *"**Officer**"* means any person designated by the Board as an officer of the Company.

(s) *"**Option**"* means a right granted under Section 6 to purchase Stock pursuant to the terms and conditions of the Plan. An Option may be either an Incentive Stock Option or a Nonstatutory Stock Option.

(t) *"**Ownership Change Event**"* means the occurrence of any of the following with respect to the Company: (i) the direct or indirect sale or exchange in a single or series of related transactions by the stockholders of the Company of more than fifty percent (50%) of the voting stock of the Company; (ii) a merger or consolidation in which the Company is a party; or (iii) the sale, exchange, or transfer of all or substantially all of the assets of the Company.

(u) *"**Parent Corporation**"* means any present or future "parent corporation" of the Company, as defined in Section 424(e) of the Code.

(v) "***Participant"*** means any eligible person who has been granted one or more Awards.

(w) *"**Participating Company**"* means the Company or any Parent Corporation or Subsidiary Corporation.

(x) *"**Participating Company Group**"* means, at any point in time, all entities collectively which are then Participating Companies.

(y) *"**Rule 16b-3**"* means Rule 16b-3 under the Exchange Act, as amended from time to time, or any successor rule or regulation.

(z) *"**Securities Act**"* means the Securities Act of 1933, as amended.

(aa) *"**Service**"* means a Participant's employment or service with the Participating Company Group, whether in the capacity of an Employee, a Director or a Consultant. A Participant's Service shall not be deemed to have terminated merely because of a change in the capacity in which the Participant renders Service to the Participating Company Group or a change in the Participating Company for which the Participant renders such Service, provided that there is no interruption or termination of the Participant's Service. Furthermore, a Participant's Service shall not be deemed to have terminated if the Participant takes any military leave, sick leave, or other bona fide leave of absence approved by the Company. However, if any such leave taken by a Participant exceeds ninety (90) days, then on the ninety-first (91st) day following the commencement of such leave the Participant's Service shall be deemed to have terminated, unless the Participant's right to return to Service is guaranteed by statute or contract. Notwithstanding the foregoing, unless otherwise designated by the Company or required by law, a leave of absence shall not be treated as Service for purposes of determining vesting under the Participant's Award Agreement. Except as otherwise provided by the Board, in its discretion, the Participant's Service shall be deemed to have terminated either upon an actual termination of Service or upon the corporation for which the Participant performs Service ceasing to be a Participating Company. Subject to the foregoing, the Company, in its discretion, shall determine whether the Participant's Service has terminated and the effective date of and reason for such termination.

(bb) *"**Stock**"* means the common stock of the Company, as adjusted from time to time in accordance with Section 4.2.

(cc) ***"Stock Purchase Right"*** means a right granted under Section 7 to purchase Stock pursuant to the terms and conditions of the Plan.

(dd) *"**Subsidiary Corporation**"* means any present or future "subsidiary corporation" of the Company, as defined in Section 424(f) of the Code.

(ee) *"**Ten Percent Stockholder**"* means a person who, at the time an Award is granted to such person, owns stock possessing more than ten percent (10%) of the total combined voting power (as defined in Section 194.5 of the California Corporations Code) of all classes of stock of a Participating Company within the meaning of Section 422(b)(6) of the Code.

2.2 **Construction.** Captions and titles contained herein are for convenience only and shall not affect the meaning or interpretation of any provision of the Plan. Except when otherwise indicated by the context, the singular shall include the plural and the plural shall include the singular. Use of the term "or" is not intended to be exclusive, unless the context clearly requires otherwise.

3. **ADMINISTRATION.**

3.1 **Administration by the Board.** The Plan shall be administered by the Board. All questions of interpretation of the Plan or of any Award shall be determined by the Board, and such determinations shall be final and binding upon all persons having an interest in the Plan or such Award.

3.2 **Authority of Officers.** Any Officer shall have the authority to act on behalf of the Company with respect to any matter, right, obligation, determination or election which is the responsibility of or which is allocated to the Company herein, provided the Officer has apparent authority with respect to such matter, right, obligation, determination or election.

3.3 **Powers of the Board.** In addition to any other powers set forth in the Plan and subject to the provisions of the Plan, the Board shall have the full and final power and authority, in its discretion:

(a) to determine the persons to whom, and the time or times at which, Awards shall be granted and the number of shares of Stock to be subject to each Award;

(b) to designate Options as Incentive Stock Options or Nonstatutory Stock Options;

(c) to determine the Fair Market Value of shares of Stock or other property;

(d) to determine the terms, conditions and restrictions applicable to each Award (which need not be identical) and any shares acquired upon the exercise thereof, including, without limitation, (i) the exercise price of the Award, (ii) the method of payment for shares purchased upon the exercise of the Award, (iii) the method for satisfaction of any tax withholding obligation arising in connection with the Award or such shares, including by the withholding or delivery of shares of stock, (iv) the timing, terms and conditions of the exercisability of the Award or the vesting of any shares acquired upon the exercise thereof, (v) the time of the expiration of the Award, (vi) the effect of the Participant's termination of Service on any of the foregoing, and (vii) all other terms, conditions and restrictions applicable to the Award or such shares not inconsistent with the terms of the Plan;

(e) to approve one or more forms of Award Agreement;

(f) to amend, modify, extend, cancel or renew any Award or to waive any restrictions or conditions applicable to any Award or any shares acquired upon the exercise thereof;

(g) to accelerate, continue, extend or defer the exercisability of any Award or the vesting of any shares acquired upon the exercise thereof, including with respect to the period following a Participant's termination of Service;

(h) to prescribe, amend or rescind rules, guidelines and policies relating to the Plan, or to adopt supplements to, or alternative versions of, the Plan, including,

without limitation, as the Board deems necessary or desirable to comply with the laws of, or to accommodate the tax policy or custom of, foreign jurisdictions whose citizens may be granted Awards; and

(i) to correct any defect, supply any omission or reconcile any inconsistency in the Plan or any Award Agreement and to make all other determinations and take such other actions with respect to the Plan or any Award as the Board may deem advisable to the extent not inconsistent with the provisions of the Plan or applicable law.

3.4 **Administration with Respect to Insiders.** With respect to participation by Insiders in the Plan, at any time that any class of equity security of the Company is registered pursuant to Section 12 of the Exchange Act, the Plan shall be administered in compliance with the requirements, if any, of Rule 16b-3.

3.5 **Indemnification.** In addition to such other rights of indemnification as they may have as members of the Board or officers or employees of the Participating Company Group, members of the Board and any officers or employees of the Participating Company Group to whom authority to act for the Board or the Company is delegated shall be indemnified by the Company against all reasonable expenses, including attorneys' fees, actually and necessarily incurred in connection with the defense of any action, suit or proceeding, or in connection with any appeal therein, to which they or any of them may be a party by reason of any action taken or failure to act under or in connection with the Plan, or any right granted hereunder, and against all amounts paid by them in settlement thereof (provided such settlement is approved by independent legal counsel selected by the Company) or paid by them in satisfaction of a judgment in any such action, suit or proceeding, except in relation to matters as to which it shall be adjudged in such action, suit or proceeding that such person is liable for gross negligence, bad faith or intentional misconduct in duties; provided, however, that within sixty (60) days after the institution of such action, suit or proceeding, such person shall offer to the Company, in writing, the opportunity at its own expense to handle and defend the same.

4. SHARES SUBJECT TO PLAN.

4.1 **Maximum Number of Shares Issuable.** Subject to adjustment as provided in Section 4.2, the maximum aggregate number of shares of Stock that may be issued under the Plan shall be Eight Million Three Hundred Seventy-Two Thousand Two Hundred Thirty-Seven (8,372,237) which shall consist of authorized but unissued or reacquired shares of Stock or any combination thereof. If an outstanding Award for any reason expires or is terminated or canceled or if shares of Stock are acquired upon the exercise of an Award subject to a Company repurchase option and are repurchased by the Company at the Participant's exercise or purchase price, the shares of Stock allocable to the unexercised portion of such Award or such repurchased shares of Stock shall again be available for issuance under the Plan. Notwithstanding the foregoing, at any such time as the offer and sale of securities pursuant to the Plan is subject to compliance with Section 260.140.45 of Title 10 of the California Code of Regulations (*"**Section 260.140.45**"*), the total number of shares of Stock issuable upon the exercise of all outstanding Awards (together with options outstanding under any other stock plan of the Company) and the total number of shares provided for under any stock bonus or similar plan of the Company shall not exceed thirty percent (30%) (or such other higher percentage

limitation as may be approved by the stockholders of the Company pursuant to Section 260.140.45) of the then outstanding shares of the Company as calculated in accordance with the conditions and exclusions of Section 260.140.45.

4.2 **Adjustments for Changes in Capital Structure.** Subject to any required action by the stockholders of the Company, in the event of any change in the Stock effected without receipt of consideration by the Company, whether through merger, consolidation, reorganization, reincorporation, recapitalization, reclassification, stock dividend, stock split, reverse stock split, split-up, split-off, spin-off, combination of shares, exchange of shares, or similar change in the capital structure of the Company, or in the event of payment of a dividend or distribution to the stockholders of the Company in a form other than Stock (excepting normal cash dividends) that has a material effect on the Fair Market Value of shares of Stock, appropriate and proportionate adjustments shall be made in the number and class of shares subject to the Plan and to any outstanding Awards, in the ISO Share Limit set forth in Section 5.3(a), and in the exercise or purchase price per share of any outstanding Awards in order to prevent dilution or enlargement of Participants' rights under the Plan. For purposes of the foregoing, conversion of any convertible securities of the Company shall not be treated as "effected without receipt of consideration by the Company." If a majority of the shares which are of the same class as the shares that are subject to outstanding Awards are exchanged for, converted into, or otherwise become (whether or not pursuant to an Ownership Change Event) shares of another corporation (the *"**New Shares**"*), the Committee may unilaterally amend the outstanding Awards to provide that such Awards are for New Shares. In the event of any such amendment, the number of shares subject to, and the exercise or purchase price per share of, the outstanding Awards shall be adjusted in a fair and equitable manner as determined by the Committee, in its discretion. Any fractional share resulting from an adjustment pursuant to this Section 4.2 shall be rounded down to the nearest whole number, and the exercise price per share shall be rounded up to the nearest whole cent. In no event may the exercise price of any Award be decreased to an amount less than the par value, if any, of the stock subject to the Award. Such adjustments shall be determined by the Board, and its determination shall be final, binding and conclusive.

5. ELIGIBILITY AND OPTION LIMITATIONS.

5.1 **Persons Eligible for Awards.** Awards may be granted only to Employees, Consultants and Directors.

5.2 **Participation in Plan.** Awards are granted solely at the discretion of the Board. Eligible persons may be granted more than one Award. However, eligibility in accordance with this Section shall not entitle any person to be granted an Award, or, having been granted an Award, to be granted an additional Award.

5.3 **Incentive Stock Option Limitations.**

(a) **Maximum Number of Shares Issuable Pursuant to Incentive Stock Options.** Subject to Section 4.1 and adjustment as provided in Section 4.2, the maximum aggregate number of shares of Stock that may be issued under the Plan pursuant to the exercise of Incentive Stock Options shall not exceed Seventeen Million (17,000,000) shares (the *"**ISO***

Share Limit"). The maximum aggregate number of shares of Stock that may be issued under the Plan pursuant to all Awards other than Incentive Stock Options shall be the number of shares determined in accordance with Section 4.1, subject to adjustment as provided in Section 4.2.

(b) **Persons Eligible.** An Incentive Stock Option may be granted only to a person who, on the effective date of grant, is an Employee. Any person who is not an Employee on the effective date of the grant of an Option to such person may be granted only a Nonstatutory Stock Option. An Incentive Stock Option granted to a prospective Employee upon the condition that such person become an Employee shall be deemed granted effective on the date such person commences Service as an Employee, with an exercise price determined as of such date in accordance with Section 6.1.

(c) **Fair Market Value Limitation.** To the extent that options designated as Incentive Stock Options (granted under all stock plans of the Participating Company Group, including the Plan) become exercisable by a Participant for the first time during any calendar year for stock having a Fair Market Value greater than One Hundred Thousand Dollars ($100,000), the portions of such options which exceed such amount shall be treated as Nonstatutory Stock Options. For purposes of this Section 5.3, options designated as Incentive Stock Options shall be taken into account in the order in which they were granted, and the Fair Market Value of stock shall be determined as of the time the option with respect to such stock is granted. If the Code is amended to provide for a different limitation from that set forth in this Section, such different limitation shall be deemed incorporated herein effective as of the date and with respect to such Options as required or permitted by such amendment to the Code. If an Option is treated as an Incentive Stock Option in part and as a Nonstatutory Stock Option in part by reason of the limitation set forth in this Section, the Participant may designate which portion of such Option the Participant is exercising. In the absence of such designation, the Participant shall be deemed to have exercised the Incentive Stock Option portion of the Option first. Separate certificates representing each such portion shall be issued upon the exercise of the Option.

6. TERMS AND CONDITIONS OF OPTIONS.

Options shall be evidenced by Award Agreements specifying the number of shares of Stock covered thereby, in such form as the Board shall from time to time establish. Award Agreements may incorporate all or any of the terms of the Plan by reference and shall comply with and be subject to the following terms and conditions:

6.1 **Exercise Price.** The exercise price for each Option shall be established in the discretion of the Board; provided, however, that (a) the exercise price per share for an Option shall be not less than the Fair Market Value of a share of Stock on the effective date of grant of the Option and (b) no Option granted to a Ten Percent Stockholder shall have an exercise price per share less than one hundred ten percent (110%) of the Fair Market Value of a share of Stock on the effective date of grant of the Option. Notwithstanding the foregoing, an Option (whether an Incentive Stock Option or a Nonstatutory Stock Option) may be granted with an exercise price lower than the minimum exercise price set forth above if such Option is granted pursuant to an assumption or substitution for another option in a manner qualifying under the provisions of Section 424(a) of the Code.

6.2 **Exercisability and Term of Options.** Options shall be exercisable at such time or times, or upon such event or events, and subject to such terms, conditions, performance criteria and restrictions as shall be determined by the Board and set forth in the Award Agreement evidencing such Option; provided, however, that (a) no Option shall be exercisable after the expiration of ten (10) years after the effective date of grant of such Option, (b) no Incentive Stock Option granted to a Ten Percent Stockholder shall be exercisable after the expiration of five (5) years after the effective date of grant of such Option, and (c) with the exception of an Option granted to an Officer, a Director or a Consultant, no Option shall become exercisable at a rate less than twenty percent (20%) per year over a period of five (5) years from the effective date of grant of such Option, subject to the Participant's continued Service. Subject to the foregoing, unless otherwise specified by the Board in the grant of an Option, any Option granted hereunder shall terminate ten (10) years after the effective date of grant of the Option, unless earlier terminated in accordance with its provisions.

6.3 **Payment of Exercise Price.**

(a) ***Forms of Consideration Authorized.*** Except as otherwise provided below, payment of the exercise price for the number of shares of Stock being purchased pursuant to any Option shall be made (i) in cash or by check or cash equivalent, (ii) by tender to the Company, or attestation to the ownership, of shares of Stock owned by the Participant having a Fair Market Value not less than the exercise price, (iii) by delivery of a properly executed notice together with irrevocable instructions to a broker providing for the assignment to the Company of the proceeds of a sale or loan with respect to some or all of the shares being acquired upon the exercise of the Option (including, without limitation, through an exercise complying with the provisions of Regulation T as promulgated from time to time by the Board of Governors of the Federal Reserve System) (a *"**Cashless Exercise**"*), (iv) by such other consideration as may be approved by the Board from time to time to the extent permitted by applicable law, or (v) by any combination thereof. The Board may at any time or from time to time, by approval of or by amendment to the standard forms of Award Agreement described in Section 8, or by other means, grant Options which do not permit all of the foregoing forms of consideration to be used in payment of the exercise price or which otherwise restrict one or more forms of consideration.

(b) ***Limitations on Forms of Consideration.***

(i) **Tender of Stock.** Notwithstanding the foregoing, an Option may not be exercised by tender to the Company, or attestation to the ownership, of shares of Stock to the extent such tender or attestation would constitute a violation of the provisions of any law, regulation or agreement restricting the redemption of the Company's stock. Unless otherwise provided by the Board, an Option may not be exercised by tender to the Company, or attestation to the ownership, of shares of Stock unless such shares either have been owned by the Participant for more than six (6) months (and were not used for another Option exercise by attestation during such period) or were not acquired, directly or indirectly, from the Company.

(ii) **Cashless Exercise.** The Company reserves, at any and all times, the right, in the Company's sole and absolute discretion, to establish, decline to approve or

terminate any program or procedures for the exercise of Options by means of a Cashless Exercise.

6.4 **Effect of Termination of Service.**

(a) ***Option Exercisability.*** Subject to earlier termination of the Option as otherwise provided by this Plan and unless a longer exercise period is provided by the Board in the grant of an Option and set forth in the Award Agreement, an Option shall terminate immediately upon the Participant's termination of Service to the extent that it is then unvested and shall be exercisable after the Participant's termination of Service to the extent it is then vested only during the applicable time period determined in accordance with this Section and thereafter shall terminate:

(i) **Disability.** If the Participant's Service terminates because of the Disability of the Participant, the Option, to the extent unexercised and exercisable on the date on which the Participant's Service terminated, may be exercised by the Participant (or the Participant's guardian or legal representative) at any time prior to the expiration of twelve (12) months after the date on which the Participant's Service terminated, but in any event no later than the date of expiration of the Option's term as set forth in the Award Agreement evidencing such Option (the *"**Option Expiration Date**"*).

(ii) **Death.** If the Participant's Service terminates because of the death of the Participant, the Option, to the extent unexercised and exercisable on the date on which the Participant's Service terminated, may be exercised by the Participant's legal representative or other person who acquired the right to exercise the Option by reason of the Participant's death at any time prior to the expiration of twelve (12) months after the date on which the Participant's Service terminated, but in any event no later than the Option Expiration Date. The Participant's Service shall be deemed to have terminated on account of death if the Participant dies within three (3) months (or such longer period of time as determined by the Board, in its discretion) after the Participant's termination of Service.

(iii) **Termination for Cause.** Notwithstanding any other provision of the Plan to the contrary, if the Participant's Service with the Participating Company Group is terminated for Cause, the Option shall terminate and cease to be exercisable immediately upon such termination of Service.

(iv) **Other Termination of Service.** If the Participant's Service terminates for any reason, except Disability, death or Cause, the Option, to the extent unexercised and exercisable by the Participant on the date on which the Participant's Service terminated, may be exercised by the Participant at any time prior to the expiration of three (3) months after the date on which the Participant's Service terminated, but in any event no later than the Option Expiration Date.

(b) ***Extension if Exercise Prevented by Law.*** Notwithstanding the foregoing other than termination for Cause, if the exercise of an Option within the applicable time periods set forth in Section 6.4(a) is prevented by the provisions of Section 11 below, the Option shall remain exercisable until thirty (30) days after the date such exercise first would no

longer be prevented by such provisions, but in any event no later than the Option Expiration Date.

6.5 **Transferability of Options.** During the lifetime of the Participant, an Option shall be exercisable only by the Participant or the Participant's guardian or legal representative. No Option shall be assignable or transferable by the Participant, except by will or by the laws of descent and distribution. Notwithstanding the foregoing, to the extent permitted by the Board, in its discretion, and set forth in the Award Agreement evidencing such Option, a Nonstatutory Stock Option shall be assignable or transferable subject to the applicable limitations, if any, described in Section 260.140.41 of Title 10 of the California Code of Regulations, Rule 701 under the Securities Act, and the General Instructions to Form S-8 Registration Statement under the Securities Act.

7. TERMS AND CONDITIONS OF STOCK PURCHASE RIGHTS.

Stock Purchase Rights shall be evidenced by Award Agreements, specifying the number of shares of Stock covered thereby, in such form as the Board shall from time to time establish. Award Agreements may incorporate all or any of the terms of the Plan by reference and shall comply with and be subject to the following terms and conditions:

7.1 **Purchase Price.** The purchase price under each Stock Purchase Right shall be established by the Board; provided, however, that (a) the purchase price per share shall be at least eighty-five percent (85%) of the Fair Market Value of a share of Stock either on the effective date of grant of the Stock Purchase Right or on the date on which the purchase is consummated and (b) the purchase price per share under a Stock Purchase Right granted to a Ten Percent Stockholder shall be at least one hundred percent (100%) of the Fair Market Value of a share of Stock either on the effective date of grant of the Stock Purchase Right or on the date on which the purchase is consummated.

7.2 **Purchase Period.** A Stock Purchase Right shall be exercisable within a period established by the Board, which shall in no event exceed thirty (30) days from the effective date of the grant of the Stock Purchase Right.

7.3 **Payment of Purchase Price.** Except as otherwise provided below, payment of the purchase price for the number of shares of Stock being purchased pursuant to any Stock Purchase Right shall be made (a) in cash or by check or cash equivalent, (b) in the form of the Participant's past service rendered to a Participating Company or for its benefit having a value not less than the aggregate purchase price of the shares being acquired, (c) by such other consideration as may be approved by the Board from time to time to the extent permitted by applicable law, or (d) by any combination thereof. The Board may at any time or from time to time, by adoption of or by amendment to the standard form of Award Agreement described in Section 8, or by other means, grant Stock Purchase Rights which do not permit all of the foregoing forms of consideration to be used in payment of the purchase price or which otherwise restrict one or more forms of consideration.

7.4 **Vesting and Restrictions on Transfer.** Shares issued pursuant to any Stock Purchase Right may or may not be made subject to vesting conditioned upon the

satisfaction of such Service requirements, conditions, restrictions or performance criteria (the *"**Vesting Conditions**"*) as shall be established by the Board and set forth in the Award Agreement evidencing such Award. During any period (the *"**Restriction Period**"*) in which shares acquired pursuant to a Stock Purchase Right remain subject to Vesting Conditions, such shares may not be sold, exchanged, transferred, pledged, assigned or otherwise disposed of other than pursuant to an Ownership Change Event or as provided in Section 7.5. Upon request by the Company, each Participant shall execute any agreement evidencing such transfer restrictions prior to the receipt of shares of Stock hereunder and shall promptly present to the Company any and all certificates representing shares of Stock acquired hereunder for the placement on such certificates of appropriate legends evidencing any such transfer restrictions.

7.5 **Effect of Termination of Service.** Unless otherwise provided by the Board in the grant of a Stock Purchase Right and set forth in the Award Agreement, if a Participant's Service terminates for any reason, whether voluntary or involuntary (including the Participant's death or disability), then the Company shall have the option to repurchase for the purchase price paid by the Participant any shares acquired by the Participant pursuant to a Stock Purchase Right which remain subject to Vesting Conditions as of the date of the Participant's termination of Service; provided, however, that with the exception of shares acquired pursuant to a Stock Purchase Right by an Officer, a Director or a Consultant, the Company's repurchase option must lapse at the rate of at least twenty percent (20%) of the shares per year over the period of five (5) years from the effective date of grant of the Stock Purchase Right (without regard to the date on which the Stock Purchase Right was exercised) and the repurchase option must be exercised, if at all, for cash or cancellation of purchase money indebtedness for the shares within ninety (90) days following the Participant's termination of Service. The Company shall have the right to assign at any time any repurchase right it may have, whether or not such right is then exercisable, to one or more persons as may be selected by the Company.

7.6 **Nontransferability of Stock Purchase Rights.** Rights to acquire shares of Stock pursuant to a Stock Purchase Right may not be assigned or transferred in any manner except by will or the laws of descent and distribution, and, during the lifetime of the Participant, shall be exercisable only by the Participant.

8. STANDARD FORMS OF AWARD AGREEMENTS.

8.1 **Award Agreements.** Each Award shall comply with and be subject to the terms and conditions set forth in the appropriate form of Award Agreement approved by the Board and as amended from time to time. No Award or purported Award shall be a valid and binding obligation of the Company unless evidenced by a fully executed Award Agreement. Any Award Agreement may consist of an appropriate form of Notice of Grant and a form of Agreement incorporated therein by reference, or such other form or forms, including electronic media, as the Committee may approve from time to time.

8.2 **Authority to Vary Terms** The Board shall have the authority from time to time to vary the terms of any standard form of Award Agreement either in connection with the grant or amendment of an individual Award or in connection with the authorization of a new standard form or forms; provided, however, that the terms and conditions of any such new,

revised or amended standard form or forms of Award Agreement are not inconsistent with the terms of the Plan.

9. **CHANGE IN CONTROL.**

9.1 **Effect of Change in Control on Awards.**

(a) ***Accelerated Vesting.*** The Board may, in its sole discretion, provide in any Award Agreement or, in the event of a Change in Control, may take such actions as it deems appropriate to provide for the acceleration of the exercisability and vesting in connection with such Change in Control of any or all outstanding Awards and shares acquired upon the exercise thereof upon such conditions, including termination of the Participant's Service prior to, upon, or following such Change in Control, and to such extent as the Board shall determine.

(b) ***Assumption or Substitution of Awards.*** In the event of a Change in Control, the surviving, continuing, successor, or purchasing corporation or other business entity or parent thereof, as the case may be (the *"**Acquiror**"*), may, without the consent of any Participant, either assume or continue the Company's rights and obligations under each or any Award or portion thereof outstanding immediately prior to the Change in Control or substitute for each or any such outstanding Award or portion thereof a substantially equivalent award for the Acquiror's stock. For purposes of this Section, an Award shall be deemed assumed if, following the Change in Control, the Award confers the right to receive, subject to the terms and conditions of the Plan and the applicable Award Agreement, for each share of Stock subject to the Award immediately prior to the Change in Control, the consideration (whether stock, cash, other securities or property or a combination thereof) to which a holder of a share of Stock on the effective date of the Change in Control was entitled; provided, however, that if such consideration is not solely common stock of the Acquiror, the Board may, with the consent of the Acquiror, provide for the consideration to be received upon the exercise of the Award, for each share of Stock subject to the Award, to consist solely of common stock of the Acquiror equal in Fair Market Value to the per share consideration received by holders of Stock pursuant to the Change in Control. Any Award or portions thereof which are neither assumed or continued by the Acquiror in connection with the Change in Control nor exercised as of the time of consummation of the Change in Control shall terminate and cease to be outstanding effective as of the time of consummation of the Change in Control. Notwithstanding the foregoing, shares acquired upon exercise of an Award prior to the Change in Control and any consideration received pursuant to the Change in Control with respect to such shares shall continue to be subject to all applicable provisions of the Award Agreement evidencing such Award except as otherwise provided in such Award Agreement.

(c) ***Cash-Out of Awards.*** The Board may, in its sole discretion and without the consent of any Participant, determine that, upon the occurrence of a Change in Control, each or any Award outstanding immediately prior to the Change in Control shall be canceled in exchange for a payment with respect to each vested share (and each unvested share, if so determined by the Board) of Stock subject to such canceled Award in (i) cash, (ii) stock of the Company or of a corporation or other business entity a party to the Change in Control, or (iii) other property which, in any such case, shall be in an amount having a Fair Market Value

equal to the Fair Market Value of the consideration to be paid per share of Stock in the Change in Control over the exercise price per share under such Award (the **"*Spread*"**). In the event such determination is made by the Board, the Spread (reduced by applicable withholding taxes, if any) shall be paid to Participants in respect of their canceled Awards as soon as practicable following the date of the Change in Control and in respect of the unvested portion of their canceled Awards in accordance with the vesting schedule applicable to such Awards as in effect prior to the Change in Control.

9.2 **Federal Excise Tax Under Section 4999 of the Code.**

(a) ***Excess Parachute Payment.*** In the event that any acceleration of vesting pursuant to an Award and any other payment or benefit received or to be received by a Participant would subject the Participant to any excise tax pursuant to Section 4999 of the Code due to the characterization of such acceleration of vesting, payment or benefit as an "excess parachute payment" under Section 280G of the Code, the Participant may elect, in his or her sole discretion, to reduce the amount of any acceleration of vesting called for under the Award in order to avoid such characterization.

(b) ***Determination by Independent Accountants.*** To aid the Participant in making any election called for under Section 9.3(a), no later than the date of the occurrence of any event that might reasonably be anticipated to result in an "excess parachute payment" to the Participant as described in Section 9.3(a), the Company shall request a determination in writing by independent public accountants selected by the Company (the *"**Accountants**"*). As soon as practicable thereafter, the Accountants shall determine and report to the Company and the Participant the amount of such acceleration of vesting, payments and benefits which would produce the greatest after-tax benefit to the Participant. For the purposes of such determination, the Accountants may rely on reasonable, good faith interpretations concerning the application of Sections 280G and 4999 of the Code. The Company and the Participant shall furnish to the Accountants such information and documents as the Accountants may reasonably request in order to make their required determination. The Company shall bear all fees and expenses the Accountants may reasonably charge in connection with their services contemplated by this Section 9.3(b).

10. **TAX WITHHOLDING.**

10.1 **Tax Withholding in General.** The Company shall have the right to deduct from any and all payments made under the Plan, or to require the Participant, through payroll withholding, cash payment or otherwise, including by means of a Cashless Exercise of an Option, to make adequate provision for, the federal, state, local and foreign taxes, if any, required by law to be withheld by the Participating Company Group with respect to an Award or the shares acquired pursuant thereto. The Company shall have no obligation to deliver shares of Stock or to release shares of Stock from an escrow established pursuant to an Award Agreement until the Participating Company Group's tax withholding obligations have been satisfied by the Participant.

10.2 **Withholding in Shares.** The Company shall have the right, but not the obligation, to deduct from the shares of Stock issuable to a Participant upon the exercise of an

Award, or to accept from the Participant the tender of, a number of whole shares of Stock having a Fair Market Value, as determined by the Company, equal to all or any part of the tax withholding obligations of the Participating Company Group. The Fair Market Value of any shares of Stock withheld or tendered to satisfy any such tax withholding obligations shall not exceed the amount determined by the applicable minimum statutory withholding rates.

11. **COMPLIANCE WITH SECURITIES LAW.**

The grant of Awards and the issuance of shares of Stock upon exercise of Awards shall be subject to compliance with all applicable requirements of federal, state and foreign law with respect to such securities. Awards may not be exercised if the issuance of shares of Stock upon exercise would constitute a violation of any applicable federal, state or foreign securities laws or other law or regulations or the requirements of any stock exchange or market system upon which the Stock may then be listed. In addition, no Award may be exercised unless (a) a registration statement under the Securities Act shall at the time of exercise of the Award be in effect with respect to the shares issuable upon exercise of the Award or (b) in the opinion of legal counsel to the Company, the shares issuable upon exercise of the Award may be issued in accordance with the terms of an applicable exemption from the registration requirements of the Securities Act. The inability of the Company to obtain from any regulatory body having jurisdiction the authority, if any, deemed by the Company's legal counsel to be necessary to the lawful issuance and sale of any shares hereunder shall relieve the Company of any liability in respect of the failure to issue or sell such shares as to which such requisite authority shall not have been obtained. As a condition to the exercise of any Award, the Company may require the Participant to satisfy any qualifications that may be necessary or appropriate, to evidence compliance with any applicable law or regulation and to make any representation or warranty with respect thereto as may be requested by the Company.

12. **AMENDMENT OR TERMINATION OF PLAN.**

The Board may amend, suspend or terminate the Plan at any time. However, subject to changes in applicable law, regulations or rules that would permit otherwise, without the approval of the Company's stockholders, there shall be (a) no increase in the maximum aggregate number of shares of Stock that may be issued under the Plan (except by operation of the provisions of Section 4.2), (b) no change in the class of persons eligible to receive Incentive Stock Options, and (c) no other amendment of the Plan that would require approval of the Company's stockholders under any applicable law, regulation or rule, including the rules of any stock exchange or market system upon which the Stock may then be listed. No amendment, suspension or termination of the Plan shall affect any then outstanding Award unless expressly provided by the Board. Except as provided by the next sentence, no amendment, suspension or termination of the Plan may adversely affect any then outstanding Award without the consent of the Participant. Notwithstanding any other provision of the Plan to the contrary, the Board may, in its sole and absolute discretion and without the consent of any participant, amend the Plan or any Award Agreement, to take effect retroactively or otherwise, as it deems necessary or advisable for the purpose of conforming the Plan or such Award Agreement to any present or future law, regulation or rule applicable to the Plan, including, but not limited to, Section 409A of the Code.

13. **MISCELLANEOUS PROVISIONS.**

13.1 **Repurchase Rights.** Shares issued under the Plan may be subject to a right of first refusal, one or more repurchase options, or other conditions and restrictions as determined by the Board in its discretion at the time the Award is granted. The Company shall have the right to assign at any time any repurchase right it may have, whether or not such right is then exercisable, to one or more persons as may be selected by the Company. Upon request by the Company, each Participant shall execute any agreement evidencing such transfer restrictions prior to the receipt of shares of Stock hereunder and shall promptly present to the Company any and all certificates representing shares of Stock acquired hereunder for the placement on such certificates of appropriate legends evidencing any such transfer restrictions.

13.2 **Provision of Information.** At least annually, copies of the Company's balance sheet and income statement for the just completed fiscal year shall be made available to each Participant and purchaser of shares of Stock upon the exercise of an Award. The Company shall not be required to provide such information to key employees whose duties in connection with the Company assure them access to equivalent information. Furthermore, the Company shall deliver to each Participant such disclosures as are required in accordance with Rule 701 under the Securities Act.

13.3 **Rights as Employee, Consultant or Director.** No person, even though eligible pursuant to Section 5, shall have a right to be selected as a Participant, or, having been so selected, to be selected again as a Participant. Nothing in the Plan or any Award granted under the Plan shall confer on any Participant a right to remain an Employee, Consultant or Director or interfere with or limit in any way any right of a Participating Company to terminate the Participant's Service at any time. To the extent that an Employee of a Participating Company other than the Company receives an Award under the Plan, that Award shall in no event be understood or interpreted to mean that the Company is the Employee's employer or that the Employee has an employment relationship with the Company.

13.4 **Rights as a Stockholder.** A Participant shall have no rights as a stockholder with respect to any shares covered by an Award until the date of the issuance of such shares (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company). No adjustment shall be made for dividends, distributions or other rights for which the record date is prior to the date such shares are issued, except as provided in Section 4.2 or another provision of the Plan.

13.5 **Fractional Shares.** The Company shall not be required to issue fractional shares upon the exercise or settlement of any Award.

13.6 **Retirement and Welfare Plans.** Neither Awards made under this Plan nor shares of Stock or cash paid pursuant to such Awards shall be included as "compensation" for purposes of computing the benefits payable to any Participant under any Participating Company's retirement plans (both qualified and non-qualified) or welfare benefit plans unless such other plan expressly provides that such compensation shall be taken into account in computing such benefits.

13.7 **Severability.** If any one or more of the provisions (or any part thereof) of this Plan shall be held invalid, illegal or unenforceable in any respect, such provision shall be modified so as to make it valid, legal and enforceable, and the validity, legality and enforceability of the remaining provisions (or any part thereof) of the Plan shall not in any way be affected or impaired thereby.

13.8 **No Constraint on Corporate Action.** Nothing in this Plan shall be construed to: (a) limit, impair, or otherwise affect the Company's or another Participating Company's right or power to make adjustments, reclassifications, reorganizations, or changes of its capital or business structure, or to merge or consolidate, or dissolve, liquidate, sell, or transfer all or any part of its business or assets; or (b) limit the right or power of the Company or another Participating Company to take any action which such entity deems to be necessary or appropriate.

13.9 **Choice of Law.** Except to the extent governed by applicable federal law, the validity, interpretation, construction and performance of the Plan and each Award Agreement shall be governed by the laws of the State of California, without regard to its conflict of law rules.

13.10 **Stockholder Approval.** The Plan or any increase in the maximum aggregate number of shares of Stock issuable thereunder as provided in Section 4.1 (the "***Authorized Shares"***) shall be approved by a majority of the outstanding securities of the Company entitled to vote within twelve (12) months before or after the date of adoption thereof by the Board. Awards granted prior to security holder approval of the Plan or in excess of the Authorized Shares previously approved by the security holders shall become exercisable no earlier than the date of security holder approval of the Plan or such increase in the Authorized Shares, as the case may be.

PLAN HISTORY

August 15, 2006	Board adopts Plan, with an initial reserve of 1,368,000 shares.
August 15, 2006	Stockholders of the Company approve Plan.
February 1, 2008	Board amends the Plan, increasing the reserve to 2,868,000 shares.
February 1, 2008	Stockholders of the Company approve the amendment to the Plan.
November 23, 2009	Board amends the Plan, increasing the reserve to 8,372,237 shares.
November 23, 2009	Stockholders of the Company approve Plan.

Exhibit 10.3

ACELRX PHARMACEUTICALS, INC.
NOTICE OF GRANT OF STOCK OPTION

The Participant has been granted an option (the *"**Option**"*) to purchase certain shares of Stock of AcelRx Pharmaceuticals, Inc. pursuant to the AcelRx Pharmaceuticals, Inc. 2006 Stock Plan (the *"**Plan**"*), as follows:

Option Grant Number:

Participant:

Date of Grant:

Number of Option Shares:

Exercise Price:

Initial Vesting Date:

Option Expiration Date:

Tax Status of Option:

Vested Shares: Except as provided in the Stock Option Agreement, the number of Vested Shares (disregarding any resulting fractional share) as of any date is determined by multiplying the Number of Option Shares by the *"**Vested Ratio**"* determined as of such date as follows:

The Exercise Price represents an amount the Company believes to be no less than the fair market value of a share of Stock as of the Date of Grant, determined in good faith in compliance with the requirements of Section 409A of the Code. However, there is no guarantee that the Internal Revenue Service will agree with the Company's determination. A subsequent IRS determination that the Exercise Price is less than such fair market value could result in adverse tax consequences to the Participant. By signing below, the Participant agrees that the Company, its directors, officers and shareholders shall not be held liable for any tax, penalty, interest or cost incurred by the Participant as a result of such determination by the IRS. The Participant is urged to consult with his or her own tax advisor regarding the tax consequences of the Option, including the application of Section 409A.

By their signatures below, the Company and the Participant agree that the Option is governed by this Grant Notice and by the provisions of the Plan and the Stock Option Agreement, both of which are attached to and made a part of this document. The Participant acknowledges receipt of copies of the Plan and the Stock Option Agreement, represents that the Participant has read and is familiar with their provisions, and hereby accepts the Option subject to all of their terms and conditions.

ACELRX PHARMACEUTICALS, INC.	PARTICIPANT
By: _____	_____
	Signature
Its: _____	_____
	Date
Address: 575 Chesapeake Drive	_____
Redwood City, CA 94063	Address
	_____

ATTACHMENTS: 2006 Stock Plan, as amended to the Date of Grant; Stock Option Agreement and Exercise Notice

THE SECURITIES WHICH ARE THE SUBJECT OF THIS AGREEMENT HAVE NOT BEEN QUALIFIED WITH THE COMMISSIONER OF CORPORATIONS OF THE STATE OF CALIFORNIA AND THE ISSUANCE OF SUCH SECURITIES OR THE PAYMENT OR RECEIPT OF ANY PART OF THE CONSIDERATION THEREFOR PRIOR TO SUCH QUALIFICATION IS UNLAWFUL, UNLESS THE SALE OF SECURITIES IS EXEMPT FROM QUALIFICATION BY SECTION 25100, 25102, OR 25105 OF THE CALIFORNIA CORPORATIONS CODE. THE RIGHTS OF ALL PARTIES TO THIS AGREEMENT ARE EXPRESSLY CONDITIONED UPON SUCH QUALIFICATION BEING OBTAINED, UNLESS THE SALE IS SO EXEMPT.

THE SECURITIES WHICH ARE THE SUBJECT OF THIS AGREEMENT HAVE BEEN ACQUIRED FOR INVESTMENT AND NOT WITH A VIEW TO, OR IN CONNECTION WITH, THE SALE OR DISTRIBUTION THEREOF. NO SUCH SALE OR DISPOSITION MAY BE EFFECTED WITHOUT AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE SECURITIES ACT OF 1933.

ACELRX PHARMACEUTICALS, INC.
STOCK OPTION AGREEMENT

AcelRx Pharmaceuticals, Inc. has granted to the Participant named in the *Notice of Grant of Stock Option* (the *"**Grant Notice**"*) to which this Stock Option Agreement (the *"**Option Agreement**"*) is attached an option (the *"**Option**"*) to purchase certain shares of Stock upon the terms and conditions set forth in the Grant Notice and this Option Agreement. The Option has been granted pursuant to and shall in all respects be subject to the terms and conditions of the AcelRx Pharmaceuticals, Inc. 2006 Stock Plan (the *"**Plan**"*), as amended to the Date of Grant, the provisions of which are incorporated herein by reference. By signing the Grant Notice, the Participant: (a) acknowledges receipt of, and represents that the Participant has read and is familiar with the terms and conditions of, the Grant Notice, this Option Agreement and the Plan, (b) accepts the Option subject to all of the terms and conditions of the Grant Notice, this Option Agreement and the Plan, and (c) agrees to accept as binding, conclusive and final all decisions or interpretations of the Board upon any questions arising under the Grant Notice, this Option Agreement or the Plan.

1. **DEFINITIONS AND CONSTRUCTION.**

1.1 **Definitions.** Unless otherwise defined herein, capitalized terms shall have the meanings assigned to such terms in the Grant Notice or the Plan.

1.2 **Construction.** Captions and titles contained herein are for convenience only and shall not affect the meaning or interpretation of any provision of this Option Agreement. Except when otherwise indicated by the context, the singular shall include the plural and the plural shall include the singular. Use of the term "or" is not intended to be exclusive, unless the context clearly requires otherwise.

2. **TAX CONSEQUENCES.**

2.1 **Tax Status of Option.** This Option is intended to have the tax status designated in the Grant Notice.

(a) ***Incentive Stock Option.*** If the Grant Notice so designates, this Option is intended to be an Incentive Stock Option within the meaning of Section 422(b) of the Code, but the Company does not represent or warrant that this Option qualifies as such. The Participant should consult with the Participant's own tax advisor regarding the tax effects of this Option and the requirements necessary to obtain favorable income tax treatment under Section 422 of the Code, including, but not limited to, holding period requirements. (NOTE TO PARTICIPANT: If the Option is exercised more than three (3) months after the date on which you cease to be an Employee (other than by reason of your death or permanent and total disability as defined in Section 22(e)(3) of the Code), the Option will be treated as a Nonstatutory Stock Option and not as an Incentive Stock Option to the extent required by Section 422 of the Code.)

(b) ***Nonstatutory Stock Option.*** If the Grant Notice so designates, this Option is intended to be a Nonstatutory Stock Option and shall not be treated as an Incentive Stock Option within the meaning of Section 422(b) of the Code.

2.2 **ISO Fair Market Value Limitation.** *If the Grant Notice designates this Option as an Incentive Stock Option,* then to the extent that the Option (together with all Incentive Stock Options granted to the Participant under all stock option plans of the Participating Company Group, including the Plan) becomes exercisable for the first time during any calendar year for shares having a Fair Market Value greater than One Hundred Thousand Dollars ($100,000), the portion of such options which exceeds such amount will be treated as Nonstatutory Stock Options. For purposes of this Section 2.2, options designated as Incentive Stock Options are taken into account in the order in which they were granted, and the Fair Market Value of stock is determined as of the time the option with respect to such stock is granted. If the Code is amended to provide for a different limitation from that set forth in this Section 2.2, such different limitation shall be deemed incorporated herein effective as of the date required or permitted by such amendment to the Code. If the Option is treated as an Incentive Stock Option in part and as a Nonstatutory Stock Option in part by reason of the limitation set forth in this Section 2.2, the Participant may designate which portion of such Option the Participant is exercising. In the absence of such designation, the Participant shall be deemed to have exercised the Incentive Stock Option portion of the Option first. Separate certificates representing each such portion shall be issued upon the exercise of the Option. (NOTE TO PARTICIPANT: If the aggregate Exercise Price of the Option (that is, the Exercise Price multiplied by the Number of Option Shares) plus the aggregate exercise price of any other Incentive Stock Options you hold (whether granted pursuant to the Plan or any other stock option plan of the Participating Company Group) is greater than $100,000, you should contact the Chief Financial Officer of the Company to ascertain whether the entire Option qualifies as an Incentive Stock Option.)

3. **ADMINISTRATION.**

All questions of interpretation concerning the Grant Notice, this Option Agreement and the Plan shall be determined by the Board. All determinations by the Board shall be final and binding upon all persons having an interest in the Option. Any Officer shall have the authority to act on behalf of the Company with respect to any matter, right, obligation, or election which is the responsibility of or which is allocated to the Company herein, provided the Officer has apparent authority with respect to such matter, right, obligation, or election.

4. **EXERCISE OF THE OPTION.**

4.1 **Right to Exercise**. Except as otherwise provided herein, the Option shall be exercisable on and after the Initial Vesting Date and prior to the termination of the Option (as provided in Section 6) in an amount not to exceed the number of vested shares less the number of shares previously acquired upon exercise of the Option, subject to the Company's repurchase rights set forth in Section 11. In no event shall the Option be exercisable for more shares than the Number of Option Shares, as adjusted pursuant to Section 9.

4.2 **Method of Exercise.** Exercise of the Option shall be by means of electronic or written notice (the *"**Exercise Notice**"*) in a form authorized by the Company. An electronic Exercise Notice must be digitally signed or authenticated by the Participant in such manner as required by the notice and transmitted to the Company or an authorized representative of the Company (including a third-party administrator designated by the Company). In the event that the Participant is not authorized or is unable to provide an electronic Exercise Notice, the Option shall be exercised by a written Exercise Notice addressed to the Company, which shall be signed by the Participant and delivered in person, by certified or registered mail, return receipt requested, by confirmed facsimile transmission, or by such other means as the Company may permit, to the Company, or an authorized representative of the Company (including a third-party administrator designated by the Company). Each Exercise Notice, whether electronic or written, must state the Participant's election to exercise the Option, the number of whole shares of Stock for which the Option is being exercised and such other representations and agreements as to the Participant's investment intent with respect to such shares as may be required pursuant to the provisions of this Option Agreement. Further, each Exercise Notice must be received by the Company prior to the termination of the Option as set forth in Section 6 and must be accompanied by full payment of the aggregate Exercise Price for the number of shares of Stock being purchased. The Option shall be deemed to be exercised upon receipt by the Company of such electronic or written Exercise Notice and the aggregate Exercise Price.

4.3 **Payment of Exercise Price.**

(a) ***Forms of Consideration Authorized*.** Except as otherwise provided below, payment of the aggregate Exercise Price for the number of shares of Stock for which the Option is being exercised shall be made (i) in cash or by check or cash equivalent, (ii) if permitted by the Company, by tender to the Company, or attestation to the ownership, of whole shares of Stock owned by the Participant having a Fair Market Value not less than the aggregate Exercise Price, (iii) by means of a Cashless Exercise, as defined in Section 4.3(b), or (iv) by any combination of the foregoing.

(b) ***Limitations on Forms of Consideration.***

(i) **Tender of Stock.** Notwithstanding the foregoing, the Option may not be exercised by tender to the Company, or attestation to the ownership, of shares of Stock to the extent such tender or attestation would constitute a violation of the provisions of any law, regulation or agreement restricting the redemption of the Company's stock. If required by the Company, the Option may not be exercised by tender to the Company, or attestation to the ownership, of shares of Stock unless such shares either have been owned by the Participant for more than six (6) months or such other period, if any, required by the Company (and not used for another option exercise by attestation during such period) or were not acquired, directly or indirectly, from the Company.

(ii) **Cashless Exercise.** A *"**Cashless Exercise**"* means the delivery of a properly executed notice together with irrevocable instructions to a broker in a form acceptable to the Company providing for the assignment to the Company of the proceeds of a sale or loan with respect to some or all of the shares of Stock acquired upon the exercise of the Option pursuant to a program or procedure approved by the Company (including, without limitation, through an exercise complying with the provisions of Regulation T as promulgated from time to time by the Board of Governors of the Federal Reserve System). The Company reserves, at any and all times, the right, in the Company's sole and absolute discretion, to establish, decline to approve, or terminate any such program or procedure, including with respect to the Participant notwithstanding that such program or procedures may be available to others.

4.4 **Tax Withholding**. At the time the Option is exercised, in whole or in part, or at any time thereafter as requested by the Company, the Participant hereby authorizes withholding from payroll and any other amounts payable to the Participant, and otherwise agrees to make adequate provision for (including by means of a Cashless Exercise to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Participating Company Group, if any, which arise in connection with the Option. The Company shall have no obligation to deliver shares of Stock until the tax withholding obligations of the Participating Company Group have been satisfied by the Participant.

4.5 **Certificate Registration.** Except in the event the Exercise Price is paid by means of a Cashless Exercise, the certificate for the shares as to which the Option is exercised shall be registered in the name of the Participant, or, if applicable, in the names of the heirs of the Participant.

4.6 **Restrictions on Grant of the Option and Issuance of Shares.** The grant of the Option and the issuance of shares of Stock upon exercise of the Option shall be subject to compliance with all applicable requirements of federal, state or foreign law with respect to such securities. The Option may not be exercised if the issuance of shares of Stock upon exercise would constitute a violation of any applicable federal, state or foreign securities laws or other law or regulations or the requirements of any stock exchange or market system upon which the Stock may then be listed. In addition, the Option may not be exercised unless (i) a registration statement under the Securities Act shall at the time of exercise of the Option be in effect with respect to the shares issuable upon exercise of the Option or (ii) in the opinion of legal counsel to the Company, the shares issuable upon exercise of the Option may be issued in accordance with

the terms of an applicable exemption from the registration requirements of the Securities Act. THE PARTICIPANT IS CAUTIONED THAT THE OPTION MAY NOT BE EXERCISED UNLESS THE FOREGOING CONDITIONS ARE SATISFIED. ACCORDINGLY, THE PARTICIPANT MAY NOT BE ABLE TO EXERCISE THE OPTION WHEN DESIRED EVEN THOUGH THE OPTION IS VESTED. The inability of the Company to obtain from any regulatory body having jurisdiction the authority, if any, deemed by the Company's legal counsel to be necessary to the lawful issuance and sale of any shares subject to the Option shall relieve the Company of any liability in respect of the failure to issue or sell such shares as to which such requisite authority shall not have been obtained. As a condition to the exercise of the Option, the Company may require the Participant to satisfy any qualifications that may be necessary or appropriate, to evidence compliance with any applicable law or regulation and to make any representation or warranty with respect thereto as may be requested by the Company.

4.7 **Fractional Shares.** The Company shall not be required to issue fractional shares upon the exercise of the Option.

5. **NONTRANSFERABILITY OF THE OPTION.**

During the lifetime of the Participant, the Option shall be exercisable only by the Participant or the Participant's guardian or legal representative. The Option shall not be subject in any manner to anticipation, alienation, sale, exchange, transfer, assignment, pledge, encumbrance, or garnishment by creditors of the Participant or the Participant's beneficiary, except transfer by will or by the laws of descent and distribution. Following the death of the Participant, the Option, to the extent provided in Section 7, may be exercised by the Participant's legal representative or by any person empowered to do so under the deceased Participant's will or under the then applicable laws of descent and distribution.

6. **TERMINATION OF THE OPTION.**

The Option shall terminate and may no longer be exercised after the first to occur of (a) the close of business on the Option Expiration Date, (b) the close of business on the last date for exercising the Option following termination of the Participant's Service as described in Section 7, or (c) a Change in Control to the extent provided in Section 8.

7. **EFFECT OF TERMINATION OF SERVICE.**

7.1 **Option Exercisability.** The Option shall terminate immediately upon the Participant's termination of Service to the extent that it is then unvested and shall be exercisable after the Participant's termination of Service to the extent it is then vested only during the applicable time period as determined below and thereafter shall terminate.

(a) ***Disability*.** If the Participant's Service terminates because of the Disability of the Participant, the Option, to the extent unexercised and exercisable for vested shares on the date on which the Participant's Service terminated, may be exercised by the Participant (or the Participant's guardian or legal representative) at any time prior to the expiration of twelve (12) months after the date on which the Participant's Service terminated, but in any event no later than the Option Expiration Date.

(b) ***Death.*** If the Participant's Service terminates because of the death of the Participant, the Option, to the extent unexercised and exercisable for vested shares on the date on which the Participant's Service terminated, may be exercised by the Participant's legal representative or other person who acquired the right to exercise the Option by reason of the Participant's death at any time prior to the expiration of twelve (12) months after the date on which the Participant's Service terminated, but in any event no later than the Option Expiration Date. The Participant's Service shall be deemed to have terminated on account of death if the Participant dies within three (3) months after the Participant's termination of Service.

(c) ***Termination for Cause.*** Notwithstanding any other provision of this Option Agreement, if the Participant's Service is terminated for Cause, the Option shall terminate and cease to be exercisable immediately upon such termination of Service.

(d) ***Other Termination of Service.*** If the Participant's Service terminates for any reason, except Disability, death or Cause, the Option, to the extent unexercised and exercisable for vested shares by the Participant on the date on which the Participant's Service terminated, may be exercised by the Participant at any time prior to the expiration of three (3) months after the date on which the Participant's Service terminated, but in any event no later than the Option Expiration Date.

7.2 **Extension if Exercise Prevented by Law.** Notwithstanding the foregoing other than termination for Cause, if the exercise of the Option within the applicable time periods set forth in Section 7.1 is prevented by the provisions of Section 4.6, the Option shall remain exercisable until three (3) months after the date the Participant is notified by the Company that the Option is exercisable, but in any event no later than the Option Expiration Date.

8. **CHANGE IN CONTROL.**

8.1 **Effect of Change in Control on Awards**. In the event of a Change in Control, the surviving, continuing, successor, or purchasing entity or parent thereof, as the case may be (the "***Acquiror***"), may, without the consent of the Participant, assume or continue in full force and effect the Company's rights and obligations under the Option or any portion thereof or substitute for the Option or any portion thereof a substantially equivalent option for the Acquiror's stock. For purposes of this Section, the Option shall be deemed assumed if, following the Change in Control, the Option confers the right to receive, subject to the terms and conditions of the Plan and this Option Agreement, for each share of Stock subject to the Option immediately prior to the Change in Control, the consideration (whether stock, cash, other securities or property or a combination thereof) to which a holder of a share of Stock on the effective date of the Change in Control was entitled; provided, however, that if such consideration is not solely common stock of the Acquiror, the Board may, with the consent of the Acquiror, provide for the consideration to be received upon the exercise of the Option, for each share of Stock subject to the Option, to consist solely of common stock of the Acquiror equal in Fair Market Value to the per share consideration received by holders of Stock pursuant to the Change in Control. The Option shall terminate and cease to be outstanding effective as of the time of consummation of the Change in Control to the extent that the Option is neither assumed or continued by the Acquiror in connection with the Change in Control nor exercised as of the date of the Change in Control. Notwithstanding the foregoing, shares acquired upon exercise of the Option prior to the Change in Control and any consideration received pursuant to the Change

in Control with respect to such shares shall continue to be subject to all applicable provisions of this Option Agreement except as otherwise provided herein.

8.2 **Acceleration of Vesting**. The other provisions of this Section 8 notwithstanding, if Participant's Service terminates as a result of an Involuntary Termination or termination without Cause at any time within eighteen (18) months after a Change in Control, and the Participant signs a general release of claims against the Company, any shares that are not vested shares shall become fully vested upon such termination. For purposes of this Agreement "***Involuntary Termination***" shall mean Participant's termination of Service with the Company within thirty (30) days following the occurrence of any of the following without Participant's consent: (i) a material reduction or change in job duties, reporting relationships, responsibilities and requirements inconsistent with Participant'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 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 Participant's then-current base salary by at lease 20%, provided that an across-the-board reduction in the salary level of all other senior executives by the same percentage amount as a part of a general salary level reduction shall not constitute such a salary reduction or (iii) Participant'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.

9. **ADJUSTMENTS FOR CHANGES IN CAPITAL STRUCTURE.**

Subject to any required action by the stockholders of the Company, in the event of any change in the Stock effected without receipt of consideration by the Company, whether through merger, consolidation, reorganization, reincorporation, recapitalization, reclassification, stock dividend, stock split, reverse stock split, split-up, split-off, spin-off, combination of shares, exchange of shares, or similar change in the capital structure of the Company, or in the event of payment of a dividend or distribution to the stockholders of the Company in a form other than Stock (excepting normal cash dividends) that has a material effect on the Fair Market Value of shares of Stock, appropriate and proportionate adjustments shall be made in the number, Exercise Price and kind of shares subject to the Option, in order to prevent dilution or enlargement of the Participant's rights under the Option. For purposes of the foregoing, conversion of any convertible securities of the Company shall not be treated as "effected without receipt of consideration by the Company." Any fractional share resulting from an adjustment pursuant to this Section shall be rounded down to the nearest whole number and the Exercise Price shall be rounded up to the nearest whole cent. In no event may the Exercise Price be decreased to an amount less than the par value, if any, of the stock subject to the Option. Such adjustments shall be determined by the Board, and its determination shall be final, binding and conclusive.

10. **RIGHTS AS A STOCKHOLDER, DIRECTOR, EMPLOYEE OR CONSULTANT.**

The Participant shall have no rights as a stockholder with respect to any shares covered by the Option until the date of the issuance of the shares for which the Option has been exercised (as evidenced by the appropriate entry on the books of the Company or of a duly authorized

transfer agent of the Company). No adjustment shall be made for dividends, distributions or other rights for which the record date is prior to the date the shares are issued, except as provided in Section 9. If the Participant is an Employee, the Participant understands and acknowledges that, except as otherwise provided in a separate, written employment agreement between a Participating Company and the Participant, the Participant's employment is "at will" and is for no specified term. Nothing in this Option Agreement shall confer upon the Participant any right to continue in the Service of a Participating Company or interfere in any way with any right of the Participating Company Group to terminate the Participant's Service as a Director, an Employee or Consultant, as the case may be, at any time.

11. **RIGHT OF FIRST REFUSAL.**

11.1 **Grant of Right of First Refusal.** Except as provided in Section 11.7 and Section 16 below, in the event the Participant, the Participant's legal representative, or other holder of shares acquired upon exercise of the Option proposes to sell, exchange, transfer, pledge, or otherwise dispose of any vested shares (the *"**Transfer Shares**"*) to any person or entity, including, without limitation, any stockholder of a Participating Company, the Company shall have the right to repurchase the Transfer Shares under the terms and subject to the conditions set forth in this Section 11 (the *"**Right of First Refusal**"*).

11.2 **Notice of Proposed Transfer.** Prior to any proposed transfer of the Transfer Shares, the Participant shall deliver written notice (the *"**Transfer Notice**"*) to the Company describing fully the proposed transfer, including the number of Transfer Shares, the name and address of the proposed transferee (the *"**Proposed Transferee**"*) and, if the transfer is voluntary, the proposed transfer price, and containing such information necessary to show the bona fide nature of the proposed transfer. In the event of a bona fide gift or involuntary transfer, the proposed transfer price shall be deemed to be the Fair Market Value of the Transfer Shares, as determined by the Board in good faith. If the Participant proposes to transfer any Transfer Shares to more than one Proposed Transferee, the Participant shall provide a separate Transfer Notice for the proposed transfer to each Proposed Transferee. The Transfer Notice shall be signed by both the Participant and the Proposed Transferee and must constitute a binding commitment of the Participant and the Proposed Transferee for the transfer of the Transfer Shares to the Proposed Transferee subject only to the Right of First Refusal.

11.3 **Bona Fide Transfer.** If the Company determines that the information provided by the Participant in the Transfer Notice is insufficient to establish the bona fide nature of a proposed voluntary transfer, the Company shall give the Participant written notice of the Participant's failure to comply with the procedure described in this Section 11, and the Participant shall have no right to transfer the Transfer Shares without first complying with the procedure described in this Section 11. The Participant shall not be permitted to transfer the Transfer Shares if the proposed transfer is not bona fide.

11.4 **Exercise of Right of First Refusal.** If the Company determines the proposed transfer to be bona fide, the Company shall have the right to purchase all, but not less than all, of the Transfer Shares (except as the Company and the Participant otherwise agree) at the purchase price and on the terms set forth in the Transfer Notice by delivery to the Participant of a notice of exercise of the Right of First Refusal within thirty (30) days after the date the Transfer Notice is delivered to the Company. The Company's exercise or failure to exercise the

Right of First Refusal with respect to any proposed transfer described in a Transfer Notice shall not affect the Company's right to exercise the Right of First Refusal with respect to any proposed transfer described in any other Transfer Notice, whether or not such other Transfer Notice is issued by the Participant or issued by a person other than the Participant with respect to a proposed transfer to the same Proposed Transferee. If the Company exercises the Right of First Refusal, the Company and the Participant shall thereupon consummate the sale of the Transfer Shares to the Company on the terms set forth in the Transfer Notice within sixty (60) days after the date the Transfer Notice is delivered to the Company (unless a longer period is offered by the Proposed Transferee); provided, however, that in the event the Transfer Notice provides for the payment for the Transfer Shares other than in cash, the Company shall have the option of paying for the Transfer Shares by the present value cash equivalent of the consideration described in the Transfer Notice as reasonably determined by the Company. For purposes of the foregoing, cancellation of any indebtedness of the Participant to any Participating Company shall be treated as payment to the Participant in cash to the extent of the unpaid principal and any accrued interest canceled.

11.5 **Failure to Exercise Right of First Refusal.** If the Company fails to exercise the Right of First Refusal in full (or to such lesser extent as the Company and the Participant otherwise agree) within the period specified in Section 11.4 above, the Participant may conclude a transfer to the Proposed Transferee of the Transfer Shares on the terms and conditions described in the Transfer Notice, provided such transfer occurs not later than ninety (90) days following delivery to the Company of the Transfer Notice. The Company shall have the right to demand further assurances from the Participant and the Proposed Transferee (in a form satisfactory to the Company) that the transfer of the Transfer Shares was actually carried out on the terms and conditions described in the Transfer Notice. No Transfer Shares shall be transferred on the books of the Company until the Company has received such assurances, if so demanded, and has approved the proposed transfer as bona fide. Any proposed transfer on terms and conditions different from those described in the Transfer Notice, as well as any subsequent proposed transfer by the Participant, shall again be subject to the Right of First Refusal and shall require compliance by the Participant with the procedure described in this Section 11.

11.6 **Transferees of Transfer Shares** All transferees of the Transfer Shares or any interest therein, other than the Company, shall be required as a condition of such transfer to agree in writing (in a form satisfactory to the Company) that such transferee shall receive and hold such Transfer Shares or interest therein subject to all of the terms and conditions of this Option Agreement, including this Section 11 providing for the Right of First Refusal with respect to any subsequent transfer. Any sale or transfer of any shares acquired upon exercise of the Option shall be void unless the provisions of this Section 11 are met.

11.7 **Transfers Not Subject to Right of First Refusal.** The Right of First Refusal shall not apply to any transfer or exchange of the shares acquired upon exercise of the Option if such transfer or exchange is in connection with an Ownership Change Event. If the consideration received pursuant to such transfer or exchange consists of stock of a Participating Company, such consideration shall remain subject to the Right of First Refusal unless the provisions of Section 11.9 below result in a termination of the Right of First Refusal.

11.8 **Assignment of Right of First Refusal.** The Company shall have the right to assign the Right of First Refusal at any time, whether or not there has been an attempted transfer, to one or more persons as may be selected by the Company.

11.9 **Early Termination of Right of First Refusal.** The other provisions of this Option Agreement notwithstanding, the Right of First Refusal shall terminate and be of no further force and effect upon (a) the occurrence of a Change in Control, unless the Acquiror assumes the Company's rights and obligations under the Option or substitutes a substantially equivalent option for the Acquiror's stock for the Option, or (b) the existence of a public market for the class of shares subject to the Right of First Refusal. A *"**public market**"* shall be deemed to exist if (i) such stock is listed on a national securities exchange (as that term is used in the Exchange Act) or (ii) such stock is traded on the over-the-counter market and prices therefor are published daily on business days in a recognized financial journal.

12. **STOCK DISTRIBUTIONS SUBJECT TO OPTION AGREEMENT.**

If, from time to time, there is any stock dividend, stock split or other change, as described in Section 9, in the character or amount of any of the outstanding stock of the corporation the stock of which is subject to the provisions of this Option Agreement, then in such event any and all new, substituted or additional securities to which the Participant is entitled by reason of the Participant's ownership of the shares acquired upon exercise of the Option shall be immediately subject to the Right of First Refusal with the same force and effect as the shares subject to the Right of First Refusal immediately before such event.

13. **NOTICE OF SALES UPON DISQUALIFYING DISPOSITION.**

The Participant shall dispose of the shares acquired pursuant to the Option only in accordance with the provisions of this Option Agreement. In addition, *if the Grant Notice designates this Option as an Incentive Stock Option,* the Participant shall (a) promptly notify the Chief Financial Officer of the Company if the Participant disposes of any of the shares acquired pursuant to the Option within one (1) year after the date the Participant exercises all or part of the Option or within two (2) years after the Date of Grant and (b) provide the Company with a description of the circumstances of such disposition. Until such time as the Participant disposes of such shares in a manner consistent with the provisions of this Option Agreement, unless otherwise expressly authorized by the Company, the Participant shall hold all shares acquired pursuant to the Option in the Participant's name (and not in the name of any nominee) for the one-year period immediately after the exercise of the Option and the two-year period immediately after Date of Grant. At any time during the one-year or two-year periods set forth above, the Company may place a legend on any certificate representing shares acquired pursuant to the Option requesting the transfer agent for the Company's stock to notify the Company of any such transfers. The obligation of the Participant to notify the Company of any such transfer shall continue notwithstanding that a legend has been placed on the certificate pursuant to the preceding sentence.

14. **LEGENDS.**

The Company may at any time place legends referencing the Right of First Refusal and any applicable federal, state or foreign securities law restrictions on all certificates representing shares of stock subject to the provisions of this Option Agreement. The Participant shall, at the

request of the Company, promptly present to the Company any and all certificates representing shares acquired pursuant to the Option in the possession of the Participant in order to carry out the provisions of this Section. Unless otherwise specified by the Company, legends placed on such certificates may include, but shall not be limited to, the following:

14.1 "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 OR RULE 701 UNDER THE ACT, OR THE COMPANY RECEIVES AN OPINION OF COUNSEL 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."

14.2 "THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON TRANSFER, INCLUDING A RIGHT OF FIRST REFUSAL OPTION IN FAVOR OF THE CORPORATION OR ITS ASSIGNEE SET FORTH IN AN AGREEMENT BETWEEN THE CORPORATION AND THE REGISTERED HOLDER, OR SUCH HOLDER'S PREDECESSOR IN INTEREST, A COPY OF WHICH IS ON FILE AT THE PRINCIPAL OFFICE OF THIS CORPORATION."

14.3 "THE SHARES EVIDENCED BY THIS CERTIFICATE WERE ISSUED BY THE CORPORATION TO THE REGISTERED HOLDER UPON EXERCISE OF AN INCENTIVE STOCK OPTION AS DEFINED IN SECTION 422 OF THE INTERNAL REVENUE CODE OF 1986, AS AMENDED ("ISO *"*). IN ORDER TO OBTAIN THE PREFERENTIAL TAX TREATMENT AFFORDED TO ISOs, THE SHARES SHOULD NOT BE TRANSFERRED PRIOR TO [*INSERT DISQUALIFYING DISPOSITION DATE HERE*]. SHOULD THE REGISTERED HOLDER ELECT TO TRANSFER ANY OF THE SHARES PRIOR TO THIS DATE AND FOREGO ISO TAX TREATMENT, THE TRANSFER AGENT FOR THE SHARES SHALL NOTIFY THE CORPORATION IMMEDIATELY. THE REGISTERED HOLDER SHALL HOLD ALL SHARES PURCHASED UNDER THE INCENTIVE STOCK OPTION IN THE REGISTERED HOLDER'S NAME (AND NOT IN THE NAME OF ANY NOMINEE) PRIOR TO THIS DATE OR UNTIL TRANSFERRED AS DESCRIBED ABOVE."

15. **LOCK-UP AGREEMENT.**

The Participant hereby agrees that in the event of any underwritten public offering of stock, including an initial public offering of stock, made by the Company pursuant to an effective registration statement filed under the Securities Act, the Participant shall not offer, sell, contract to sell, pledge, hypothecate, grant any option to purchase or make any short sale of, or otherwise dispose of any shares of stock of the Company or any rights to acquire stock of the Company for such period of time from and after the effective date of such registration statement as may be established by the underwriter for such public offering; provided, however, that such period of time shall not exceed one hundred eighty (180) days from the effective date of the registration statement to be filed in connection with such public offering. The foregoing limitation shall not apply to shares registered in the public offering under the Securities Act. The

Participant hereby agrees to enter into any agreement reasonably required by the underwriters to implement the foregoing within a reasonable timeframe if so requested by the Company.

16. **RESTRICTIONS ON TRANSFER OF SHARES.**

No shares acquired upon exercise of the Option may be sold, exchanged, transferred (including, without limitation, any transfer to a nominee or agent of the Participant), assigned, pledged, hypothecated or otherwise disposed of, including by operation of law in any manner which violates any of the provisions of this Option Agreement, and any such attempted disposition shall be void. The Company shall not be required (a) to transfer on its books any shares which will have been transferred in violation of any of the provisions set forth in this Option Agreement or (b) to treat as owner of such shares or to accord the right to vote as such owner or to pay dividends to any transferee to whom such shares will have been so transferred.

17. **MISCELLANEOUS PROVISIONS.**

17.1 **Further Instruments.** The parties hereto agree to execute such further instruments and to take such further action as may reasonably be necessary to carry out the intent of this Option Agreement.

17.2 **Binding Effect.** Subject to the restrictions on transfer set forth herein, this Option Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective heirs, executors, administrators, successors and assigns.

17.3 **Termination or Amendment.** The Board may terminate or amend the Plan or the Option at any time; provided, however, that except as provided in Section 8 in connection with a Change in Control, no such termination or amendment may adversely affect the Option or any unexercised portion hereof without the consent of the Participant unless such termination or amendment is necessary to comply with any applicable law or government regulation. No amendment or addition to this Option Agreement shall be effective unless in writing.

17.4 **Delivery of Documents and Notices.** Any document relating to participation in the Plan, or any notice required or permitted hereunder shall be given in writing and shall be deemed effectively given (except to the extent that this Option Agreement provides for effectiveness only upon actual receipt of such notice) upon personal delivery electronic delivery at the e-mail address, if any, provided for the Participant by the Participating Company, or, upon deposit in the U.S. Post Office or foreign postal service, by registered or certified mail, or with a nationally recognized overnight courier service with postage and fees prepaid, addressed to the other party at the address of such party set forth in the Grant Notice or at such other address as such party may designate in writing from time to time to the other party.

(a) **Description of Electronic Delivery.** The Plan documents, which may include but do not necessarily include: the Plan, the Grant Notice, this Option Agreement, and any reports of the Company provided generally to the Company's shareholders, may be delivered to the Participant electronically. In addition, if permitted by the Company, the Participant may deliver electronically the Grant Notice and Exercise Notice called for by Section 4.2 to the Company or to such third party involved in administering the Plan as the Company may designate from time to time. Such means of electronic delivery may include but

do not necessarily include the delivery of a link to a Company intranet or the internet site of a third party involved in administering the Plan, the delivery of the document via e-mail or such other means of electronic delivery specified by the Company.

(b) **Consent to Electronic Delivery.** The Participant acknowledges that the Participant has read Section 17.4(a) of this Option Agreement and consents to the electronic delivery of the Plan documents and, if permitted by the Company, the delivery of the Grant Notice and Exercise Notice, as described in Section 17.4(a). The Participant acknowledges that he or she may receive from the Company a paper copy of any documents delivered electronically at no cost to the Participant by contacting the Company by telephone or in writing. The Participant further acknowledges that the Participant will be provided with a paper copy of any documents if the attempted electronic delivery of such documents fails. Similarly, the Participant understands that the Participant must provide the Company or any designated third party administrator with a paper copy of any documents if the attempted electronic delivery of such documents fails. The Participant may revoke his or her consent to the electronic delivery of documents described in Section 17.4(a) or may change the electronic mail address to which such documents are to be delivered (if Participant has provided an electronic mail address) at any time by notifying the Company of such revoked consent or revised e-mail address by telephone, postal service or electronic mail. Finally, the Participant understands that he or she is not required to consent to electronic delivery of documents described in Section 17.4(a).

17.5 **Integrated Agreement.** The Grant Notice, this Option Agreement and the Plan, together with any employment, service or other agreement with the Participant and a Participating Company referring to the Option, shall constitute the entire understanding and agreement of the Participant and the Participating Company Group with respect to the subject matter contained herein or therein and supersede any prior agreements, understandings, restrictions, representations, or warranties among the Participant and the Participating Company Group with respect to such subject matter. To the extent contemplated herein or therein, the provisions of the Grant Notice, the Option Agreement and the Plan shall survive any exercise of the Option and shall remain in full force and effect.

17.6 **Applicable Law.** This Option Agreement shall be governed by the laws of the State of California as such laws are applied to agreements between California residents entered into and to be performed entirely within the State of California.

17.7 **Counterparts.** The Grant Notice may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

™ Incentive Stock Option
™ Nonstatutory Stock Option

Participant:

Date: _____

STOCK OPTION EXERCISE NOTICE

AcelRx Pharmaceuticals, Inc.
Attention: Chief Financial Officer
575 Chesapeake Drive
Redwood City, CA 94063

Ladies and Gentlemen:

1. **Option.** I was granted an option (the *"**Option**"*) to purchase shares of the common stock (the *"**Shares**"*) of AcelRx Pharmaceuticals, Inc. (the *"**Company**"*) pursuant to the Company's 2006 Stock Plan (the *"**Plan**"*), my Notice of Grant of Stock Option (the *"**Grant Notice**"*) and my Stock Option Agreement (the *"**Option Agreement**"*) as follows:

Date of Grant:

Number of Option Shares:

Exercise Price per Share:

2. **Exercise of Option.** I hereby elect to exercise the Option to purchase the following number of Shares, all of which are vested shares, in accordance with the Grant Notice and the Option Agreement:

Total Shares Purchased: _____

Total Exercise Price (Total Shares X Price per Share) $_____

3. **Payments.** I enclose payment in full of the total exercise price for the Shares in the following form(s), as authorized by my Option Agreement:

™ Cash: $_____

_____

™ Check: $_____

™ Tender of Company Stock: Contact Plan Administrator

4. **Tax Withholding.** I authorize payroll withholding and otherwise will make adequate provision for the federal, state, local and foreign tax withholding obligations of the Company, if any, in connection with the Option. If I am exercising a Nonstatutory Stock Option, I enclose payment in full of my withholding taxes, if any, as follows:

(Contact Plan Administrator for amount of tax due.)

™ Cash: $_____

_____

™ Check: $_____

5. **Participant Information.**

My address is: _____

_____

My Social Security Number is: _____

6. **Notice of Disqualifying Disposition.** If the Option is an Incentive Stock Option, I agree that I will promptly notify the Chief Financial Officer of the Company if I transfer any of the Shares within one (1) year from the date I exercise all or part of the Option or within two (2) years of the Date of Grant.

7. **Binding Effect.** I agree that the Shares are being acquired in accordance with and subject to the terms, provisions and conditions of the Grant Notice, the Option Agreement, including the Right of First Refusal set forth therein, and the Plan, to all of which I hereby expressly assent. This Agreement shall inure to the benefit of and be binding upon my heirs, executors, administrators, successors and assigns.

8. **Transfer.** I understand and acknowledge that the Shares have not been registered under the Securities Act of 1933, as amended (the *"**Securities Act**"*), and that consequently the Shares must be held indefinitely unless they are subsequently registered under the Securities Act, an exemption from such registration is available, or they are sold in accordance with Rule 144 or Rule 701 under the Securities Act. I further understand and acknowledge that the Company is under no obligation to register the Shares. I understand that the certificate or certificates evidencing the Shares will be imprinted with legends which prohibit the transfer of the Shares unless they are registered or such registration is not required in the opinion of legal counsel satisfactory to the Company.

I am aware that Rule 144 under the Securities Act, which permits limited public resale of securities acquired in a nonpublic offering, is not currently available with respect to the Shares and, in any event, is available only if certain conditions are satisfied. I understand that any sale of the Shares that might be made in reliance upon Rule 144 may only be made in limited amounts in accordance with the terms and conditions of such rule and that a copy of Rule 144 will be delivered to me upon request.

I understand that I am purchasing the Shares pursuant to the terms of the Plan, the Grant Notice and my Option Agreement, copies of which I have received and carefully read and understand.

Very truly yours,

_____

(Signature)

Receipt of the above is hereby acknowledged.

ACELRX PHARMACEUTICALS, INC.

By: _____

Title: _____

Dated: _____

Exhibit 10.8

LEASE

BETWEEN

METROPOLITAN LIFE INSURANCE COMPANY (LANDLORD)

AND

ACELRX PHARMACEUTICALS, INC. (TENANT)

SEAPORT CENTRE

Redwood City, California

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LEASE

ARTICLE ONE
BASIC LEASE PROVISIONS

1.01 BASIC LEASE PROVISIONS

In the event of any conflict between these Basic Lease Provisions and any other Lease provision, such other Lease provision shall control.

(1) BUILDING AND ADDRESS: Building Number 3, located in Phase I ("Tenant's Phase") of Seaport Centre. As of the Lease Date, the Building includes the address 575 Chesapeake Drive and other street address(es) in Redwood City, California, 94063.

(2) LANDLORD AND ADDRESS:

Metropolitan Life Insurance Company,
a New York corporation

Notices to Landlord shall be addressed:

Metropolitan Life Insurance Company
c/o Seaport Centre Manager
701 Chesapeake Drive
Redwood City, CA 94063

with copies to the following:

Metropolitan Life Insurance Company
400 South El Camino Real, 8th Floor
San Mateo, CA 94402
Attention: Director, EIM

and

Metropolitan Life Insurance Company
400 South El Camino Real, 8th Floor
San Mateo, CA 94402
Attention: Associate General Counsel

(3) TENANT; CURRENT ADDRESS and TAX ID:

(a)	Name:	AcelRx Pharmaceuticals, Inc.
(b)	State of incorporation:	a Delaware corporation
(c)	Tax Identification Number:	41-2193603

Tenant shall notify Landlord of any change in the foregoing.

Notices to Tenant shall be addressed:

Prior to Commencement Date:

AcelRx Pharmaceuticals, Inc.
c/o Regus, 6th Floor
303 Twin Dolphin Drive
Redwood City, CA 94063
Attention: Carter King

On & After Commencement Date:

AcelRx Pharmaceuticals, Inc.
575 Chesapeake Drive
Redwood City, CA 94063
Attention: Carter King

(4) DATE OF LEASE: as of January 2, 2007

(5) LEASE TERM: Sixty (60) months

(6) COMMENCEMENT DATE: See Rider 2.

(7) PROJECTED EXPIRATION DATE: The day before the fifth anniversary of the Commencement Date.

(8) MONTHLY BASE RENT (initial monthly installment due upon Tenant's execution):

Period from/to	Monthly	Monthly Rate/SF of Rentable Area
Months 01-12	$ 26,001.50	$2.30
Months 13-24	$ 26,781.55	$2.37
Months 25-36	$27,596.64	$2.44
Months 37-48	$ 28,411.73	$2.51
Months 49-60	$29,226.82	$2.59

(9) RENT ADJUSTMENT DEPOSIT (initial monthly rate, until further notice): $6,556.90 (initial monthly installment due upon Tenant's execution)

(10) RENTABLE AREA OF THE PREMISES: 11,305 square feet

(11) RENTABLE AREA OF THE BUILDING: 37,856 square feet

(12) RENTABLE AREA OF THE PHASE: 301,824 square feet

(13) RENTABLE AREA OF THE PROJECT: 537,444 square feet

(14) SECURITY: The cash in the amount of Thirty Thousand Dollars ($30,000) and Letter of Credit in the amount of One Hundred Fifty Thousand Dollars ($150,000) (and all proceeds of the Letter of Credit drawn and held by Landlord) as provided in Article Five.

(15) SUITE NUMBER &/OR ADDRESS OF PREMISES: 575 Chesapeake Drive, Redwood City, CA 94063

(16) TENANT'S SHARE:

Tenant's Building Share:	29.8632%
Tenant's Phase Share:	03.7456%
Tenant's Project Share:	02.1035%

(17) TENANT'S USE OF PREMISES: General office use; labs for pharmaceutical purposes; and engineering lab. For purposes of this Lease, "engineering lab" shall mean a light mechanical workspace (not a machine shop) for use of hand tools, some small equipment (but not heavy equipment or machinery or lathes), some soldering and some adhesives incidental to Tenant's pharmaceutical labs and products and to general office use.

(18) PARKING SPACES: Thirty-Seven (37)

(19) BROKERS:

Landlord's Broker: Kristoph Lodge and Howard Dallmar of Cornish & Carey Commercial

Tenant's Broker: Randy Scott of Cornish & Carey Commercial

1.02 ENUMERATION OF EXHIBITS & RIDER(S)

The Exhibits and Rider(s) set forth below and attached to this Lease are incorporated in this Lease by this reference:

EXHIBIT A Plan of Premises
EXHIBIT B Workletter Agreement
EXHIBIT C Site Plan of Project
EXHIBIT D Permitted Hazardous Material
EXHIBIT E Form of Letter of Credit

RIDER 1 Commencement Date Agreement
RIDER 2 Additional Provisions

1.03 DEFINITIONS

For purposes hereof, the following terms shall have the following meanings:

ADJUSTMENT YEAR: The applicable calendar year or any portion thereof after the Commencement Date of this Lease for which a Rent Adjustment computation is being made.

AFFILIATE: Any Person (as defined below) which is controlled by, controls, or is under common control with Tenant. The word Person means an individual, partnership, trust, corporation, limited liability company, firm or other entity. For purposes of this definition, the word "control," means, with respect to a Person that is a corporation or a limited liability company, the right to exercise, directly or indirectly, more than fifty percent (50%) of the voting rights attributable to the shares or membership interests of the controlled Person and, with respect to a Person that is not

a corporation, the possession, directly or indirectly, of the power at all times to direct or cause the direction of the management of the controlled Person.

BUILDING: Each building in which the Premises is located, as specified in Section 1.01(1).

BUILDING OPERATING EXPENSES: Those Operating Expenses described in Section 4.01.

COMMENCEMENT DATE: The date determined as set forth in Rider 2.

COMMON AREAS: All areas of the Project made available by Landlord from time to time for the general common use or benefit of the tenants of the Building or Project, and their employees and invitees, or the public, as such areas currently exist and as they may be changed from time to time.

DECORATION: Tenant Alterations which do not require a building permit and which do not affect the facade or roof of the Building, or involve any of the structural elements of the Building, or involve any of the Building's systems, including its electrical, mechanical, plumbing, security, heating, ventilating, air-conditioning, communication, and fire and life safety systems.

DEFAULT RATE: Two (2) percentage points above the rate then most recently announced by Bank of America N.T. & S.A. at its San Francisco main office as its corporate base lending rate, from time to time announced, but in no event higher than the maximum rate permitted by Law.

DELIVERY DATE: The date for Landlord's delivery to Tenant of possession of the Premises, if different from the Commencement Date, as provided in Rider 2.

ENVIRONMENTAL LAWS: All Laws governing the use, storage, transportation, disposal or generation of any Hazardous Material, or pertaining to environmental conditions on, under or about the Premises or any part of the Project, including the Comprehensive Environmental Response Compensation and Liability Act of 1980 (42 U.S.C. Section 9601 et seq.), the Resource Conservation and Recovery Act of 1976 (42 U.S.C. Section 6901 et seq.), the Hazardous Materials Transportation Act (49 U.S.C. Section 1801, et seq.); and Section 307 (33 U.S.C. Section 1317) and Section 311 (33 U.S.C. Section 1321) of the Clean Water Act of 1977 (33 U.S.C. Section 1251, et seq.), all as heretofore or hereafter amended.

EXPIRATION DATE: The date specified in Section 1.01(7) unless changed by operation of Article Two.

FORCE MAJEURE: Any accident, casualty, act of God, war or civil commotion, strike or labor troubles, or any cause whatsoever beyond the reasonable control of Landlord, including water shortages, energy shortages or governmental preemption in connection with an act of God, a national emergency, or by reason of Law, or by reason of the conditions of supply and demand which have been or are affected by act of God, war or other emergency.

HAZARDOUS MATERIAL: Such substances, material and wastes which are or become regulated under any Law pertaining to environmental conditions, or which are classified as hazardous, toxic, medical waste or bio-hazardous waste under any Law; and explosives, firearms, ammunition, flammable materials, radioactive material, asbestos, polychlorinated biphenyls, acids, caustics, gasoline, kerosene, natural gas, propane, oil, petroleum, petroleum products and by-products. Hazardous Material shall include by way of illustration, and without limiting the generality of the foregoing, the following: (i) those substances included within the definitions of "hazardous substances," "hazardous materials," "toxic substances" or "solid waste" under all present and future Laws relating to the protection of human health or the environment, including California Senate Bill 245 (Statutes of 1987, Chapter 1302); the Safe Drinking Water and Toxic Enforcement Act of 1986 (commonly known as Proposition 65); the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. Section 9601 et seq.); the Resource Conservation and Recovery Act of 1976 (42 U.S.C. Section 6901 et seq.); the Hazardous Materials Transportation Act (49 U.S.C. Sections 1801, et seq.); Section 307 (33 U.S.C. Section 1317) or Section 311 (33 U.S.C. Section 1321) of the Clean Water Act of 1977 (33 U.S.C. Section 1251, et seq.), all as heretofore and hereafter amended, or in any regulations promulgated pursuant to said laws; (ii) those substances defined as "hazardous wastes" in Section 25117 of the California Health & Safety Code or as "hazardous substances" in Section 25316 of the California Health & Safety Code, all as heretofore and hereafter amended, or in any regulations promulgated pursuant to said laws; (iii) those substances listed in the United States Department of Transportation Table (49 CFR 172.101 and amendments thereto) or designated by the Environmental Protection Agency (or any successor agency) as hazardous substances (see, e.g., 40 CFR Part 302 and amendments thereto); and (iv) such other substances, materials and wastes which are or become regulated under applicable local, state or federal law or by the United States government or which are or become classified as hazardous or toxic under federal, state or local laws or regulations, including California Health & Safety Code, Division 20, and Title 26 of the California Code of Regulations, all as heretofore and hereafter amended, or in any regulations promulgated pursuant to said laws.

INDEMNITEES: Collectively, Landlord, any Mortgagee or ground lessor of the Property, the property manager and the leasing manager for the Property and their respective directors, officers, agents and employees.

LAND: The parcel(s) of real estate on which the Building and Project are located.

LANDLORD WORK: The construction or installation of improvements to be furnished by Landlord, if any, specifically described in Rider 2 attached hereto.

LAWS OR LAW: All laws, ordinances, rules, regulations, other requirements, orders, rulings or decisions adopted or made by any governmental body, agency, department or judicial authority having jurisdiction over the Property,

the Premises or Tenant's activities at the Premises and any covenants, conditions or restrictions of record which affect the Property, all as heretofore or hereafter adopted, made or amended.

LEASE: This instrument and all exhibits and riders attached hereto, as may be amended from time to time.

LEASE YEAR: The twelve month period beginning on the first day of the first month following the Commencement Date (unless the Commencement Date is the first day of a calendar month in which case beginning on the Commencement Date), and each subsequent twelve month, or shorter, period until the Expiration Date.

MONTHLY BASE RENT: The monthly rent specified in Section 1.01(8).

MORTGAGEE: Any holder of a mortgage, deed of trust or other security instrument encumbering the Property.

NATIONAL HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day and other holidays recognized by the Landlord and the janitorial and other unions servicing the Building in accordance with their contracts.

OPERATING EXPENSES: All Taxes, costs, expenses and disbursements of every kind and nature which Landlord shall pay or become obligated to pay in connection with the ownership, management, operation, maintenance, replacement and repair of the Property (including the amortized portion of any capital expenditure or improvement, together with interest thereon, expenses of changing utility service providers, and any dues, assessments and other expenses pursuant to any covenants, conditions and restrictions, or any reciprocal easements, or any owner's association now or hereafter affecting the Project). Operating Expenses shall be allocated among the categories of Project Operating Expenses, Building Operating Expenses or Phase Operating Expenses as provided in Article Four. If any Operating Expense, though paid in one year, relates to more than one calendar year, at the option of Landlord such expense may be proportionately allocated among such related calendar years. Operating Expenses shall include the following, by way of illustration only and not limitation: (1) all Taxes; (2) all insurance premiums and other costs (including deductibles), including the cost of rental insurance; (3) all license, permit and inspection fees; (4) all costs of utilities, fuels and related services, including water, sewer, light, telephone, power and steam connection, service and related charges; (5) all costs to repair, maintain and operate heating, ventilating and air conditioning systems, including preventive maintenance; (6) all janitorial, landscaping and security services; (7) all wages, salaries, payroll taxes, fringe benefits and other labor costs, including the cost of workers' compensation and disability insurance; (8) all costs of operation, maintenance and repair of all parking facilities and other common areas; (9) all supplies, materials, equipment and tools; (10) dues, assessments and other expenses pursuant to any covenants, conditions and restrictions, or any reciprocal easements, or any owner's association now or hereafter affecting the Project; (11) modifications to the Building or the Project occasioned by Laws now or hereafter in effect; (12) the total charges of any independent contractors employed in the care, operation, maintenance, repair, leasing and cleaning of the Project, including landscaping, roof maintenance, and repair, maintenance and monitoring of life-safety systems, plumbing systems, electrical wiring and Project signage; (13) the cost of accounting services necessary to compute the rents and charges payable by tenants at the Project; (14) exterior window and exterior wall cleaning and painting; (15) managerial and administrative expenses; (16) all costs in connection with the exercise facility at the Project; (17) all costs and expenses related to Landlord's retention of consultants in connection with the routine review, inspection, testing, monitoring, analysis and control of Hazardous Material, and retention of consultants in connection with the clean-up of Hazardous Material (to the extent not recoverable from a particular tenant of the Project), and all costs and expenses related to the implementation of recommendations made by such consultants concerning the use, generation, storage, manufacture, production, storage, release, discharge, disposal or clean-up of Hazardous Material on, under or about the Premises or the Project (to the extent not recoverable from a particular tenant of the Project); (18) all capital improvements made for the purpose of reducing or controlling other Operating Expenses, and all other capital expenditures, but in each case of any capital item the cost of which exceeds double the then monthly installment of the Rent Adjustment Deposit, only as amortized over the useful life of such capital item as reasonably determined by Landlord, together with interest on the unamortized portion; (19) all property management costs and fees, including all costs in connection with the Project property management office; and (20) all fees or other charges incurred in conjunction with voluntary or involuntary membership in any energy conservation, air quality, environmental, traffic management or similar organizations. Operating Expenses shall not include: (a) costs of alterations of space to be occupied by new or existing tenants of the Project; (b) depreciation charges; (c) interest and principal payments on loans (except for loans for capital expenditures or improvements which Landlord is allowed to include in Operating Expenses as provided above); (d) ground rental payments; (e) real estate brokerage and leasing commissions; (f) advertising and marketing expenses; (g) costs of Landlord reimbursed by insurance proceeds; (h) expenses incurred in negotiating leases of other tenants in the Project or enforcing lease obligations of other tenants in the Project; and (i) Landlord's or Landlord's property manager's corporate general overhead or corporate general administrative expenses.

PHASE: Phase means any individual Phase of the Project, as more particularly described in the definition of Project.

PHASE OPERATING EXPENSES: Those Operating Expenses described in Section 4.01.

PREMISES: The space located in the Building at the Suite Number listed in Section 1.01(15) and depicted on Exhibit A attached hereto.

PROJECT or PROPERTY: As of the date hereof, the Project is known as Seaport Centre and consists of those buildings (including the Building) whose general location is shown on the Site Plan of the Project attached as Exhibit C, located in Redwood City, California, associated vehicular and parking areas, landscaping and improvements, together with the Land, any associated interests in real property, and the personal property, fixtures, machinery, equipment, systems and apparatus located in or used in conjunction with any of the foregoing. The Project may

also be referred to as the Property. As of the date hereof, the Project is divided into Phase I and Phase II, which are generally designated on Exhibit C, each of which may individually be referred to as a Phase. Landlord reserves the right from time to time to add or remove buildings, areas and improvements to or from a Phase or the Project, or to add or remove a Phase to or from the Project. In the event of any such addition or removal which affects Rentable Area of the Project or a Phase, Landlord shall make a corresponding recalculation and adjustment of any affected Rentable Area and Tenant's Share.

PROJECT OPERATING EXPENSES: Those Operating Expenses described in Section 4.01.

REAL PROPERTY: The Property excluding any personal property.

RENT: Collectively, Monthly Base Rent, Rent Adjustments and Rent Adjustment Deposits, and all other charges, payments, late fees or other amounts required to be paid by Tenant under this Lease.

RENT ADJUSTMENT: Any amounts owed by Tenant for payment of Operating Expenses. The Rent Adjustments shall be determined and paid as provided in Article Four.

RENT ADJUSTMENT DEPOSIT: An amount equal to Landlord's estimate of the Rent Adjustment attributable to each month of the applicable Adjustment Year. On or before the Commencement Date and the beginning of each subsequent Adjustment Year or with Landlord's Statement (defined in Article Four), Landlord may estimate and notify Tenant in writing of its estimate of Operating Expenses, including Project Operating Expenses, Building Operating Expenses and Phase Operating Expenses, and Tenant's Share of each, for the applicable Adjustment Year. The Rent Adjustment Deposit applicable for the calendar year in which the Commencement Date occurs shall be the amount, if any, specified in Section 1.01(9). Landlord shall have the right from time to time during any Adjustment Year to provide a new or revised estimate of Operating Expenses and/or Taxes and to notify Tenant in writing thereof, of corresponding adjustments in Tenant's Rent Adjustment Deposit payable over the remainder of such year, and the amount or revised amount due allocable to months preceding such change. The last estimate by Landlord shall remain in effect as the applicable Rent Adjustment Deposit unless and until Landlord notifies Tenant in writing of a change.

RENTABLE AREA OF THE BUILDING: The amount of square footage set forth in Section 1.01(11)

RENTABLE AREA OF THE PHASE: The amount of square footage set forth in Section 1.01(12)

RENTABLE AREA OF THE PREMISES: The amount of square footage set forth in Section 1.01(10).

RENTABLE AREA OF THE PROJECT: The amount of square footage set forth in Section 1.01(13), which represents the sum of the rentable area of all space intended for occupancy in the Project.

SECURITY: The cash and Letter of Credit specified in Section 1.01 as Security paid and/or delivered to Landlord as security for Tenant's performance of its obligations under this Lease, and all proceeds of the Letter of Credit drawn and held by Landlord, all as more particularly provided in Article Five.

SUBSTANTIALLY COMPLETE or SUBSTANTIAL COMPLETION: The completion of the Landlord Work or Tenant Work, as the case may be, except for minor insubstantial details of construction, decoration or mechanical adjustments which remain to be done.

TAXES: All federal, state and local governmental taxes, assessments (including assessment bonds) and charges of every kind or nature, whether general, special, ordinary or extraordinary, which Landlord shall pay or become obligated to pay because of or in connection with the ownership, leasing, management, control or operation of the Property or any of its components (including any personal property used in connection therewith), which may also include any rental or similar taxes levied in lieu of or in addition to general real and/or personal property taxes. For purposes hereof, Taxes for any year shall be Taxes which are assessed for any period of such year, whether or not such Taxes are billed and payable in a subsequent calendar year. There shall be included in Taxes for any year the amount of all fees, costs and expenses (including reasonable attorneys' fees) paid by Landlord during such year in seeking or obtaining any refund or reduction of Taxes. Taxes for any year shall be reduced by the net amount of any tax refund received by Landlord attributable to such year. If a special assessment payable in installments is levied against any part of the Property, Taxes for any year shall include only the installment of such assessment and any interest payable or paid during such year. Taxes shall not include any federal or state inheritance, general income, gift or estate taxes, except that if a change occurs in the method of taxation resulting in whole or in part in the substitution of any such taxes, or any other assessment, for any Taxes as above defined, such substituted taxes or assessments shall be included in the Taxes.

TENANT ADDITIONS: Collectively, Landlord Work, Tenant Work and Tenant Alterations.

TENANT ALTERATIONS: Any alterations, improvements, additions, installations or construction in or to the Premises or any Real Property systems serving the Premises done or caused to be done by Tenant after the date hereof, whether prior to or after the Commencement Date (including Tenant Work, but excluding Landlord Work).

TENANT DELAY: Any event or occurrence which delays the Substantial Completion of the Landlord Work which is caused by or is described as follows:

(i) special work, changes, alterations or additions requested or made by Tenant in the design or finish in any part of the Premises after approval of the plans and specifications (as described in the Rider 2);

(ii) Tenant's delay in submitting plans, supplying information, approving plans, specifications or estimates, or giving authorizations;

(iii) failure to approve and pay for such work, if any, as Landlord undertakes to complete at Tenant's expense;

(iv) the performance or completion by Tenant or any person engaged by Tenant of any work in or about the Premises; or

(v) failure to perform or comply with any obligation or condition binding upon Tenant pursuant to Rider 2, including the failure to approve and pay for such Landlord Work or other items if and to the extent Rider 2 provides they are to be approved or paid by Tenant.

TENANT WORK: All work installed or furnished to the Premises by Tenant in connection with Tenant's initial occupancy pursuant to Rider 2 and the Workletter, including those items described in Section 5 of the Workletter as part of the Tenant Work.

TENANT'S BUILDING SHARE: The share as specified in Section 1.01(16) and Section 4.01.

TENANT'S PHASE: The Phase in which the Premises is located, as indicated in Section 1.01(1).

TENANT'S PHASE SHARE: The share as specified in Section 1.01(16) and Section 4.01.

TENANT'S PROJECT SHARE: The share as specified in Section 1.01(16) and Section 4.01.

TENANT'S SHARE: Shall mean collectively, Tenant's respective shares of the respective categories of Operating Expenses, as provided in Section 1.01(16) and Section 4.01. If this Lease is of Premises in more than one building of the Project, then Tenant's Building Share shall be calculated and specified separately for each such building.

TERM: The term of this Lease commencing on the Commencement Date and expiring on the Expiration Date.

TERMINATION DATE: The Expiration Date or such earlier date as this Lease terminates or Tenant's right to possession of the Premises terminates.

WORKLETTER: The agreement regarding the condition of the Premises and Building, and completion of Tenant Work and Landlord Work, if any, set forth in Rider 2 and/or Exhibit B hereto.

ARTICLE TWO
PREMISES, TERM, FAILURE TO GIVE POSSESSION, COMMON AREAS AND PARKING

2.01 LEASE OF PREMISES

Landlord hereby leases to Tenant and Tenant hereby leases from Landlord the Premises for the Term and upon the terms, covenants and conditions provided in this Lease.

2.02 TERM (See Rider 2)

2.03 FAILURE TO GIVE POSSESSION (See Rider 2)

2.04 AREA OF PREMISES

Landlord and Tenant agree that for all purposes of this Lease the Rentable Area of the Premises, the Rentable Area of the Building, the Rentable Area of the Phase and the Rentable Area of the Project as set forth in Article One are controlling, and are not subject to revision after the date of this Lease, except as otherwise provided herein.

2.05 CONDITION OF PREMISES (See Rider 2)

2.06 COMMON AREAS & PARKING

(a) Right to Use Common Areas. Tenant shall have the non-exclusive right, in common with others, to the use of any common entrances, ramps, drives and similar access and serviceways and other Common Areas in the Project. The rights of Tenant hereunder in and to the Common Areas shall at all times be subject to the rights of Landlord and other tenants and owners in the Project who use the same in common with Tenant, and it shall be the duty of Tenant to keep all the Common Areas free and clear of any obstructions created or permitted by Tenant or resulting from Tenant's operations. Tenant shall not use the Common Areas or common facilities of the Building or the Project, including the Building's electrical room, parking lot or trash enclosures, for storage purposes. Nothing herein shall affect the right of Landlord at any time to remove any persons not authorized to use the Common Areas or common facilities from such areas or facilities or to prevent their use by unauthorized persons.

(b) Changes in Common Areas. Landlord reserves the right, at any time and from time to time to (i) make alterations in or additions to the Common Areas or common facilities of the Project, including constructing new buildings or changing the location, size, shape or number of the driveways, entrances, parking spaces, parking areas, loading and unloading areas, landscape areas and walkways, (ii) designate property to be included in or eliminate property from the Common Areas or common facilities of the Project, (iii) close temporarily any of the Common Areas or common facilities of the Project for maintenance purposes, and (4) use the Common Areas and common facilities of the Project while engaged in making alterations in or additions and repairs to the Project; provided, however, that reasonable access to the Premises and parking at or near the Project remains available.

(c) Parking. During the Term, Tenant shall have the right to use the number of Parking Spaces specified in Section 1.01(18) for parking on an unassigned basis on that portion of the Project designated by Landlord from time to time for parking. Tenant acknowledges and agrees that the parking spaces in the Project's parking facility may include a mixture of spaces for compact vehicles as well as full-size passenger automobiles, and that Tenant shall not use parking spaces for vehicles larger than the striped size of the parking spaces. Tenant shall not park any vehicles at the Project overnight, except vehicles of employees traveling on Tenant's business which may be parked no longer than two consecutive nights. Tenant shall comply with any and all parking rules and regulations if and as from time to time established by Landlord. Tenant shall not allow any vehicles using Tenant's parking privileges to be parked, loaded or unloaded except in accordance with this Section, including in the areas and in the manner designated by Landlord for such activities. If any vehicle is using the parking or loading areas contrary to any provision of this Section, Landlord shall have the right, in addition to all other rights and remedies of Landlord under this Lease, to remove or tow away the vehicle without prior notice to Tenant, and the cost thereof shall be paid to Landlord within ten (10) days after notice from Landlord to Tenant. The mixture of full-size and compact passenger vehicle spaces shall be reasonably balanced. The number of spaces specified in Section 1.01(18) is located within a reasonable distance from the entrance or entrances to the Premises, but such parking is on an unassigned, first-come, first-served basis among Tenant and other occupants of the Project. Provided, however, the foregoing conditions and restrictions shall be interpreted as governing the use of, and not to deprive Tenant of, its right to use the number of Parking Spaces specified in Section 1.01(18).

ARTICLE THREE
RENT

Tenant agrees to pay to Landlord at the first office specified in Section 1.01(2), or to such other persons, or at such other places designated by Landlord, without any prior demand therefor in immediately available funds and without any deduction or offset whatsoever, Rent, including Monthly Base Rent and Rent Adjustments in accordance with Article Four, during the Term. Monthly Base Rent shall be paid monthly in advance on the first day of each month of the Term, except that the first installment of Monthly Base Rent shall be paid by Tenant to Landlord simultaneously with Tenant's execution and delivery of this Lease to Landlord. Monthly Base Rent shall be prorated for partial months within the Term. Unpaid Rent shall bear interest at the Default Rate from the date due until paid. Tenant's covenant to pay Rent shall be independent of every other covenant in this Lease.

ARTICLE FOUR
OPERATING EXPENSES, RENT ADJUSTMENTS AND PAYMENTS

4.01 TENANT'S SHARE OF OPERATING EXPENSES

Tenant shall pay Tenant's Share of Operating Expenses in the respective shares of the respective categories of Operating Expenses as set forth below.

(a) Tenant's Project Share of Project Operating Expenses, which is the percentage obtained by dividing the rentable square footage of the Premises for the building(s) in which the Premises is located by the rentable square footage of the Project and as of the date hereof equals the percentage set forth in Section 1.01(16);

(b) Tenant's Building Share of Building Operating Expenses, which is the percentage obtained by dividing the rentable square footage of the Premises respectively for each building in which the Premises is located by the total rentable square footage of such building and as of the date hereof equals the percentage set forth in Section 1.01(16);

(c) Tenant's Phase Share of Phase Operating Expenses, which is the percentage obtained by dividing the aggregate rentable square footage of the Premises located in Tenant's Phase by the total rentable square footage of Tenant's Phase and as of the date hereof equals the percentage set forth in Section 1.01(16);

(d) Project Operating Expenses shall mean all Operating Expenses that are not included as Phase Operating Expenses (defined below) and that are not either Building Operating Expenses or operating expenses directly and separately identifiable to the operation, maintenance or repair of any other building located in the Project, but Project Operating Expenses includes operating expenses allocable to any areas of the Building or any other building during such time as such areas are made available by Landlord for the general common use or benefit of all tenants of the Project, and their employees and invitees, or the public, as such areas currently exist and as they may be changed from time to time;

(e) Building Operating Expenses shall mean Operating Expenses that are directly and separately identifiable to each building in which the Premises or part thereof is located;

(f) Phase Operating Expenses shall mean Operating Expenses that Landlord may allocate to a Phase as directly and separately identifiable to all buildings located in the Phase (including but not limited to the Building) and may include Project Operating Expenses that are separately identifiable to a Phase;

(g) Landlord shall have the right to allocate a particular item or portion of Operating Expenses as any one of Project Operating Expenses, Building Operating Expenses or Phase Operating Expenses, but such allocations must be reasonable and in accordance with the definitions of such expenses set forth above in Subsections 4.01(d), (e) and (f), and in no event shall any portion of Building Operating Expenses, Project Operating Expenses or Phase Operating Expenses be assessed or counted against Tenant more than once; and.

(h) Notwithstanding anything to the contrary contained in this Section 4.01, as to each specific category of Operating Expense which one or more tenants of the Building either pays directly to third parties or specifically reimburses to Landlord (for example, separately contracted janitorial services or property taxes directly reimbursed to Landlord), then, on a category by category basis, the amount of Operating Expenses for the affected period shall be adjusted as follows: (1) all such tenant payments with respect to such category of expense and all of Landlord's costs reimbursed thereby shall be excluded from Operating Expenses and Tenant's Building Share, Tenant's Phase Share or Tenant's Project Share, as the case may be, for such category of Operating Expense shall be adjusted by excluding the square footage of all such tenants, and (2) if Tenant pays or directly reimburses Landlord for such category of Operating Expense, such category of Operating Expense shall be excluded from the determination of Operating Expenses for the purposes of this Lease.

4.02 RENT ADJUSTMENTS

Tenant shall pay to Landlord Rent Adjustments with respect to each Adjustment Year as follows:

(a) The Rent Adjustment Deposit shall be paid monthly during the Term with the payment of Monthly Base Rent, except the first installment which shall be paid by Tenant to Landlord concurrently with execution of this Lease. The Rent Adjustment Deposit represents, on a monthly basis, Tenant's Share of Landlord's estimate of Operating Expenses, as described in Section 4.01, for the applicable Adjustment Year (or portion thereof); and

(b) Any Rent Adjustments due in excess of the Rent Adjustment Deposits in accordance with Section 4.03.

4.03 STATEMENT OF LANDLORD

Within one hundred twenty (120) days after the end of each calendar year or as soon thereafter as reasonably possible, Landlord will furnish Tenant a statement ("Landlord's Statement") showing the following:

(a) Operating Expenses for the last Adjustment Year showing in reasonable detail the actual Operating Expenses categorized among Project Operating Expenses, Building Operating Expenses and Phase Operating Expenses for such period and Tenant's Share of each as described in Section 4.01 above;

(b) The amount of Rent Adjustments due Landlord for the last Adjustment Year, less credit for Rent Adjustment Deposits paid, if any; and

(c) Any change in the Rent Adjustment Deposit due monthly in the current Adjustment Year, including the amount or revised amount due for months preceding any such change pursuant to Landlord's Statement.

Tenant shall pay to Landlord within thirty (30) days after receipt of such statement any amounts for Rent Adjustments then due in accordance with Landlord's Statement. Any amounts due from Landlord to Tenant pursuant to this Section shall be credited to the Rent Adjustment Deposit next coming due, or refunded to Tenant if the Term has already expired provided Tenant is not in default hereunder. No interest or penalties shall accrue on any amounts which Landlord is obligated to credit or refund to Tenant by reason of this Section 4.03. Landlord's failure to deliver Landlord's Statement or to compute the amount of the Rent Adjustments shall not constitute a waiver by Landlord of its right to deliver such items nor constitute a waiver or release of Tenant's obligations to pay such amounts. The Rent Adjustment Deposit shall be credited against Rent Adjustments due for the applicable Adjustment Year. During the last complete calendar year or during any partial calendar year in which the Lease terminates, Landlord may include in the Rent Adjustment Deposit its estimate of Rent Adjustments which may not be finally determined until after the termination of this Lease. Tenant's obligation to pay Rent Adjustments survives the expiration or termination of the Lease.

4.04 BOOKS AND RECORDS

Landlord shall maintain books and records showing Operating Expenses and Taxes in accordance with sound accounting and management practices, consistently applied. The Tenant or its representative (which representative shall be a certified public accountant licensed to do business in the state in which the Property is located and whose primary business is certified public accounting) shall have the right, for a period of ninety (90) days following the date upon which Landlord's Statement is delivered to Tenant, to examine the Landlord's books and records with respect to the items in the foregoing statement of Operating Expenses and Taxes during normal business hours, upon written notice, delivered at least three (3) business days in advance. If Tenant does not object in writing to Landlord's Statement within one hundred twenty (120) days of Tenant's receipt thereof, specifying the nature of the item in dispute and the reasons therefor, then Landlord's Statement shall be considered final and accepted by Tenant. Any amount due to the Landlord as shown on Landlord's Statement, whether or not disputed by Tenant as provided herein shall be paid by Tenant when due as provided above, without prejudice to any such written exception.

4.05 TENANT OR LEASE SPECIFIC TAXES

In addition to Monthly Base Rent, Rent Adjustments, Rent Adjustment Deposits and other charges to be paid by Tenant, Tenant shall pay to Landlord, upon demand, any and all taxes payable by Landlord (other than federal or state inheritance, general income, gift or estate taxes) whether or not now customary or within the contemplation of the parties hereto: (a) upon, allocable to, or measured by the Rent payable hereunder, including any gross receipts tax or excise tax levied by any governmental or taxing body with respect to the receipt of such rent; or (b) upon or with respect to the possession, leasing, operation, management, maintenance, alteration, repair, use or occupancy by Tenant of the Premises or any portion thereof; or (c) upon the measured value of Tenant's personal property or trade fixtures located in the Premises or in any storeroom or any other place in the Premises or the Property, or the areas used in connection with the operation of the Property, it being the intention of Landlord and Tenant that, to the extent possible, Tenant shall cause such taxes on personal property or trade fixtures to be billed to and paid directly by Tenant; (d) resulting from Landlord Work, Tenant Work or Tenant Alterations to the Premises, whether title thereto is in Landlord or Tenant; or (e) upon this transaction. Taxes paid by Tenant pursuant to this Section 4.05 shall not be included in any computation of Taxes as part of Operating Expenses.

ARTICLE FIVE
SECURITY

(a) Tenant, at Tenant's sole cost and expense, shall provide Landlord, simultaneously with Tenant's execution and delivery of this Lease to Landlord, with the "Letter of Credit" (defined below) and Tenant shall pay Landlord in immediately available funds the cash amount of the Security specified in Section 1.01 as security ("Security") for the full and faithful performance by Tenant of each and every term, provision, covenant, and condition of this Lease. If Tenant fails timely to perform any of the terms, provisions, covenants and conditions of this Lease or any other document executed by Tenant in connection with this Lease, including, but not limited to, the payment of Rent or the repair of damage to the Premises caused by Tenant (excluding normal wear and tear), beyond any applicable notice and cure period, then Landlord may use, apply, or retain the whole or any part of the Security for the payment of any Rent not paid when due, for the cost of repairing such damage, for the cost of cleaning the Premises, for the payment of any other sum which Landlord may expend or may be required to expend by reason of Tenant's failure to perform, and otherwise for compensation of Landlord for any other loss or damage to Landlord occasioned by Tenant's failure to perform, including, but not limited to, any loss of future Rent and any damage or deficiency in the reletting of the Premises (whether such loss, damages or deficiency accrue before or after summary proceedings or other reentry by Landlord) and the amount of the unpaid past Rent, future Rent loss, and all other losses, costs and damages, that Landlord would be entitled to recover if Landlord were to pursue recovery under Section 11.02(b) or (c) of this Lease or California Civil Code Section 1951.2 or 1951.4 (and any supplements, amendments, replacements and substitutions thereof and therefor from time to time). If Landlord so uses, applies or retains all or part of the Security, Tenant shall within five (5) business days after demand pay or deliver to Landlord in immediately available funds the sum necessary to replace the amount used, applied or retained. If Tenant has fully and faithfully performed and observed all of Tenant's obligations under the terms, provisions, covenants and conditions of this Lease, the Security (except any amount retained for application by Landlord as provided herein) shall be returned or paid over to Tenant no later than ninety (90) days after the latest of: (i) the Termination Date; (ii) the removal of Tenant from the Premises; (iii) the surrender of the Premises by Tenant to Landlord in accordance with this Lease; or (iv) the date Rent Adjustments owed pursuant to this Lease have been computed by Landlord and paid by Tenant. Provided, however, in no event shall any such return be construed as an admission by Landlord that Tenant has performed all of its obligations hereunder.

(b) The Security, whether in the form of cash, Letter of Credit and/or Letter of Credit Proceeds (defined below), shall not be deemed an advance rent deposit or an advance payment of any kind, or a measure of Landlord's damages with respect to Tenant's failure to perform, nor shall any action or inaction of Landlord with respect to it or its use or application be a waiver of, or bar or defense to, enforcement of any right or remedy of Landlord. Landlord shall not be required to keep the Security separate from its general funds and shall not have any fiduciary duties or other duties (except as set forth in this Section) concerning the Security. Tenant shall not be entitled to any interest on the Security. In the event of any sale, lease or transfer of Landlord's interest in the Building, Landlord shall have the right to transfer the Security, or balance thereof, to the vendee, transferee or lessee and any such transfer shall release Landlord from all liability for the return of the Security. Tenant thereafter shall look solely to such vendee, transferee or lessee for the return or payment of the Security. Tenant shall not assign or encumber or attempt to assign or encumber the Security or any interest in it and Landlord shall not be bound by any such assignment, encumbrance, attempted assignment or attempted encumbrance, and regardless of one or more assignments of this Lease, Landlord may return the Security to the original Tenant without liability to any assignee. Tenant hereby waives any and all rights of Tenant under the provisions of Section 1950.7 of the California Civil Code, and any and all rights of Tenant under all provisions of law, now or hereafter enacted, regarding security deposits.

(c) If Tenant fails timely to perform any obligation under this Article Five, such breach shall constitute a Default by Tenant under this Lease without any right to or requirement of any further notice or cure period under any other Article of this Lease, except such notice and cure period expressly provided under this Article Five.

(d) As used herein, "Letter of Credit" shall mean an unconditional, irrevocable sight draft letter of credit issued, presentable and payable at the San Francisco, San Francisco Peninsula or San Jose office of a major national bank satisfactory to Landlord in its sole discretion (the "Bank"), naming Landlord as beneficiary, in an amount equal to One Hundred Fifty Thousand and 00/100 Dollars ($150,000.00). The Letter of Credit shall provide: (i) that Landlord may make partial and multiple draws thereunder, up to the face amount thereof, and that Landlord may draw upon the Letter of Credit up to the full amount thereof, as determined by Landlord, and the Bank will pay to Landlord the amount of such draw upon receipt by the Bank of a sight draft signed by Landlord without requirement for any additional documents or statements by Landlord; and (ii) that, in the event of assignment or other transfer of either Landlord's interest in this Lease or of any interest in Landlord (including, without limitation, consolidations, mergers, reorganizations or other entity changes), the Letter of Credit shall be freely transferable by Landlord, without charge and without recourse, to the assignee or transferee of such interest and the Bank shall confirm the same to Landlord and such assignee or transferee. The Letter of Credit shall be in the form attached as Exhibit E hereto. Landlord may (but shall not be required to) draw upon the Letter of Credit and use the proceeds therefrom (the "Letter of Credit

Proceeds") or any portion thereof in any manner Landlord is permitted to use the Security under this Article Five. In the event Landlord draws upon the Letter of Credit and elects not to terminate the Lease, but to use the Letter of Credit Proceeds, then within ten (10) business days after Landlord gives Tenant written notice specifying the amount of the Letter of Credit Proceeds so utilized by Landlord, Tenant shall immediately deliver to Landlord an amendment to the Letter of Credit or a replacement Letter of Credit in an amount equal to one hundred percent (100%) of the then-required amount of the Letter of Credit. Tenant's failure to deliver such amendment or replacement of the Letter of Credit to Landlord within ten (10) business days after Landlord's notice shall constitute a Default by Tenant under this Lease. The Letter of Credit shall have an initial term of no longer than one (1) year, shall be "evergreen", and shall be extended, reissued or replaced by Tenant, in each case at least thirty (30) days prior to its expiration in a manner that fully complies with the requirements of this Article Five, so that in all events the Letter of Credit required hereunder shall be in full force and effect continuously until the date (the "L/C Expiration Date") for return of the Security described in Subsection (a) above. No more often than once per year, Landlord shall have the right to require Tenant to deliver to Landlord, on 15 days prior notice, a replacement Letter of Credit on the same terms and conditions set forth in this Article Five, in the event that Landlord determines, in its good faith judgment, that the issuing Bank is no longer satisfactory to remain as the issuer of the Letter of Credit. Any advice from the issuer that it intends to withdraw or not extend the Letter of Credit prior to any scheduled annual expiration or the L/C Expiration Date shall entitle the Landlord to immediately draw upon the Letter of Credit.

ARTICLE SIX
UTILITIES & SERVICES

6.01 LANDLORD'S GENERAL SERVICES

Landlord shall provide maintenance and services as provided in Article Eight.

6.02 TENANT TO OBTAIN & PAY DIRECTLY

(a) Tenant shall be responsible for and shall pay promptly all charges for gas, electricity, sewer, heat, light, power, telephone, refuse pickup (to be performed on a regularly scheduled basis so that accumulated refuse does not exceed the capacity of Tenant's refuse bins), janitorial service and all other utilities, materials and services furnished directly to or used by Tenant in, on or about the Premises, together with all taxes thereon. Tenant shall contract directly with the providing companies for such utilities and services.

(b) Notwithstanding any provision of the Lease to the contrary, without, in each instance, the prior written consent of Landlord, as more particularly provided in Article Nine, Tenant shall not: (i) make any alterations or additions to the electric or gas equipment or systems or other Building systems. Tenant's use of electric current shall at no time exceed the capacity of the wiring, feeders and risers providing electric current to the Premises or the Building. The consent of Landlord to the installation of electric equipment shall not relieve Tenant from the obligation to limit usage of electricity to no more than such capacity.

6.03 TELEPHONE SERVICES

All telegraph, telephone, and communication connections which Tenant may desire outside the Premises shall be subject to Landlord's prior written approval, in Landlord's sole discretion, and the location of all wires and the work in connection therewith shall be performed by contractors approved by Landlord and shall be subject to the direction of Landlord, except that such approval is not required as to Tenant's cabling from the Premises in a route designated by Landlord to any telephone cabinet or panel provided for Tenant's connection to the telephone cable serving the Building, so long as Tenant's equipment does not require connections different than or additional to those to the telephone cabinet or panel provided. As to any such connections or work outside the Premises requiring Landlord's approval, Landlord reserves the right to designate and control the entity or entities providing telephone or other communication cable installation, removal, repair and maintenance outside the Premises and to restrict and control access to telephone cabinets or panels. In the event Landlord designates a particular vendor or vendors to provide such cable installation, removal, repair and maintenance for the Building, Tenant agrees to abide by and participate in such program. Tenant shall be responsible for and shall pay all costs incurred in connection with the installation of telephone cables and communication wiring in the Premises, including any hook-up, access and maintenance fees related to the installation of such wires and cables in the Premises and the commencement of service therein, and the maintenance thereafter of such wire and cables; and there shall be included in Operating Expenses for the Building all installation, removal, hook-up or maintenance costs incurred by Landlord in connection with telephone cables and communication wiring serving the Building which are not allocable to any individual users of such service but are allocable to the Building generally. If Tenant fails to maintain all telephone cables and communication wiring in the Premises and such failure affects or interferes with the operation or maintenance of any other telephone cables or communication wiring serving the Building, Landlord or any vendor hired by Landlord may enter into and upon the Premises forthwith and perform such repairs, restorations or alterations as Landlord deems necessary in order to eliminate any such interference (and Landlord may recover from Tenant all of Landlord's costs in connection therewith). No later than the Termination Date, Tenant agrees to remove all telephone cables and communication wiring installed by Tenant for and during Tenant's occupancy, which Landlord shall request Tenant to remove. Tenant agrees that neither Landlord nor any of its agents or employees shall be liable to Tenant, or any of Tenant's employees, agents, customers or invitees or anyone claiming through, by or under Tenant, for any damages, injuries, losses, expenses, claims or causes of action because of any interruption, diminution, delay or discontinuance at any time for any reason in the furnishing of any telephone or other communication service to the Premises and the Building, except that Landlord shall be responsible for repair or replacement of damage or destruction to Tenant's telephone equipment and wiring to the extent caused by the gross negligence or willful and wrongful act of Landlord or its employees or agents, but subject to the waivers set forth in Section 16.04.

6.04 FAILURE OR INTERRUPTION OF UTILITY OR SERVICE

To the extent that any equipment or machinery furnished or maintained by Landlord outside the Premises is used in the delivery of utilities directly obtained by Tenant pursuant to Section 6.02 and breaks down or ceases to function properly, Landlord shall use reasonable diligence to repair same promptly. In the event of any failure, stoppage or interruption of, or change in, any utilities or services supplied by Landlord which are not directly obtained by Tenant, Landlord shall use reasonable diligence to have service promptly resumed. In either event covered by the preceding two sentences, if the cause of any such failure, stoppage or interruption of, or change in, utilities or services is within the control of a public utility, other public or quasi-public entity, or utility provider outside Landlord's control, notification to such utility or entity of such failure, stoppage or interruption and request to remedy the same shall constitute "reasonable diligence" by Landlord to have service promptly resumed. In the event of any failure, stoppage or interruption of, or change in, any utility or other service furnished to the Premises or the Project resulting from any cause, including changes in service provider or Landlord's compliance with any voluntary or similar governmental or business guidelines now or hereafter published or any requirements now or hereafter established by any governmental agency, board or bureau having jurisdiction over the operation of the Property: (a) Landlord shall not be liable for, and Tenant shall not be entitled to, any abatement or reduction of Rent; (b) no such failure, stoppage, or interruption of any such utility or service shall constitute an eviction of Tenant or relieve Tenant of the obligation to perform any covenant or agreement of this Lease to be performed by Tenant; (c) Landlord shall not be in breach of this Lease nor be liable to Tenant for damages or otherwise. Notwithstanding any other provision of this Section to the contrary, in the event and to the extent that the Premises is rendered untenantable and Tenant is unable to occupy the Premises or some portion thereof for five (5) consecutive business days after Tenant has given Landlord written notice of such condition (the "Eligibility Period") as a result of Landlord's negligent failure, or willful and wrongful failure, to provide or perform utilities, services or repairs which Landlord is obligated to provide or perform under this Lease, but excluding any period occupancy is prevented to the extent caused by any of the following: (i) any negligence or willful misconduct of Tenant, any assignee, any subtenant or any other occupant of the Premises, or of any employee, agent or invitee of any of them; (ii) request by Tenant or any assignee that Landlord make a repair, decoration, alteration, improvement or addition; or (iii) Force Majeure, then Monthly Base Rent and Rent Adjustments shall be abated for the period Tenant is so prevented from occupying the Premises, or on a pro-rated basis if Tenant is so prevented from occupying only part of Premises, commencing as of the first day after the Eligibility Period and continuing for such time that Tenant is prevented from occupying the Premises or such part.

6.05 CHOICE OF SERVICE PROVIDER

Tenant acknowledges that Landlord may, at Landlord's sole option, to the extent permitted by applicable law, elect to change, from time to time, the company or companies which provide services (including electrical service, gas service, water, telephone and technical services) to the Property, the Premises and/or its occupants. Notwithstanding anything to the contrary set forth in this Lease, Tenant acknowledges that Landlord has not and does not make any representations or warranties concerning the identity or identities of the company or companies which provide services to the Property and the Premises or its occupants and Tenant acknowledges that the choice of service providers and matters concerning the engagement and termination thereof shall be solely that of Landlord. The foregoing provision is not intended to modify, amend, change or otherwise derogate from any provision of this Lease concerning the nature or type of service to be provided or any specific information concerning the amount thereof to be provided. Tenant agrees to cooperate with Landlord and each of its service providers in connection with any change in service or provider.

6.06 SIGNAGE

Tenant shall not install any signage within the Project, the Building or the Premises without obtaining the prior written approval of Landlord, and Tenant shall be responsible for procurement, installation, maintenance and removal of any such signage installed by Tenant, and all costs in connection therewith. Any such signage shall comply with Landlord's current Project signage criteria and all Laws.

ARTICLE SEVEN
POSSESSION, USE AND CONDITION OF PREMISES

7.01 POSSESSION AND USE OF PREMISES

(a) Tenant shall occupy and use the Premises only for the uses specified in Section 1.01(17) to conduct Tenant's business. Tenant shall not occupy or use the Premises (or permit the use or occupancy of the Premises) for any purpose or in any manner which: (1) is unlawful or in violation of any Law or Environmental Law; (2) may be dangerous to persons or property or which may invalidate, any policy of insurance carried on the Building or Project or covering its operations or which may increase the cost of any such insurance or insurance carried by any other occupant of the Project unless such increase is paid by Tenant; (3) is contrary to or prohibited by the terms and conditions of this Lease or the rules and regulations as provided in Article Eighteen; (4) contrary to or prohibited by the articles, bylaws or rules of any owner's association affecting the Project; (5) is improper, immoral, or objectionable; (6) would obstruct or interfere with the rights of other tenants or occupants of the Building or the Project, or injure or annoy them, or would tend to create or continue a nuisance; or (7) would constitute any waste in or upon the Premises or Project.

(b) Landlord and Tenant acknowledge that the Americans With Disabilities Act of 1990 (42 U.S.C. §12101 et seq.) and regulations and guidelines promulgated thereunder, as all of the same may be amended and supplemented from time to time (collectively referred to herein as the "ADA") establish requirements for business operations, accessibility and barrier removal, and that such requirements may or may not apply to the Premises, the Building and the Project depending on, among other things: (1) whether Tenant's business is deemed a "public accommodation" or "commercial facility", (2) whether such requirements are "readily achievable", and (3) whether a given alteration affects a "primary function area" or triggers "path of travel" requirements. The parties hereby agree that: (a) Landlord shall be responsible for ADA Title III compliance in the Common Areas, except as provided below, (b) Tenant shall be responsible for ADA Title III compliance in the Premises, including any leasehold improvements or other work to be performed in the Premises under or in connection with this Lease, (c) Landlord may perform, or require that Tenant perform, and Tenant shall be responsible for the cost of, ADA Title III "path of travel" requirements triggered by Tenant Additions in the Premises, and (d) Landlord may perform, or require Tenant to perform, and Tenant shall be responsible for the cost of, ADA Title III compliance in the Common Areas necessitated by the Building being deemed to be a "public accommodation" instead of a "commercial facility" as a result of Tenant's use of the Premises. To the extent Tenant shall occupy the entire Building or an entire floor in the Building, all ADA Title III requirements relating to the restrooms, elevator lobbies and corridors on such floor shall be the responsibility of Tenant. In such event, all matters related to "life safety" on such floor shall also be the responsibility of Tenant. Tenant shall be solely responsible for requirements under Title I of the ADA relating to Tenant's employees.

(c) Landlord and Tenant agree to cooperate and use commercially reasonable efforts to participate in traffic management programs generally applicable to businesses located in or about the area and Tenant shall encourage and support van and car pooling by, and staggered and flexible working hours for, its office workers and service employees to the extent reasonably permitted by the requirements of Tenant's business. Neither this Section or any other provision of this Lease is intended to or shall create any rights or benefits in any other person, firm, company, governmental entity or the public.

(d) Tenant agrees to cooperate with Landlord and to comply with any and all guidelines or controls concerning energy management imposed upon Landlord by federal or state governmental organizations or by any energy conservation association to which Landlord is a party or which is applicable to the Building.

7.02 HAZARDOUS MATERIAL

(a) Tenant shall not use, generate, manufacture, produce, store, handle, release, discharge, or dispose of, on, under or about the Premises or any part of the Project, or transport to or from the Premises or any part of the Project, any Hazardous Material or allow any "Tenant Parties" (defined below) to do so, except as expressly permitted below, without the prior written consent of Landlord, which may be withheld in Landlord's sole discretion. For purposes of this Lease, "Tenant Parties" shall mean all occupants or users of the Premises permitted or suffered by Tenant, or the employees, servants, agents, contractors, customers or invitees of Tenant or of any such occupants or users. Provided that the Premises are used only for the uses specified in Section 1.01 and Section 7.01 above, the foregoing prohibition shall not prohibit Tenant from using and storing in, and transporting to and from, the Premises, the types and amounts of Hazardous Material as specified on Exhibit D hereto and by this reference incorporated herein ("Permitted Hazardous Material") and insignificant amounts of Hazardous Material typically used in general business office applications (to the extent the Premises is used for general offices) so long as (i) such substances are used in accordance with the manufacturers' instructions therefor and all applicable Laws, (ii) such substances are not used or disposed of in or about the Building or the Project in a manner which would constitute a release or discharge thereof, and (iii) all Hazardous Material is removed from the Building and the Project by Tenant no later than the Termination Date. If Tenant desires to add additional types or quantities of Hazardous Materials to the list of Permitted Hazardous Materials specified in Exhibit D, Tenant shall give Landlord notice of the Hazardous Materials and quantities thereof that Tenant desires to use at the Premises and Landlord shall thereafter have the right to approve or disapprove such additional Hazardous Materials in Landlord's sole discretion within twenty (20) days after receipt of such notice. Failure to notify Tenant in writing of its decision within said twenty (20) day period shall be deemed disapproval by Landlord. Whether or not Landlord approves any such request for changes, Tenant shall pay Landlord, within ten (10) days after request by Landlord, the actual fees and expenses of any consultants retained by Landlord in connection with review of the proposed changes in Permitted Hazardous Material. Tenant shall, within fifteen (15) days after demand therefor, deliver to Landlord a written list identifying any Hazardous Material then maintained by Tenant in the Building, the use of each such Hazardous Material so maintained by Tenant together with written certification by Tenant stating, in substance, that neither Tenant nor any Tenant Parties has released or discharged any Hazardous Material in or about the Building or the Project. Tenant shall, within fifteen (15) days after demand therefor, deliver to Landlord a copy of: (x) all permits, licenses and other governmental and regulatory approvals with respect to the use, generation, manufacture, production, storage, handling, release, discharge, removal and disposal by Tenant or Any of the Tenant Parties of Hazardous Material at the Project; and (y) each hazardous material management plan or similar document ("Plan(s)") with respect to use, generation, manufacture, production, storage, handling, release, discharge, removal or disposal of Hazardous Material by Tenant or any of the Tenant Parties necessary to comply with Environmental Laws or other Laws prepared by or on behalf of Tenant or any of the Tenant Parties (whether or not required to be submitted to a governmental agency). Tenant shall comply with all Environmental Laws pertaining to Tenant's occupancy and use of the Premises and concerning the proper storage, handling and disposal of any Hazardous Material introduced to the Premises, the Building or the Property by Tenant or any Tenant Parties. Landlord shall comply with all Environmental Laws applicable to the Property other than those to be complied with by Tenant pursuant to the preceding sentence. In the event that Tenant is notified of any investigation or violation of any Environmental Law arising from Tenant's activities at the Premises, Tenant shall immediately deliver to Landlord a copy of such notice. In such event or in the event Landlord reasonably believes that a violation of Environmental Law exists, Landlord may conduct such tests and studies relating to compliance by Tenant with Environmental Laws or the alleged presence of Hazardous Material upon the Premises as Landlord deems desirable, all of which shall be completed at Tenant's expense. To the extent permitted by Law, Tenant hereby indemnifies, and agrees to protect, defend and hold the Indemnitees harmless, against any and all actions, claims, demands, liability, costs and expenses, including attorneys' fees and expenses for the defense thereof, arising out of any and all of (i) the introduction, use, discharge or release of any Hazardous Material into, in or about the Project by Tenant or any Tenant Parties, including any injury to or death of persons or damage to or destruction of property resulting therefrom, and (ii) any failure of Tenant or any Tenant Parties to observe the covenants of this Section 7.02. In case of any action or proceeding brought against the Indemnitees by reason of any such claim, upon notice from Landlord, Tenant

covenants to defend such action or proceeding by counsel chosen by Landlord, in Landlord's sole discretion. Landlord reserves the right to settle, compromise or dispose of any and all actions, claims and demands related to the foregoing indemnity. If any Hazardous Material is released, discharged or disposed of on or about the Property and such release, discharge or disposal is not caused by Tenant or any Tenant Parties, such release, discharge or disposal shall be deemed casualty damage under Article Fourteen to the extent that the Premises are affected thereby; in such case, Landlord and Tenant shall have the obligations and rights respecting such casualty damage provided under such Article.

(b) The right to use and store in, and transport to and from, the Premises the Permitted Hazardous Material is personal to AcelRx Pharmaceuticals, Inc., a Delaware corporation, and may not be assigned or otherwise transferred by AcelRx Pharmaceuticals, Inc., a Delaware corporation, without the prior written consent of Landlord, which consent may be withheld in Landlord's sole discretion, except (i) to a Permitted Transferee which is an assignee of the Lease and which has satisfied the requirements of Sections 10.01 and 10.05 of this Lease; and (ii) AcelRx may permit a Permitted Transferee which is a sublessee to use and store in, and transport to and from, the Premises the Permitted Hazardous Material to the same extent as AcelRx has such right under this Lease, subject to all the provisions of this Lease. . Any consent by Landlord pursuant to Article Ten to an assignment, transfer, subletting, mortgage, pledge, hypothecation or encumbrance of this Lease, and any interest therein or right or privilege appurtenant thereto, shall not constitute consent by Landlord to the use or storage at, or transportation to, the Premises of any Hazardous Material (including a Permitted Hazardous Material) by any such assignee, sublessee or transferee unless Landlord expressly agrees otherwise in writing. Provided however, at the time Tenant requests approval of any proposed assignment or sublease of this Lease by Tenant, and the assignee or sublessee desires to use Hazardous Materials, Tenant shall submit to Landlord the proposed Permitted Hazardous Material list of the proposed assignee or sublessee. Landlord shall have the right, in its sole discretion, to approve the proposed assignee's or sublessee's proposed Permitted Hazardous Material list, or to require modifications to said list. In the event that Landlord does not approve of the proposed assignee's or sublessee's Permitted Hazardous Material list, or the proposed assignee or sublessee cannot or will not modify said list, then it shall be reasonable for purposes of Article Ten hereof for Landlord to refuse its consent to the proposed assignment or sublease. In the event that the proposed Hazardous Material list of the assignee or sublessee includes any Hazardous Material different from or in greater quantity than Tenant's Permitted Hazardous Material, Tenant shall pay Landlord, whether or not Landlord consents to the proposed list of Permitted Hazardous Material and/or to the proposed assignment or sublease, (i) a processing fee of Three Thousand Dollars ($3,000.00) at the time Tenant submits the request for approval, and (ii) within ten (10) days after request by Landlord, the actual fees and expenses of any consultants retained by Landlord in connection with review of the proposed Permitted Hazardous Material list and use thereof by the proposed assignee or sublessee. Any consent by Landlord to the use or storage at, or transportation to or from the Premises, of any Hazardous Material (including a Permitted Hazardous Material) by an assignee, sublessee or transferee of Tenant shall not constitute a waiver of Landlord's right to refuse such consent as to any subsequent assignee or transferee.

(c) Tenant acknowledges that the sewer piping at the Project is made of ABS plastic. Accordingly, without Landlord's prior written consent, which may be given or withheld in Landlord's reasonable discretion, only ordinary domestic sewage is permitted to be put into the drains at the Premises. UNDER NO CIRCUMSTANCES SHALL Tenant EVER DEPOSIT ANY ESTERS OR KETONES (USUALLY FOUND IN SOLVENTS TO CLEAN UP PETROLEUM PRODUCTS) IN THE DRAINS AT THE PREMISES. If Tenant desires to put any substances other than ordinary domestic sewage into the drains, it shall first submit to Landlord a complete description of each such substance, including its chemical composition, and a sample of such substance suitable for laboratory testing. Landlord shall promptly determine whether or not the substance can be deposited into the drains and its determination shall be absolutely binding on Tenant. Upon demand, Tenant shall reimburse Landlord for expenses incurred by Landlord in making such determination. If any substances not so approved hereunder are deposited in the drains in Tenant's Premises, Tenant shall be liable to Landlord for all damages resulting therefrom, including but not limited to all costs and expenses incurred by Landlord in repairing or replacing the piping so damaged.

7.03 LANDLORD ACCESS TO PREMISES; APPROVALS

(a) Tenant shall permit Landlord to erect, use and maintain pipes, ducts, wiring and conduits in and through the Premises, so long as Tenant's use, layout or design of the Premises is not materially affected or altered. Landlord or Landlord's agents shall have the right to enter upon the Premises in the event of an emergency, or to inspect the Premises, to perform janitorial and other services (if any), to conduct safety and other testing in the Premises and to make such repairs, alterations, improvements or additions to the Premises or the Building or other parts of the Property as Landlord may deem necessary or desirable (including all alterations, improvements and additions in connection with a change in service provider or providers). Janitorial and cleaning services (if any) shall be performed after normal business hours. Any entry or work by Landlord may be during normal business hours and Landlord may use reasonable efforts to ensure that any entry or work shall not materially interfere with Tenant's occupancy of the Premises.

(b) If Tenant shall not be personally present to permit an entry into the Premises when for any reason an entry therein shall be necessary or permissible, Landlord (or Landlord's agents), after attempting to notify Tenant (unless Landlord believes an emergency situation exists), may enter the Premises without rendering Landlord or its agents liable therefor, and without relieving Tenant of any obligations under this Lease.

(c) Landlord may enter the Premises for the purpose of conducting such inspections, tests and studies as Landlord may deem desirable or necessary to confirm Tenant's compliance with all Laws and Environmental Laws or for other purposes necessary in Landlord's reasonable judgment to ensure the sound condition of the Property and the systems serving the Property. Landlord's rights under this Section 7.03 (c) are for Landlord's own protection only, and Landlord has not, and shall not be deemed to have assumed, any responsibility to Tenant or any other party as a result of the exercise or non-exercise of such rights, for compliance with Laws or Environmental Laws or for the accuracy or sufficiency of any item or the quality or suitability of any item for its intended use.

(d) Landlord may do any of the foregoing, or undertake any of the inspection or work described in the preceding paragraphs without such action constituting an actual or constructive eviction of Tenant, in whole or in part, or giving rise to an abatement of Rent by reason of loss or interruption of business of the Tenant, or otherwise.

(e) The review, approval or consent of Landlord with respect to any item required or permitted under this Lease is for Landlord's own protection only, and Landlord has not, and shall not be deemed to have assumed, any responsibility to Tenant or any other party, as a result of the exercise or non-exercise of such rights, for compliance with Laws or Environmental Laws or for the accuracy or sufficiency of any item or the quality or suitability of any item for its intended use.

7.04 QUIET ENJOYMENT

Landlord covenants, in lieu of any implied covenant of quiet possession or quiet enjoyment, that so long as Tenant is not in Default in compliance with the covenants and conditions set forth in this Lease, Tenant shall have the right to quiet enjoyment of the Premises without hindrance or interference from Landlord or those claiming through Landlord, and subject to the covenants and conditions set forth in the Lease and to the rights of any Mortgagee or ground lessor.

ARTICLE EIGHT
MAINTENANCE

8.01 LANDLORD'S MAINTENANCE

Subject to Article Fourteen and Section 8.02, Landlord shall maintain, in a manner compatible with maintenance of comparable properties in the immediate vicinity of the Project, the structural portions of the Building, the roof, exterior walls and exterior doors, foundation, and underslab standard sewer system of the Building in good, clean and safe condition, and shall use reasonable efforts, through Landlord's program of regularly scheduled preventive maintenance, to keep the Building's standard heating, ventilation and air conditioning ("HVAC") equipment in reasonably good order and condition. Notwithstanding the foregoing, Landlord shall have no responsibility to repair the Building's standard heating, ventilation and air conditioning equipment, and all such repairs shall be performed by Tenant pursuant to the terms of Section 8.02. Landlord shall also (a) maintain the landscaping, parking facilities and other Common Areas of the Project, and (b) wash the outside of exterior windows at intervals determined by Landlord. Except as provided in Section 6.04, Article Fourteen and Article Fifteen, there shall be no abatement of rent, no allowance to Tenant for diminution of rental value and no liability of Landlord by reason of inconvenience, annoyance or any injury to or interference with Tenant's business arising from the making of or the failure to make any repairs, alterations or improvements in or to any portion of the Project or in or to any fixtures, appurtenances or equipment therein. Tenant waives the right to make repairs at Landlord's expense under any law, statute or ordinance now or hereafter in effect.

8.02 TENANT'S MAINTENANCE

Subject to the provisions of Article Fourteen, Tenant shall, at Tenant's sole cost and expense, make all repairs to the Premises and fixtures therein which Landlord is not required to make pursuant to Section 8.01, including repairs to the interior walls, ceilings and windows of the Premises, the interior doors, Tenant's signage, and the electrical, life-safety, plumbing and heating, ventilation and air conditioning systems located within or serving the Premises and shall maintain the Premises, the fixtures and utilities systems therein, and the area immediately surrounding the Premises (including all garbage enclosures), in a good, clean and safe condition. Tenant shall deliver to Landlord a copy of any maintenance contract entered into by Tenant with respect to the Premises. Tenant shall also, at Tenant's expense, keep any non-standard heating, ventilating and air conditioning equipment and other non-standard equipment in the Building in good condition and repair, using contractors approved in advance, in writing, by Landlord. Notwithstanding Section 8.01 above, but subject to the waivers set forth in Section 16.04, Tenant will pay for any repairs to the Building or the Project which are caused by any negligence or carelessness, or by any willful and wrongful act, of Tenant or its assignees, subtenants or employees, or of the respective agents of any of the foregoing persons, or of any other persons permitted in the Building or elsewhere in the Project by Tenant or any of them. Tenant will maintain the Premises, and will leave the Premises upon termination of this Lease, in a safe, clean, neat and sanitary condition.

ARTICLE NINE
ALTERATIONS AND IMPROVEMENTS

9.01 TENANT ALTERATIONS

(a) The following provisions shall apply to the completion of any Tenant Alterations:

(1) Tenant shall not, except as provided herein, without the prior written consent of Landlord, which consent shall not be unreasonably withheld, make or cause to be made any Tenant Alterations in or to the Premises or any Property systems serving the Premises. Prior to making any Tenant Alterations, Tenant shall give Landlord ten (10) days prior written notice (or such earlier notice as would be necessary pursuant to applicable Law) to permit Landlord sufficient time to post appropriate notices of non-responsibility. Subject to all other requirements of this Article Nine, Tenant may undertake Decoration work without Landlord's prior written consent. Tenant shall furnish Landlord with the names and addresses of all contractors and subcontractors and copies of all contracts. All Tenant Alterations shall be completed at such time and in such manner as Landlord may from time to time designate, and only by contractors

or mechanics approved by Landlord, which approval shall not be unreasonably withheld, provided, however, that Landlord may, in its sole discretion, specify the engineers and contractors to perform all work relating to the Building's systems (including the mechanical, heating, plumbing, security, ventilating, air-conditioning, electrical, communication and the fire and life safety systems in the Building). The contractors, mechanics and engineers who may be used are further limited to those whose work will not cause or threaten to cause disharmony or interference with Landlord or other tenants in the Building and their respective agents and contractors performing work in or about the Building. Landlord may further condition its consent upon Tenant furnishing to Landlord and Landlord approving prior to the commencement of any work or delivery of materials to the Premises related to the Tenant Alterations such of the following as specified by Landlord: architectural plans and specifications, opinions from Landlord's engineers stating that the Tenant Alterations will not in any way adversely affect the Building's systems, necessary permits and licenses, certificates of insurance, and such other documents in such form reasonably requested by Landlord. Landlord may, in the exercise of reasonable judgment, request that Tenant provide Landlord with appropriate evidence of Tenant's ability to complete and pay for the completion of the Tenant Alterations such as a performance bond or letter of credit. Upon completion of the Tenant Alterations, Tenant shall deliver to Landlord an as-built mylar and digitized (if available) set of plans and specifications for the Tenant Alterations.

(2) Tenant shall pay the cost of all Tenant Alterations and the cost of decorating the Premises and any work to the Property occasioned thereby. Except for the construction administration fee for the Tenant Work (which shall be as set forth in Section 8,10 of the Workletter), in connection with completion of any Tenant Alterations, Tenant shall pay Landlord a construction fee and all elevator and hoisting charges at Landlord's then standard rate. Upon completion of Tenant Alterations, Tenant shall furnish Landlord with contractors' affidavits and full and final waivers of lien and receipted bills covering all labor and materials expended and used in connection therewith and such other documentation reasonably requested by Landlord or Mortgagee.

(3) Tenant agrees to complete all Tenant Alterations (i) in accordance with all Laws, Environmental Laws, all requirements of applicable insurance companies and in accordance with Landlord's standard construction rules and regulations, and (ii) in a good and workmanlike manner with the use of good grades of materials. Tenant shall notify Landlord immediately if Tenant receives any notice of violation of any Law in connection with completion of any Tenant Alterations and shall immediately take such steps as are necessary to remedy such violation. In no event shall such supervision or right to supervise by Landlord nor shall any approvals given by Landlord under this Lease constitute any warranty by Landlord to Tenant of the adequacy of the design, workmanship or quality of such work or materials for Tenant's intended use or of compliance with the requirements of Section 9.01(a)(3)(i) and (ii) above or impose any liability upon Landlord in connection with the performance of such work.

(b) All Tenant Additions to the Premises whether installed by Landlord or Tenant, shall without compensation or credit to Tenant, become part of the Premises and the property of Landlord at the time of their installation and shall remain in the Premises, unless pursuant to Article Twelve, Tenant may remove them or is required to remove them at Landlord's request.

9.02 LIENS

Tenant shall not permit any lien or claim for lien of any mechanic, laborer or supplier or any other lien to be filed against the Building, the Land, the Premises, or any other part of the Property arising out of work performed, or alleged to have been performed by, or at the direction of, or on behalf of Tenant. If any such lien or claim for lien is filed, Tenant shall within ten (10) days of receiving notice of such lien or claim (a) have such lien or claim for lien released of record or (b) deliver to Landlord a bond in form, content, amount, and issued by surety, satisfactory to Landlord, indemnifying, protecting, defending and holding harmless the Indemnitees against all costs and liabilities resulting from such lien or claim for lien and the foreclosure or attempted foreclosure thereof. If Tenant fails to take any of the above actions, Landlord, in addition to its rights and remedies under Article Eleven, without investigating the validity of such lien or claim for lien, may pay or discharge the same and Tenant shall, as payment of additional Rent hereunder, reimburse Landlord upon demand for the amount so paid by Landlord, including Landlord's expenses and attorneys' fees.

ARTICLE TEN
ASSIGNMENT AND SUBLETTING

10.01 ASSIGNMENT AND SUBLETTING

(a) Without the prior written consent of Landlord, which may be withheld in Landlord's sole discretion, Tenant may not sublease, assign, mortgage, pledge, hypothecate or otherwise transfer or permit the transfer of this Lease or the encumbering of Tenant's interest therein in whole or in part, by operation of Law or otherwise or permit the use or occupancy of the Premises, or any part thereof, by anyone other than Tenant, provided, however, if Landlord chooses not to recapture the space proposed to be subleased or assigned as provided in Section 10.02, Landlord shall not unreasonably withhold its consent to a subletting or assignment under this Section 10.01. Tenant agrees that the provisions governing sublease and assignment set forth in this Article Ten shall be deemed to be

reasonable. If Tenant desires to enter into any sublease of the Premises or assignment of this Lease, Tenant shall deliver written notice thereof to Landlord ("Tenant's Notice"), together with the identity of the proposed subtenant or assignee and the proposed principal terms thereof and financial and other information sufficient for Landlord to make an informed judgment with respect to such proposed subtenant or assignee at least sixty (60) days prior to the commencement date of the term of the proposed sublease or assignment. If Tenant proposes to sublease less than all of the Rentable Area of the Premises, the space proposed to be sublet and the space retained by Tenant must each be a marketable unit as reasonably determined by Landlord and otherwise in compliance with all Laws. Landlord shall notify Tenant in writing of its approval or disapproval of the proposed sublease or assignment or its decision to exercise its rights under Section 10.02 within thirty (30) days after receipt of Tenant's Notice (and all required information). In no event may Tenant sublease any portion of the Premises or assign the Lease to any other tenant of the Project. Tenant shall submit for Landlord's approval (which approval shall not be unreasonably withheld) any advertising which Tenant or its agents intend to use with respect to the space proposed to be sublet.

(b) With respect to Landlord's consent to an assignment or sublease, Landlord may take into consideration any factors which Landlord may deem relevant, and the reasons for which Landlord's denial shall be deemed to be reasonable shall include, without limitation, the following:

(i) the business reputation or creditworthiness of any proposed subtenant or assignee is not acceptable to Landlord; or

(ii) in Landlord's reasonable judgment the proposed assignee or subtenant would diminish the value or reputation of the Building or Landlord; or

(iii) any proposed assignee's or subtenant's use of the Premises would violate Section 7.01 of the Lease or would violate the provisions of any other leases of tenants in the Project;

(iv) the proposed assignee or subtenant is either a governmental agency, a school or similar operation, or a medical related practice; or

(v) the proposed subtenant or assignee is a bona fide prospective tenant of Landlord in the Project as demonstrated by a written proposal dated within ninety (90) days prior to the date of Tenant's request; or

(vi) the proposed subtenant or assignee would materially increase the estimated pedestrian and vehicular traffic to and from the Premises and the Building.

In no event shall Landlord be obligated to consider a consent to any proposed assignment of the Lease which would assign less than the entire Premises. In the event Landlord wrongfully withholds its consent to any proposed sublease of the Premises or assignment of the Lease, Tenant's sole and exclusive remedy therefor shall be to seek specific performance of Landlord's obligations to consent to such sublease or assignment.

(c) Any sublease or assignment shall be expressly subject to the terms and conditions of this Lease. Any subtenant or assignee shall execute such documents as Landlord may reasonably require to evidence such subtenant or assignee's assumption of the obligations and liabilities of Tenant under this Lease. Tenant shall deliver to Landlord a copy of all agreements executed by Tenant and the proposed subtenant and assignee with respect to the Premises. Landlord's approval of a sublease, assignment, hypothecation, transfer or third party use or occupancy shall not constitute a waiver of Tenant's obligation to obtain Landlord's consent to further assignments or subleases, hypothecations, transfers or third party use or occupancy.

(d) For purposes of this Article Ten, an assignment shall be deemed to include a change in the majority control of Tenant, resulting from any transfer, sale or assignment of shares of stock of Tenant occurring by operation of Law or otherwise, and includes any merger, acquisition, consolidation or reorganization. Notwithstanding any provision of this Section to the contrary, an assignment for purposes of this Article does not include any transfer of control of the stock or membership interests of Tenant through: (i) any public offering of shares of stock in Tenant in accordance with applicable State and Federal law, rules, regulations and orders if thereafter the stock shall be listed and publicly traded through the New York Stock Exchange or the NASDAQ national market; or (ii) public sale of such stock effected through such exchange or the NASDAQ national market. If Tenant is a partnership, any change in the partners of Tenant shall be deemed to be an assignment; or (iii) bona-fide, new issuance of shares of stock or membership interests of Tenant in a private offering or private offerings for fair cash consideration immediately paid to Tenant which increases Tenant's equity and net worth.

(e) Tenant may assign this Lease to a successor to Tenant by purchase, merger, consolidation or non-bankruptcy reorganization (an "Ownership Change") or assign this Lease or sublet all or a portion of the Premises to an Affiliate without the consent of Landlord, provided that all of the following conditions are satisfied (a "Permitted Transfer", and such permitted assignee or subtenant is a "Permitted Transferee"): (i) Tenant is not in Default; (ii) in the event of an Ownership Change, Tenant's successor shall own substantially all of the assets of Tenant and have a net worth which is at least equal to Tenant's net worth as of the day prior to the proposed Ownership Change, or in the event of a Transfer to an Affiliate, Tenant continues to have a net worth equal to or greater than Tenant's net worth at the date of this Lease or the Affiliate has a net worth equal to Tenant's net worth at the date of this Lease; (iii) Tenant shall give Landlord written notice at least 15 business days prior to the effective date of the Permitted Transfer; and (iv) Tenant and Tenant's successor shall sign an assumption of all obligations of the Tenant under the Lease, and if requested by Landlord, a form of agreement setting forth representations as to the type of Ownership Change and as to the facts that satisfy each of conditions (i) – (iii) above. Tenant's notice to Landlord shall include information and documentation evidencing the Permitted Transfer and showing that each of the above conditions has been satisfied.

(f) With respect to any sublease, including any to a Permitted Transferee, Tenant hereby irrevocably assigns to Landlord, effective upon any such sublease, all rent and other payments due from subtenant under the sublease, provided however, that Tenant shall have a license to collect such rent and other payments until the occurrence of a default by Tenant under any of the provisions of the Lease, and notice to Tenant of such default shall not be a prerequisite to Landlord's right to collect subrent. At any time at Landlord's option, Landlord shall have the right to give notice to the subtenant of such assignment. Landlord shall credit Tenant with any rent received by Landlord under such assignment but the acceptance of any payment on account of rent from the subtenant as the result of any such default shall in no manner whatsoever serve to release Tenant from any liability under the terms, covenants, conditions, provisions or agreement under the Lease. No such payment of rent or any other payment by the subtenant directly to Landlord and/or acceptance of such payment(s) by Landlord, regardless of the circumstances or reasons therefor, shall in any manner whatsoever be deemed an attornment by the subtenant to Landlord in the absence of a specific written agreement signed by Landlord to such an effect. For purposes of this Section, any use or occupancy by a Permitted Transferee (unless it is an assignee) without a formal sublease shall for the purposes of this Section be deemed to be a sublease at the same rental rate as provided in the Lease.

10.02 RECAPTURE

Landlord shall have the option to exclude from the Premises covered by this Lease ("recapture"), the space proposed to be sublet or subject to the assignment, so long as (i) the proposed transfer is not to a Permitted Transferee in accordance with the provisions of Section 10.01(e), and (ii) the proposed sublease is for the remainder of the Term of this Lease and Landlord recaptures the entire portion of the Premises subject to the proposed sublease. If Landlord elects to recapture, such recapture shall be effective as of the commencement date of such sublease or assignment, and Tenant shall surrender possession of the recapture space on the day immediately before such effective date, such date being the Termination Date for such space. Effective as of the date of recapture of any portion of the Premises pursuant to this section, the Monthly Base Rent, Rentable Area of the Premises and Tenant's Share shall be adjusted accordingly.

10.03 EXCESS RENT

Tenant shall pay Landlord on the first day of each month during the term of the sublease or assignment, fifty percent (50%) of the amount by which the sum of all rent and other consideration (direct or indirect) due from the subtenant or assignee for such month exceeds: (i) that portion of the Monthly Base Rent and Rent Adjustments due under this Lease for said month which is allocable to the space sublet or assigned; and (ii) the following costs and expenses for the subletting or assignment of such space: (1) brokerage commissions and attorneys' fees and expenses, (2) the actual costs paid in making any improvements or substitutions in the Premises required by any sublease or assignment; and (3) "free rent" periods, costs of any inducements or concessions given to subtenant or assignee, moving costs, and other amounts in respect of such subtenant's or assignee's other leases or occupancy arrangements. All such costs and expenses shall be amortized over the term of the sublease or assignment pursuant to sound accounting principles.

10.04 TENANT LIABILITY

In the event of any sublease or assignment, whether or not with Landlord's consent, Tenant shall not be released or discharged from any liability, whether past, present or future, under this Lease, including any liability arising from the exercise of any renewal or expansion option, to the extent such exercise is expressly permitted by Landlord. Tenant's liability shall remain primary, and in the event of default by any subtenant, assignee or successor of Tenant in performance or observance of any of the covenants or conditions of this Lease, Landlord may proceed directly against Tenant without the necessity of exhausting remedies against said subtenant, assignee or successor. After any assignment, Landlord may consent to subsequent assignments or subletting of this Lease, or amendments or modifications of this Lease with assignees of Tenant, without notifying Tenant, or any successor of Tenant, and without obtaining its or their consent thereto, and such action shall not relieve Tenant or any successor of Tenant of liability under this Lease. If Landlord grants consent to such sublease or assignment, Tenant shall pay all reasonable attorneys' fees and expenses incurred by Landlord with respect to any assignment or sublease. In addition, if Tenant has any options to extend the term of this Lease or to add other space to the Premises, such options shall not be available to any subtenant or assignee, directly or indirectly without Landlord's express written consent, which may be withheld in Landlord's sole discretion.

10.05 ASSUMPTION AND ATTORNMENT

If Tenant shall assign this Lease as permitted herein, the assignee shall expressly assume all of the obligations of Tenant hereunder in a written instrument satisfactory to Landlord and furnished to Landlord not later than fifteen (15) days prior to the effective date of the assignment. If Tenant shall sublease the Premises as permitted herein, Tenant shall, at Landlord's option, within fifteen (15) days following any request by Landlord, obtain and furnish to Landlord the written agreement of such subtenant to the effect that the subtenant will attorn to Landlord and will pay all subrent directly to Landlord.

ARTICLE ELEVEN
DEFAULT AND REMEDIES

11.01 EVENTS OF DEFAULT

The occurrence or existence of any one or more of the following shall constitute a "Default" by Tenant under this Lease:

(i) Tenant fails to pay any installment or other payment of Rent including Rent Adjustment Deposits or Rent Adjustments within five (5) business days after the date when due;

(ii) Tenant fails to observe or perform any of the other covenants, conditions or provisions of this Lease or the Workletter and, unless the failure to perform is a Default for which this Lease specifies that there is no cure or grace period or no additional period to cure beyond that set forth in such other provision of this Lease, fails to cure such default within thirty (30) days after written notice thereof to Tenant, provided that, if Tenant has exercised reasonable diligence to cure such failure and such failure cannot reasonably be cured within such thirty (30) day period, then such cure period shall be extended, but not in excess of an additional sixty (60) days plus such period during which such cure is prevented due to Force Majeure, so long as Tenant diligently and continuously prosecutes the cure to completion;

(iii) the interest of Tenant in this Lease is levied upon under execution or other legal process, and such levy is not dismissed or withdrawn within thirty (30) days;

(iv) a petition is filed by or against Tenant to declare Tenant bankrupt or seeking a plan of reorganization or arrangement under any Chapter of the Bankruptcy Act, or any amendment, replacement or substitution therefor, or to delay payment of, reduce or modify Tenant's debts, which in the case of an involuntary action is not dismissed or withdrawn within thirty (30) days;

(v) Tenant is declared insolvent by Law or any assignment of Tenant's property is made for the benefit of creditors;

(vi) a receiver is appointed for Tenant or Tenant's property, which appointment is not discharged within thirty (30) days; or

(vii) upon the dissolution of Tenant.

11.02 LANDLORD'S REMEDIES

(a) A Default shall constitute a breach of the Lease for which Landlord shall have the rights and remedies set forth in this Section 11.02 and all other rights and remedies set forth in this Lease or now or hereafter allowed by Law, whether legal or equitable, and all rights and remedies of Landlord shall be cumulative and none shall exclude any other right or remedy.

(b) With respect to a Default, at any time Landlord may terminate Tenant's right to possession by written notice to Tenant stating such election. Upon the termination of Tenant's right to possession pursuant to this Section 11.02, Tenant's right to possession shall terminate and this Lease shall terminate, and Tenant shall remain liable as hereinafter provided. Upon such termination, Landlord shall have the right, subject to applicable Law, to re-enter the Premises and dispossess Tenant and the legal representatives of Tenant and all other occupants of the Premises by unlawful detainer or other summary proceedings, or otherwise as permitted by Law, regain possession of the Premises and remove their property (including their personal property and those trade fixtures or Tenant Additions which Tenant is required or permitted to remove under Article Twelve), but Landlord shall not be obligated to effect such removal, and such property may, at Landlord's option, be stored elsewhere, sold or otherwise dealt with as permitted by Law, at the risk of, expense of and for the account of Tenant, and the proceeds of any sale shall be applied pursuant to Law. Landlord shall in no event be responsible for the value, preservation or safekeeping of any such property. Tenant hereby waives all claims for damages that may be caused by Landlord's removing or storing Tenant's personal property pursuant to this Section or Section 12.01, and Tenant hereby indemnifies, and agrees to defend, protect and hold harmless, the Indemnitees from any and all loss, claims, demands, actions, expenses, liability and cost (including attorneys' fees and expenses) arising out of or in any way related to such removal or storage. Upon such written termination of Tenant's right to possession and this Lease, Landlord shall have the right to recover damages for Tenant's Default as provided herein or by Law, including the following damages provided by California Civil Code Section 1951.2:

(1) the worth at the time of award of the unpaid Rent which had been earned at the time of termination;

(2) the worth at the time of award of the amount by which the unpaid Rent which would have been earned after termination until the time of award exceeds the amount of such Rent loss that Tenant proves could reasonably have been avoided;

(3) the worth at the time of award of the amount by which the unpaid Rent for the balance of the term of this Lease after the time of award exceeds the amount of such Rent loss that Tenant proves could be reasonably avoided; and

(4) any other amount necessary to compensate Landlord for all the detriment proximately caused by Tenant's failure to perform its obligations under this Lease or which in the ordinary course of things would be likely to result therefrom. The word "rent" as used in this Section 11.02 shall have the same meaning as the defined term Rent in this Lease. The "worth at the time of award" of the amount referred to in clauses (1) and (2) above is computed by allowing interest at the Default Rate. The worth at the time of award of the amount referred to in clause (3) above is computed by discounting such amount at the discount rate of the Federal Reserve Bank of San Francisco at the time of award plus one percent (1%). For the purpose of determining unpaid Rent under clause (3) above, the monthly Rent reserved in this Lease shall be deemed to be the sum of the Monthly Base Rent, and monthly Storage Space Rent, if any,

and the amounts last payable by Tenant as Rent Adjustments for the calendar year in which Landlord terminated this Lease as provided hereinabove.

(c) Even if Tenant is in Default and/or has abandoned the Premises, this Lease shall continue in effect for so long as Landlord does not terminate Tenant's right to possession by written notice as provided in Section 11.02(b) above, and Landlord may enforce all its rights and remedies under this Lease, including the right to recover Rent as it becomes due under this Lease. In such event, Landlord shall have all of the rights and remedies of a landlord under California Civil Code Section 1951.4 (lessor may continue Lease in effect after Tenant's Default and abandonment and recover Rent as it becomes due, if Tenant has the right to sublet or assign, subject only to reasonable limitations), or any successor statute. During such time as Tenant is in Default, if Landlord has not terminated this Lease by written notice and if Tenant requests Landlord's consent to an assignment of this Lease or a sublease of the Premises, subject to Landlord's option to recapture pursuant to Section 10.02, Landlord shall not unreasonably withhold its consent to such assignment or sublease. Tenant acknowledges and agrees that the provisions of Article Ten shall be deemed to constitute reasonable limitations of Tenant's right to assign or sublet. Tenant acknowledges and agrees that in the absence of written notice pursuant to Section 11.02(b) above terminating Tenant's right to possession, no other act of Landlord shall constitute a termination of Tenant's right to possession or an acceptance of Tenant's surrender of the Premises, including acts of maintenance or preservation or efforts to relet the Premises or the appointment of a receiver upon initiative of Landlord to protect Landlord's interest under this Lease or the withholding of consent to a subletting or assignment, or terminating a subletting or assignment, if in accordance with other provisions of this Lease.

(d) In the event that Landlord seeks an injunction with respect to a breach or threatened breach by Tenant of any of the covenants, conditions or provisions of this Lease, Tenant agrees to pay the premium for any bond required in connection with such injunction.

(e) Tenant hereby waives any and all rights to relief from forfeiture, redemption or reinstatement granted by Law (including California Civil Code of Procedure Sections 1174 and 1179) in the event of Tenant being evicted or dispossessed for any cause or in the event of Landlord obtaining possession of the Premises by reason of Tenant's Default or otherwise;

(f) When this Lease requires giving or service of a notice of Default or of a failure of Tenant to observe or perform any covenant, condition or provision of this Lease which will constitute a Default unless Tenant so observes or performs within any applicable cure period, and so long as the notice given or served provides Tenant the longer of any applicable cure period required by this Lease or by statute, then the giving of any equivalent or similar statutory notice, including any equivalent or similar notices required by California Code of Civil Procedure Section 1161 or any similar or successor statute, shall replace and suffice as any notice required under this Lease. When a statute requires service of a notice in a particular manner, service of that notice (or a similar notice required by this Lease) in the manner required by Article Twenty-four shall replace and satisfy the statutory service–of–notice procedures, except that any notice of unlawful detainer required by California Code of Civil Procedure Section 1161 or any similar or successor statute shall be served as required by Code of Civil Procedure Section 1162 or any similar or successor statute, and for purposes of Code of Civil Procedure Section 1162 or any similar or successor statute, Tenant's "place of residence" and "usual place of business" shall mean the address specified by Tenant for notice pursuant to Section 1.01 of this Lease, as changed by Tenant pursuant to Article Twenty-four of this Lease.

(g) The voluntary or other surrender or termination of this Lease, or a mutual termination or cancellation thereof, shall not work a merger and shall terminate all or any existing assignments, subleases, subtenancies or occupancies permitted by Tenant, except if and as otherwise specified in writing by Landlord.

(h) No delay or omission in the exercise of any right or remedy of Landlord upon any default by Tenant, and no exercise by Landlord of its rights pursuant to Section 26.15 to perform any duty which Tenant fails timely to perform, shall impair any right or remedy or be construed as a waiver. No provision of this Lease shall be deemed waived by Landlord unless such waiver is in a writing signed by Landlord. The waiver by Landlord of any breach of any provision of this Lease shall not be deemed a waiver of any subsequent breach of the same or any other provision of this Lease.

11.03 ATTORNEY'S FEES

In the event any party brings any suit or other proceeding with respect to the subject matter or enforcement of this Lease, the prevailing party (as determined by the court, agency or other authority before which such suit or proceeding is commenced) shall, in addition to such other relief as may be awarded, be entitled to recover attorneys' fees, expenses and costs of investigation as actually incurred, including court costs, expert witness fees, costs and expenses of investigation, and all attorneys' fees, costs and expenses in any such suit or proceeding (including in any action or participation in or in connection with any case or proceeding under the Bankruptcy Code, 11 United States Code Sections 101 et seq., or any successor statutes, in establishing or enforcing the right to indemnification, in appellate proceedings, or in connection with the enforcement or collection of any judgment obtained in any such suit or proceeding).

11.04 BANKRUPTCY

The following provisions shall apply in the event of the bankruptcy or insolvency of Tenant:

(a) In connection with any proceeding under Chapter 7 of the Bankruptcy Code where the trustee of Tenant elects to assume this Lease for the purposes of assigning it, such election or assignment, may only be made upon compliance with the provisions of (b) and (c) below, which conditions Landlord and Tenant acknowledge to be

commercially reasonable. In the event the trustee elects to reject this Lease then Landlord shall immediately be entitled to possession of the Premises without further obligation to Tenant or the trustee.

(b) Any election to assume this Lease under Chapter 11 or 13 of the Bankruptcy Code by Tenant as debtor-in-possession or by Tenant's trustee (the "Electing Party") must provide for:

The Electing Party to cure or provide to Landlord adequate assurance that it will cure all monetary defaults under this Lease within fifteen (15) days from the date of assumption and it will cure all nonmonetary defaults under this Lease within thirty (30) days from the date of assumption. Landlord and Tenant acknowledge such condition to be commercially reasonable.

(c) If the Electing Party has assumed this Lease or elects to assign Tenant's interest under this Lease to any other person, such interest may be assigned only if the intended assignee has provided adequate assurance of future performance (as herein defined), of all of the obligations imposed on Tenant under this Lease.

For the purposes hereof, "adequate assurance of future performance" means that Landlord has ascertained that each of the following conditions has been satisfied:

(i) The assignee has submitted a current financial statement, certified by its chief financial officer, which shows a net worth and working capital in amounts sufficient to assure the future performance by the assignee of Tenant's obligations under this Lease; and

(ii) Landlord has obtained consents or waivers from any third parties which may be required under a lease, mortgage, financing arrangement, or other agreement by which Landlord is bound, to enable Landlord to permit such assignment.

(d) Landlord's acceptance of rent or any other payment from any trustee, receiver, assignee, person, or other entity will not be deemed to have waived, or waive, the requirement of Landlord's consent, Landlord's right to terminate this Lease for any transfer of Tenant's interest under this Lease without such consent, or Landlord's claim for any amount of Rent due from Tenant.

11.05 LANDLORD'S DEFAULT

Landlord shall be in default hereunder in the event Landlord has not begun and pursued with reasonable diligence the cure of any failure of Landlord to meet its obligations hereunder within thirty (30) days after the receipt by Landlord of written notice from Tenant of the alleged failure to perform. In no event shall Tenant have the right to terminate or rescind this Lease as a result of Landlord's default as to any covenant or agreement contained in this Lease. Tenant hereby waives such remedies of termination and rescission and hereby agrees that Tenant's remedies for default hereunder and for breach of any promise or inducement shall be limited to a suit for damages and/or injunction.

ARTICLE TWELVE
SURRENDER OF PREMISES

12.01 IN GENERAL

Upon the Termination Date, Tenant shall surrender and vacate the Premises immediately and deliver possession thereof to Landlord in a clean, good and tenantable condition, ordinary wear and tear, and damage caused by Landlord excepted. Tenant shall deliver to Landlord all keys to the Premises. Tenant shall remove from the Premises all movable personal property of Tenant, Tenant's trade fixtures, and subject to Section 6.03, cabling. Tenant shall be entitled to remove such Tenant Additions which at the time of their installation Landlord and Tenant agreed may be removed by Tenant. Tenant shall also remove such other Tenant Additions as required by Landlord, including any Tenant Additions containing Hazardous Material. Tenant immediately shall repair all damage resulting from removal of any of Tenant's property, furnishings or Tenant Additions, shall close all floor, ceiling and roof openings and shall restore the Premises to a tenantable condition as reasonably determined by Landlord. If any of the Tenant Additions which were installed by Tenant involved the lowering of ceilings, raising of floors or the installation of specialized wall or floor coverings or lights, then Tenant shall also be obligated to return such surfaces to their condition prior to the commencement of this Lease. Tenant shall also be required to close any staircases or other openings between floors. In the event possession of the Premises is not delivered to Landlord when required hereunder, or if Tenant shall fail to remove those items described above, Landlord may (but shall not be obligated to), at Tenant's expense, remove any of such property and store, sell or otherwise deal with such property as provided in Section 11.02(b), including the waiver and indemnity obligations provided in that Section, and undertake, at Tenant's expense, such restoration work as Landlord deems necessary or advisable.

12.02 LANDLORD'S RIGHTS

All property which may be removed from the Premises by Landlord shall be conclusively presumed to have been abandoned by Tenant and Landlord may deal with such property as provided in Section 11.02(b), including the waiver and indemnity obligations provided in that Section. Tenant shall also reimburse Landlord for all costs and expenses incurred by Landlord in removing any of Tenant Additions and in restoring the Premises to the condition required by this Lease at the Termination Date.

ARTICLE THIRTEEN
HOLDING OVER

Tenant shall pay Landlord the greater of (i) double the monthly Rent payable for the month immediately preceding the holding over (including increases for Rent Adjustments which Landlord may reasonably estimate) or, (ii) double the fair market rental value of the Premises as reasonably determined by Landlord for each month or portion thereof that Tenant retains possession of the Premises, or any portion thereof, after the Termination Date (without reduction for any partial month that Tenant retains possession). Tenant shall also pay all damages sustained by Landlord by reason of such retention of possession. The provisions of this Article shall not constitute a waiver by Landlord of any re-entry rights of Landlord and Tenant's continued occupancy of the Premises shall be as a tenancy in sufferance. If Tenant retains possession of the Premises, or any part thereof for thirty (30) days after the Termination Date then at the sole option of Landlord expressed by written notice to Tenant, but not otherwise, such holding over shall constitute an extension of the Term of this Lease for a period of one (1) year on the same terms and conditions (including those with respect to the payment of Rent) as provided in this Lease, except that the Monthly Base Rent for such period shall be equal to the greater of (i) 150% of the Monthly Base Rent payable during the month preceding the Termination Date, or (ii) 150% of the monthly base rent then being quoted by Landlord for similar space in the Building.

ARTICLE FOURTEEN
DAMAGE BY FIRE OR OTHER CASUALTY

14.01 SUBSTANTIAL UNTENANTABILITY

(a) If any fire or other casualty (whether insured or uninsured) renders all or a substantial portion of the Premises or the Building untenantable, Landlord shall, with reasonable promptness after the occurrence of such damage, estimate the length of time that will be required to substantially complete the repair and restoration and shall by notice advise Tenant of such estimate ("Landlord's Notice"). If Landlord estimates that the amount of time required to substantially complete such repair and restoration will exceed one hundred eighty (180) days from the date such damage occurred, then Landlord, or Tenant if all or a substantial portion of the Premises is rendered untenantable, shall have the right to terminate this Lease as of the date of such damage upon giving written notice to the other at any time within twenty (20) days after delivery of Landlord's Notice, provided that if Landlord so chooses, Landlord's Notice may also constitute such notice of termination.

(b) In the event that the Building is damaged or destroyed to the extent of more than twenty-five percent (25%) of its replacement cost or to any extent if no insurance proceeds or insufficient insurance proceeds are receivable by Landlord, or if the buildings at the Project shall be damaged to the extent of fifty percent (50%) or more of the replacement value or to any extent if no insurance proceeds or insufficient insurance proceeds are receivable by Landlord, and regardless of whether or not the Premises be damaged, Landlord may elect by written notice to Tenant given within thirty (30) days after the occurrence of the casualty to terminate this Lease in lieu of so restoring the Premises, in which event this Lease shall terminate as of the date specified in Landlord's notice, which date shall be no later than sixty (60) days following the date of Landlord's notice.

(c) Unless this Lease is terminated as provided in the preceding Subsections 14.01 (a) and (b), Landlord shall proceed with reasonable promptness to repair and restore the Premises to its condition as existed prior to such casualty, subject to reasonable delays for insurance adjustments and Force Majeure delays, and also subject to zoning Laws and building codes then in effect. Landlord shall have no liability to Tenant, and Tenant shall not be entitled to terminate this Lease if such repairs and restoration are not in fact completed within the time period estimated by Landlord so long as Landlord shall proceed with reasonable diligence to complete such repairs and restoration.

(d) Tenant acknowledges that Landlord shall be entitled to the full proceeds of any insurance coverage, whether carried by Landlord or Tenant, for damages to the Premises, except for those proceeds of Tenant's insurance of its own personal property and equipment which would be removable by Tenant at the Termination Date. All such insurance proceeds shall be payable to Landlord whether or not the Premises are to be repaired and restored, provided, however, if this Lease is not terminated and the parties proceed to repair and restore Tenant Additions at Tenant's cost, to the extent Landlord received proceeds of Tenant's insurance covering Tenant Additions, such proceeds shall be applied to reimburse Tenant for its cost of repairing and restoring Tenant Additions.

(e) Notwithstanding anything in this Article Fourteen to the contrary: (i) Landlord shall have no duty pursuant to this Section to repair or restore any portion of any Tenant Additions or to expend for any repair or restoration of the Premises or Building amounts in excess of insurance proceeds paid to Landlord and available for repair or restoration; (ii) Tenant shall not have the right to terminate this Lease pursuant to this Section if any damage or destruction was caused by the willful and wrongful act of Tenant, its agent or employees; and (iii) in the event that the Premises is located in more than one building of the Project and any damage or destruction covered by this Article affects only one of the buildings in which the Premises is located, then the determination of the extent of damage or destruction shall be made only with respect to the building so affected, and Landlord or Tenant shall be entitled to terminate this Lease only with respect to the part of the Premises in the building so affected, and the Lease shall continue in full force and effect to the extent of the remainder, if any, of the Premises. Whether or not the Lease is terminated pursuant to this Article Fourteen, in no event shall Tenant be entitled to any compensation or damages for loss of the use of the whole or any part of the Premises or for any inconvenience or annoyance occasioned by any such damage, destruction, rebuilding or restoration of the Premises or the Building or access thereto.

(f) Any repair or restoration of the Premises performed by Tenant shall be in accordance with the provisions of Article Nine hereof.

14.02 INSUBSTANTIAL UNTENANTABILITY

Unless this Lease is terminated as provided in the preceding Subsections 14.01 (a) and (b), then Landlord shall proceed to repair and restore the Building or the Premises other than Tenant Additions, with reasonable promptness, unless such damage is to the Premises and occurs during the last six (6) months of the Term, in which event either Tenant or Landlord shall have the right to terminate this Lease as of the date of such casualty by giving written notice thereof to the other within twenty (20) days after the date of such casualty. Notwithstanding the foregoing, Landlord's obligation to repair shall be limited in accordance with the provisions of Section 14.01 above.

14.03 RENT ABATEMENT

If all or any part of the Premises are rendered untenantable by fire or other casualty and this Lease is not terminated, Monthly Base Rent and Rent Adjustments shall abate for that part of the Premises which is untenantable on a per diem basis from the date of the casualty until Landlord has Substantially Completed the repair and restoration work in the Premises which it is required to perform, provided, that as a result of such casualty, Tenant does not occupy the portion of the Premises which is untenantable during such period. The foregoing rent abatement shall not apply in the event the Premises are rendered untenantable by reason of a fire or other casualty caused in whole or in part by the negligence or willful act of Tenant or its agents, employees, contractors or invitees if such abatement would adversely affect Landlord's or Tenant's ability to collect under any of its insurance policies providing coverage for rental or business interruptions.

14.04 WAIVER OF STATUTORY REMEDIES

The provisions of this Lease, including this Article Fourteen, constitute an express agreement between Landlord and Tenant with respect to any and all damage to, or destruction of, the Premises or the Property or any part of either, and any Law, including Sections 1932(2), 1933(4), 1941 and 1942 of the California Civil Code, with respect to any rights or obligations concerning damage or destruction shall have no application to this Lease or to any damage to or destruction of all or any part of the Premises or the Property or any part of either, and are hereby waived.

ARTICLE FIFTEEN
EMINENT DOMAIN

15.01 TAKING OF WHOLE OR SUBSTANTIAL PART

In the event the whole or any substantial part of the Building or of the Premises is taken or condemned by any competent authority for any public use or purpose (including a deed given in lieu of condemnation) and is thereby rendered untenantable, this Lease shall terminate as of the date title vests in such authority or any earlier date on which possession is required to be surrendered to such authority, and Monthly Base Rent and Rent Adjustments shall be apportioned as of the Termination Date. Notwithstanding anything to the contrary herein set forth, in the event that the Premises is located in more than one building of the Project and any taking covered by this Article affects only one of the buildings in which the Premises is located, then the determination of the extent of the taking shall be made only with respect to the building so affected, and Landlord or Tenant shall be entitled to terminate this Lease only with respect to the part of the Premises in the building so affected, and the Lease shall continue in full force and effect to the extent of the remainder, if any, of the Premises. Further, if at least twenty-five percent (25%) of the rentable area of the Project is taken or condemned by any competent authority for any public use or purpose (including a deed given in lieu of condemnation), and regardless of whether or not the Premises be so taken or condemned, Landlord may elect by written notice to Tenant to terminate this Lease as of the date title vests in such authority or any earlier date on which possession is required to be surrendered to such authority, and Monthly Base Rent and Rent Adjustments shall be apportioned as of the Termination Date. Landlord may, without any obligation to Tenant, agree to sell or convey to the taking authority the Premises, the Building, Tenant's Phase, the Project or any portion thereof sought by the taking authority, free from this Lease and the right of Tenant hereunder, without first requiring that any action or proceeding be instituted or, if instituted, pursued to a judgment. Notwithstanding anything to the contrary herein set forth, in the event the taking of the Building or Premises is temporary (for less than the remaining term of the Lease), Landlord may elect either (i) to terminate this Lease or (ii) permit Tenant to receive the entire award attributable to the Premises in which case Tenant shall continue to pay Rent and this Lease shall not terminate.

15.02 TAKING OF PART

In the event a part of the Building or the Premises is taken or condemned by any competent authority (or a deed is delivered in lieu of condemnation) and this Lease is not terminated, the Lease shall be amended to reduce or increase, as the case may be, the Monthly Base Rent and Tenant's Share to reflect the Rentable Area of the Premises or Building, as the case may be, remaining after any such taking or condemnation. Landlord, upon receipt and to the extent of the award in condemnation (or proceeds of sale) shall make necessary repairs and restorations to the Premises (exclusive of Tenant Additions) and to the Building to the extent necessary to constitute the portion of the Building not so taken or condemned as a complete architectural and economically efficient unit. Notwithstanding the foregoing, if as a result of any taking, or a governmental order that the grade of any street or alley adjacent to the Building is to be changed and such taking or change of grade makes it necessary or desirable to substantially remodel or restore the Building or prevents the economical operation of the Building, Landlord shall have the right to terminate this Lease upon ninety (90) days prior written notice to Tenant.

15.03 COMPENSATION

Landlord shall be entitled to receive the entire award (or sale proceeds) from any such taking, condemnation or sale without any payment to Tenant, and Tenant hereby assigns to Landlord Tenant's interest, if any, in such award; provided, however, Tenant shall have the right separately to pursue against the condemning authority a separate award in respect of the loss, if any, to Tenant Additions paid for by Tenant without any credit or allowance from Landlord, for fixtures or personal property of Tenant, or for relocation or business interruption expenses, so long as there is no diminution of Landlord's award as a result.

ARTICLE SIXTEEN
INSURANCE

16.01 TENANT'S INSURANCE

Tenant, at Tenant's expense, agrees to maintain in force, with a company or companies acceptable to Landlord, during the Term: (a) Commercial General Liability Insurance on a primary basis and without any right of contribution from any insurance carried by Landlord covering the Premises on an occurrence basis against all claims for personal injury, bodily injury, death and property damage, including contractual liability covering the indemnification provisions in this Lease. Such insurance shall be for such limits that are reasonably required by Landlord from time to time but not less than a combined single limit of Three Million and No/100 Dollars ($3,000,000.00); (b) Workers' Compensation and Employers' Liability Insurance to the extent required by and in accordance with the Laws of the State of California; (c) "All Risks" property insurance in an amount adequate to cover the full replacement cost of all Tenant Additions to the Premises, equipment, installations, fixtures and contents of the Premises in the event of loss; (d) In the event a motor vehicle is to be used by Tenant in connection with its business operation from the Premises, Comprehensive Automobile Liability Insurance coverage with limits of not less than One Million and No/100 Dollars ($1,000,000.00) combined single limit coverage against bodily injury liability and property damage liability arising out of the use by or on behalf of Tenant, its agents and employees in connection with this Lease, of any owned, non-owned or hired motor vehicles; and (e) such other insurance or coverages as Landlord reasonably requires.

16.02 FORM OF POLICIES

Each policy referred to in 16.01 shall satisfy the following requirements. Each policy shall (i) name Landlord and the Indemnitees as additional insureds (except Workers' Compensation, Hired/Non-owned Automobile and Employers' Liability Insurance), (ii) be issued by one or more responsible insurance companies licensed to do business in the State of California reasonably satisfactory to Landlord, (iii) where applicable, provide for deductible amounts satisfactory to Landlord and not permit co-insurance, (iv) shall provide that such insurance may not be canceled or amended without thirty (30) days' prior written notice to the Landlord, and (v) each policy of "All-Risks" property insurance shall provide that the policy shall not be invalidated should the insured waive in writing prior to a loss, any or all rights of recovery against any other party for losses covered by such policies. Tenant shall deliver to Landlord, certificates of insurance and at Landlord's request, copies of all policies and renewals thereof to be maintained by Tenant hereunder, not less than ten (10) days prior to the Commencement Date and not less than ten (10) days prior to the expiration date of each policy.

16.03 LANDLORD'S INSURANCE

Landlord agrees to purchase and keep in full force and effect during the Term hereof, including any extensions or renewals thereof, insurance under policies issued by insurers of recognized responsibility, qualified to do business in the State of California on the Building in amounts not less than the greater of eighty (80%) percent of the then full replacement cost (without depreciation) of the Building (above foundations and excluding Tenant Additions to the Premises) or an amount sufficient to prevent Landlord from becoming a co-insurer under the terms of the applicable policies, against fire and such other risks as may be included in standard forms of all risk coverage insurance reasonably available from time to time. Landlord agrees to maintain in force during the Term, Commercial General Liability Insurance covering the Building on an occurrence basis against all claims for personal injury, bodily injury, death and property damage. Such insurance shall be for a combined single limit of Three Million and No/100 Dollars ($3,000,000.00). Neither Landlord's obligation to carry such insurance nor the carrying of such insurance shall be deemed to be an indemnity by Landlord with respect to any claim, liability, loss, cost or expense due, in whole or in part, to Tenant's negligent acts or omissions or willful misconduct. Without obligation to do so, Landlord may, in its sole discretion from time to time, carry insurance in amounts greater and/or for coverage additional to the coverage and amounts set forth above.

16.04 WAIVER OF SUBROGATION

(a) Landlord agrees that, if obtainable at no, or minimal, additional cost, and so long as the same is permitted under the laws of the State of California, it will include in its "All Risks" policies appropriate clauses pursuant to which the insurance companies (i) waive all right of subrogation against Tenant with respect to losses payable under such policies and/or (ii) agree that such policies shall not be invalidated should the insured waive in writing prior to a loss any or all right of recovery against any party for losses covered by such policies.

(b) Tenant agrees to include, if obtainable at no, or minimal, additional cost, and so long as the same is permitted under the laws of the State of California, in its "All Risks" insurance policy or policies on Tenant Additions to the Premises, whether or not removable, and on Tenant's furniture, furnishings, fixtures and other property removable by Tenant under the provisions of this Lease appropriate clauses pursuant to which the insurance company or companies (i) waive the right of subrogation against Landlord and/or any tenant of space in the Building with respect to losses payable under such policy or policies and/or (ii) agree that such policy or policies shall not be invalidated should the insured waive in writing prior to a loss any or all right of recovery against any party for losses covered by such policy or policies. If Tenant is unable to obtain in such policy or policies either of the clauses described in the preceding sentence, Tenant shall, if legally possible and without necessitating a change in insurance carriers, have Landlord named in such policy or policies as an additional insured. If Landlord shall be named as an additional insured in accordance with the foregoing, Landlord agrees to endorse promptly to the order of Tenant, without recourse, any check, draft, or order for the payment of money representing the proceeds of any such policy or

representing any other payment growing out of or connected with said policies, and Landlord does hereby irrevocably waive any and all rights in and to such proceeds and payments.

(c) Provided that Landlord's right of full recovery under its policy or policies aforesaid is not adversely affected or prejudiced thereby, Landlord hereby waives any and all right of recovery which it might otherwise have against Tenant, its servants, agents and employees, for loss or damage occurring to the Real Property and the fixtures, appurtenances and equipment therein, except Tenant Additions, to the extent the same is covered by Landlord's insurance, notwithstanding that such loss or damage may result from the negligence or fault of Tenant, its servants, agents or employees. Provided that Tenant's right of full recovery under its aforesaid policy or policies is not adversely affected or prejudiced thereby, Tenant hereby waives any and all right of recovery which it might otherwise have against Landlord, its servants, and employees and against every other tenant in the Real Property who shall have executed a similar waiver as set forth in this Section 16.04 (c) for loss or damage to Tenant Additions, whether or not removable, and to Tenant's furniture, furnishings, fixtures and other property removable by Tenant under the provisions hereof to the extent the same is covered or coverable by Tenant's insurance required under this Lease, notwithstanding that such loss or damage may result from the negligence or fault of Landlord, its servants, agents or employees, or such other tenant and the servants, agents or employees thereof.

(d) Landlord and Tenant hereby agree to advise the other promptly if the clauses to be included in their respective insurance policies pursuant to subparagraphs (a) and (b) above cannot be obtained on the terms hereinbefore provided and thereafter to furnish the other with a certificate of insurance or copy of such policies showing the naming of the other as an additional insured, as aforesaid. Landlord and Tenant hereby also agree to notify the other promptly of any cancellation or change of the terms of any such policy which would affect such clauses or naming. All such policies which name both Landlord and Tenant as additional insureds shall, to the extent obtainable, contain agreements by the insurers to the effect that no act or omission of any additional insured will invalidate the policy as to the other additional insureds.

16.05 NOTICE OF CASUALTY

Tenant shall give Landlord notice in case of a fire or accident in the Premises promptly after Tenant is aware of such event.

ARTICLE SEVENTEEN
WAIVER OF CLAIMS AND INDEMNITY

17.01 WAIVER OF CLAIMS

To the extent permitted by Law, Tenant releases the Indemnitees from, and waives all claims for, damage to person or property sustained by the Tenant or any occupant of the Premises or the Property resulting directly or indirectly from any existing or future condition, defect, matter or thing in and about the Premises or the Property, or any part of either, or any equipment or appurtenance therein, or resulting from any accident in or about the Premises or the Property, or resulting directly or indirectly from any act or neglect of any tenant or occupant of the Property or of any other person, including Landlord's agents and servants, except to the extent caused by the willful and wrongful act of any of the Indemnitees. If any such damage, whether to the Premises or the Property or any part of either, or whether to Landlord or to other tenants in the Property, results from any act or neglect of Tenant, its employees, servants, agents, contractors, invitees or customers, Tenant shall be liable therefor and Landlord may, at Landlord's option, repair such damage and Tenant shall, upon demand by Landlord, as payment of additional Rent hereunder, reimburse Landlord within ten (10) days of demand for the total cost of such repairs, in excess of amounts, if any, paid to Landlord under insurance covering such damages. Tenant shall not be liable for any such damage caused by its acts or neglect if Landlord or a tenant has recovered the full amount of the damage from proceeds of insurance policies and the insurance company has waived its right of subrogation against Tenant. Notwithstanding any provision of the first sentence of this Section to the contrary, Tenant's release of Landlord with respect to any existing condition shall not release Landlord from any liability which Landlord has to the extent that any Hazardous Material is in existence on the Premises or the Property prior to delivery of possession of the Premises to Tenant, except to the extent that the presence of such Hazardous Material is caused by acts or omissions of Tenant or any Tenant Parties (as defined in Article Seven) in connection with any early entry to the Premises prior to delivery of possession to Tenant.

17.02 INDEMNITY BY TENANT

To the extent permitted by Law, Tenant hereby indemnifies, and agrees to protect, defend and hold the Indemnitees harmless, against any and all actions, claims, demands, liability, costs and expenses, including attorneys' fees and expenses for the defense thereof, arising from Tenant's occupancy of the Premises, from the undertaking of any Tenant Additions or repairs to the Premises, from the conduct of Tenant's business on the Premises, or from any breach or default on the part of Tenant in the performance of any covenant or agreement on the part of Tenant to be performed pursuant to the terms of this Lease, or from any willful act or negligence of Tenant, its agents, contractors, servants, employees, customers or invitees, in or about the Premises or the Property or any part of either. In case of any action or proceeding brought against the Indemnitees by reason of any such claim, upon notice from Landlord, Tenant covenants to defend such action or proceeding by counsel chosen by Landlord, in Landlord's sole discretion. Landlord reserves the right to settle, compromise or dispose of any and all actions,

claims and demands related to the foregoing indemnity. The foregoing indemnity shall not operate to relieve an Indemnitee of liability to the extent such liability is caused by the gross negligence or the willful and wrongful act of such Indemnitee. Further, the foregoing indemnity is subject to and shall not diminish any waivers in effect in accordance with Section 16.04 by Landlord or its insurers to the extent of amounts, if any, paid to Landlord under its "All-Risks" property insurance.

17.03 WAIVER OF CONSEQUENTIAL DAMAGES

To the extent permitted by law, Tenant hereby waives and releases the Indemnitees from any consequential damages, compensation or claims for inconvenience or loss of business, rents or profits as a result of any injury or damage, whether or not caused by the willful and wrongful act of any of the Indemnitees.

ARTICLE EIGHTEEN
RULES AND REGULATIONS

18.01 RULES

Tenant agrees for itself and for its subtenants, employees, agents, and invitees to comply with all rules and regulations for use of the Premises, the Building, the Phase and the Project imposed by Landlord, as the same may be reasonably revised from time to time, including the following: (a) Tenant shall comply with all of the requirements of Landlord's emergency response plan, as the same may be amended from time to time; and (b) Tenant shall not place any furniture, furnishings, fixtures or equipment in the Premises in a manner so as to obstruct the windows of the Premises to cause the Building, in Landlord's good faith determination, to appear unsightly from the exterior. Such rules and regulations are and shall be imposed for the cleanliness, good appearance, proper maintenance, good order and reasonable use of the Premises, the Building, the Phase and the Project and as may be necessary for the enjoyment of the Building and the Project by all tenants and their clients, customers, and employees.

18.02 ENFORCEMENT

Nothing in this Lease shall be construed to impose upon the Landlord any duty or obligation to enforce the rules and regulations as set forth above or as hereafter adopted, or the terms, covenants or conditions of any other lease as against any other tenant, and the Landlord shall not be liable to the Tenant for violation of the same by any other tenant, its servants, employees, agents, visitors or licensees.

ARTICLE NINETEEN
LANDLORD'S RESERVED RIGHTS

Landlord shall have the following rights exercisable without notice to Tenant and without liability to Tenant for damage or injury to persons, property or business and without being deemed an eviction or disturbance of Tenant's use or possession of the Premises or giving rise to any claim for offset or abatement of Rent: (1) to change the Building's name or street address upon thirty (30) days' prior written notice to Tenant; (2) to install, affix and maintain all signs on the exterior and/or interior of the Building; (3) to designate and/or approve prior to installation, all types of signs, window shades, blinds, drapes, awnings or other similar items, and all internal lighting that may be visible from the exterior of the Premises; (4) upon reasonable notice to Tenant, to display the Premises to prospective purchasers at reasonable hours at any time during the Term and to prospective tenants at reasonable hours during the last twelve (12) months of the Term; (5) to grant to any party the exclusive right to conduct any business or render any service in or to the Building, provided such exclusive right shall not operate to prohibit Tenant from using the Premises for the purpose permitted hereunder; (6) to change the arrangement and/or location of entrances or passageways, doors and doorways, corridors, elevators, stairs, washrooms or public portions of the Building, and to close entrances, doors, corridors, elevators or other facilities, provided that such action shall not materially and adversely interfere with Tenant's access to the Premises or the Building; (7) to have access for Landlord and other tenants of the Building to any mail chutes and boxes located in or on the Premises as required by any applicable rules of the United States Post Office; and (8) to close the Building after Standard Operating Hours, except that Tenant and its employees and invitees shall be entitled to admission at all times, under such regulations as Landlord prescribes for security purposes.

ARTICLE TWENTY
ESTOPPEL CERTIFICATE

20.01 IN GENERAL

Within fifteen (15) days after request therefor by Landlord, Mortgagee or any prospective mortgagee or owner, Tenant agrees as directed in such request to execute an Estoppel Certificate in recordable form, binding upon Tenant, certifying (i) that this Lease is unmodified and in full force and effect (or if there have been modifications, a description of such modifications and that this Lease as modified is in full force and effect); (ii) the dates to which Rent has been paid; (iii) that Tenant is in the possession of the Premises if that is the case; (iv) that Landlord is not in default under this Lease, or, if Tenant believes Landlord is in default, the nature thereof in detail; (v) that Tenant has no offsets or defenses to the performance of its obligations under this Lease (or if Tenant believes there are any offsets or defenses, a full and complete explanation thereof); (vi) that the Premises have been completed in accordance with the terms and provisions hereof, that Tenant has accepted the Premises and the condition thereof and of all improvements thereto and has no claims against Landlord or any other party with respect thereto; (vii) that if an assignment of rents or leases has been served upon the Tenant by a Mortgagee, Tenant will acknowledge receipt thereof and agree to be bound by the provisions thereof; (viii) that Tenant will give to the Mortgagee copies of all notices required or permitted to be given by Tenant to Landlord; and (ix) to any other information reasonably requested.

20.02 ENFORCEMENT

In the event that Tenant fails to deliver an Estoppel Certificate, then such failure shall be a Default for which there shall be no cure or grace period. In addition to any other remedy available to Landlord, Landlord may impose a charge equal to $500.00 for each day that Tenant fails to deliver an Estoppel Certificate and Tenant shall be deemed to have irrevocably appointed Landlord as Tenant's attorney-in-fact to execute and deliver such Estoppel Certificate.

ARTICLE TWENTY-ONE-
INTENTIONALLY OMITTED

ARTICLE TWENTY-TWO-
REAL ESTATE BROKERS

Tenant represents that in connection with this Lease it is represented by Tenant's Broker identified in Section 1.01 and, except for Tenant's Broker and Landlord's Broker identified in Section 1.01, Tenant has not dealt with any real estate broker, sales person, or finder in connection with this Lease, and no such person initiated or participated in the negotiation of this Lease. Tenant hereby indemnifies and agrees to protect, defend and hold Landlord and Landlord's Broker harmless from and against all claims, losses, damages, liability, costs and expenses (including, without limitation, attorneys' fees and expenses) by virtue of any broker, agent or other person claiming a commission or other form of compensation by virtue of alleged representation of, or dealings or discussions with, Tenant with respect to the subject matter of this Lease, except for Landlord's Broker and except for a commission payable to Tenant's Broker to the extent provided for in a separate written agreement between Tenant's Broker and Landlord's Broker. Landlord hereby indemnifies and agrees to protect, defend and hold Tenant harmless from and against all claims, losses, damages, liability, costs and expenses (including, without limitation, attorneys' fees and expenses) by virtue of any broker, agent or other person claiming a commission or other form of compensation by virtue of alleged representation of, or dealings or discussions with, Landlord with respect to the subject matter of this Lease, except for Tenant's Broker. Tenant is not obligated to pay or fund any amount to Landlord's Broker, and Landlord hereby agrees to pay such commission, if any, to which Landlord's Broker is entitled in connection with the subject matter of this Lease pursuant to Landlord's separate written agreement with Landlord's Broker. Such commission shall include an amount to be shared by Landlord's Broker with Tenant's Broker to the extent that Tenant's Broker and Landlord's Broker have entered into a separate agreement between themselves to share the commission paid to Landlord's Broker by Landlord. The provisions of this Section shall survive the expiration or earlier termination of the Lease.

ARTICLE TWENTY-THREE-
MORTGAGEE PROTECTION

23.01 SUBORDINATION AND ATTORNMENT

This Lease is and shall be expressly subject and subordinate at all times to (i) any ground or underlying lease of the Real Property, now or hereafter existing, and all amendments, extensions, renewals and modifications to any such lease, and (ii) the lien of any mortgage or trust deed now or hereafter encumbering fee title to the Real Property and/or the leasehold estate under any such lease, and all amendments, extensions, renewals, replacements and modifications of such mortgage or trust deed and/or the obligation secured thereby, unless such ground lease or ground lessor, or mortgage, trust deed or Mortgagee, expressly provides or elects that the Lease shall be superior to such lease or mortgage or trust deed. If any such mortgage or trust deed is foreclosed (including any sale of the Real Property pursuant to a power of sale), or if any such lease is terminated, upon request of the Mortgagee or ground lessor, as the case may be, Tenant shall attorn to the purchaser at the foreclosure sale or to the ground lessor under such lease, as the case may be, provided, however, that such purchaser or ground lessor shall not be (i) bound by any payment of Rent for more than one month in advance except payments in the nature of security for the performance by Tenant of its obligations under this Lease; (ii) subject to any offset, defense or damages arising out of a default of any obligations of any preceding Landlord; or (iii) bound by any amendment or modification of this Lease made without the written consent of the Mortgagee or ground lessor; or (iv) liable for any security deposits not actually received in cash by such purchaser or ground lessor. This subordination shall be self-operative and no further certificate or instrument of subordination need be required by any such Mortgagee or ground lessor. In confirmation of such subordination, however, Tenant shall execute promptly any reasonable certificate or instrument that Landlord, Mortgagee or ground lessor may request. Tenant hereby constitutes Landlord as Tenant's attorney-in-fact to execute such certificate or instrument for and on behalf of Tenant upon Tenant's failure to do so within fifteen (15) days of a request to do so. Upon request by such successor in interest, Tenant shall execute and deliver reasonable instruments confirming the attornment provided for herein.

23.02 MORTGAGEE PROTECTION

Tenant agrees to give any Mortgagee or ground lessor, by registered or certified mail, a copy of any notice of default served upon the Landlord by Tenant, provided that prior to such notice Tenant has received notice (by way of service on Tenant of a copy of an assignment of rents and leases, or otherwise) of the address of such Mortgagee or ground lessor. Tenant further agrees that if Landlord shall have failed to cure such default within the time provided for in this Lease, then the Mortgagee or ground lessor shall have an additional thirty (30) days after receipt of notice thereof within which to cure such default or if such default cannot be cured within that time, then such additional notice time as may be necessary, if, within such thirty (30) days, any Mortgagee or ground lessor has commenced and is diligently pursuing the remedies necessary to cure such default (including commencement of foreclosure proceedings or other proceedings to acquire possession of the Real Property, if necessary to effect such cure). Such period of time shall be extended by any period within which such Mortgagee or ground lessor is

prevented from commencing or pursuing such foreclosure proceedings or other proceedings to acquire possession of the Real Property by reason of Landlord's bankruptcy. Until the time allowed as aforesaid for Mortgagee or ground lessor to cure such defaults has expired without cure, Tenant shall have no right to, and shall not, terminate this Lease on account of default. This Lease may not be modified or amended so as to reduce the Rent or shorten the Term, or so as to adversely affect in any other respect to any material extent the rights of the Landlord, nor shall this Lease be canceled or surrendered, without the prior written consent, in each instance, of the ground lessor or the Mortgagee.

ARTICLE TWENTY-FOUR-
NOTICES

(a) All notices, demands or requests provided for or permitted to be given pursuant to this Lease must be in writing and shall be personally delivered, sent by Federal Express or other reputable overnight courier service, or mailed by first class, registered or certified United States mail, return receipt requested, postage prepaid.

(b) All notices, demands or requests to be sent pursuant to this Lease shall be deemed to have been properly given or served by delivering or sending the same in accordance with this Section, addressed to the parties hereto at their respective addresses listed in Sections 1.01(2) and (3).

(c) Notices, demands or requests sent by mail or overnight courier service as described above shall be effective upon deposit in the mail or with such courier service. However, the time period in which a response to any such notice, demand or request must be given shall commence to run from (i) in the case of delivery by mail, the date of receipt on the return receipt of the notice, demand or request by the addressee thereof, or (ii) in the case of delivery by Federal Express or other overnight courier service, the date of acceptance of delivery by an employee, officer, director or partner of Landlord or Tenant. Rejection or other refusal to accept or the inability to deliver because of changed address of which no notice was given, as indicated by advice from Federal Express or other overnight courier service or by mail return receipt, shall be deemed to be receipt of notice, demand or request sent. Notices may also be served by personal service upon any officer, director or partner of Landlord or Tenant, and shall be effective upon such service.

(d) By giving to the other party at least thirty (30) days written notice thereof, either party shall have the right from time to time during the term of this Lease to change its respective addresses for notices, statements, demands and requests, provided such new address shall be within the United States of America.

ARTICLE TWENTY-FIVE
EXERCISE FACILITY

Tenant agrees to inform all employees of Tenant of the following: (i) the exercise facility is available for the use of the employees of tenants of the Project only and for no other person; (ii) use of the facility is at the risk of Tenant or Tenant's employees, and all users must sign a release; (iii) the facility is unsupervised; and (iv) users of the facility must report any needed equipment maintenance or any unsafe conditions to the Landlord immediately. Landlord may discontinue providing such facility at Landlord's sole option at any time without incurring any liability. As a condition to the use of the exercise facility, Tenant and each of Tenant's employees that uses the exercise facility shall first sign a written release in form and substance acceptable to Landlord. Landlord may change the rules and/or hours of the exercise facility at any time, and Landlord reserves the right to deny access to the exercise facility to anyone due to misuse of the facility or noncompliance with rules and regulations of the facility. To the extent permitted by Law, Tenant hereby indemnifies, and agrees to protect, defend and hold the Indemnitees harmless, against any and all actions, claims, demands, liability, costs and expenses, including attorneys' fees and expenses for the defense thereof, arising from use of the exercise facility in the Project by Tenant, Tenant's employees or invitees. In case of any action or proceeding brought against the Indemnitees by reason of any such claim, upon notice from Landlord, Tenant covenants to defend such action or proceeding by counsel chosen by Landlord, in Landlord's sole discretion. Landlord reserves the right to settle, compromise or dispose of any and all actions, claims and demands related to the foregoing indemnity.

ARTICLE TWENTY-SIX-
MISCELLANEOUS

26.01 LATE CHARGES

(a) The Monthly Base Rent, Rent Adjustments and Rent Adjustment Deposits shall be due when and as specifically provided above. Except for such payments and late charges described below, which late charge shall be due when provided below (without notice or demand), all other payments required hereunder to Landlord shall be paid within ten (10) days after Landlord's demand therefor. All Rent and charges, except late charges, not paid when due shall bear interest from the date due until the date paid at the Default Rate in effect on the date such payment was due.

(b) In the event Tenant is more than five (5) days late in paying any installment of Rent due under this Lease, Tenant shall pay Landlord a late charge equal to five percent (5%) of the delinquent installment of Rent. The parties agree that (i) such delinquency will cause Landlord to incur costs and expenses not contemplated herein, the exact amount of which will be difficult to calculate, including the cost and expense that will be incurred by Landlord in processing each delinquent payment of rent by Tenant, and (ii) the amount of such late charge represents a reasonable estimate of such costs and expenses and that such late charge shall be paid to Landlord for each delinquent payment in addition to all Rent otherwise due hereunder. The parties further agree that the payment of late charges and the payment of interest provided for in subparagraph (a) above are distinct and separate from one another in that the payment of interest is to compensate Landlord for its inability to use the money improperly withheld by Tenant, while the payment of late charges is to compensate Landlord for its additional administrative expenses in handling and processing delinquent payments.

(c) Payment of interest at the Default Rate and/or of late charges shall not excuse or cure any default by Tenant under this Lease, nor shall the foregoing provisions of this Article or any such payments prevent Landlord from exercising any right or remedy available to Landlord upon Tenant's failure to pay Rent when due, including the right to terminate this Lease.

26.02 NO JURY TRIAL; VENUE; JURISDICTION

To the extent permitted by Law, each party hereto (which includes any assignee, successor, heir or personal representative of a party) shall not seek a jury trial, hereby waives trial by jury, and hereby further waives any objection to venue in the County in which the Project is located, and agrees and consents to personal jurisdiction of the courts of the State of California, in any action or proceeding or counterclaim brought by any party hereto against the other on any matter whatsoever arising out of or in any way connected with this Lease, the relationship of Landlord and Tenant, Tenant's use or occupancy of the Premises, or any claim of injury or damage, or the enforcement of any remedy under any statute, emergency or otherwise, whether any of the foregoing is based on this Lease or on tort law. No party will seek to consolidate any such action in which a jury has been waived with any other action in which a jury trial cannot or has not been waived. It is the intention of the parties that these provisions shall be subject to no exceptions. By execution of this Lease the parties agree that this provision may be filed by any party hereto with the clerk or judge before whom any action is instituted, which filing shall constitute the written consent to a waiver of jury trial pursuant to and in accordance with Section 631 of the California Code of Civil Procedure. No party has in any way agreed with or represented to any other party that the provisions of this Section will not be fully enforced in all instances. The provisions of this Section shall survive the expiration or earlier termination of this Lease.

26.03 DEFAULT UNDER OTHER LEASE

It shall be a Default under this Lease if Tenant or any Affiliate holding any other lease with Landlord for premises in the Project defaults under such lease and as a result thereof such lease is terminated or terminable.

26.04 OPTION

This Lease shall not become effective as a lease or otherwise until executed and delivered by both Landlord and Tenant. The submission of the Lease to Tenant does not constitute a reservation of or option for the Premises, but when executed by Tenant and delivered to Landlord, the Lease shall constitute an irrevocable offer by Tenant in effect for fifteen (15) days to lease the Premises on the terms and conditions herein contained.

26.05 AUTHORITY

Tenant and Landlord, and each entity and individual executing this Lease on behalf of Tenant or Landlord, represents and warrants to Landlord and Tenant, respectively, that each has full authority and power to enter into this Lease on behalf of Tenant and Landlord, respectively, and that each of Tenant and Landlord has full power and authority to perform its obligations under this Lease, and that no consent or authorization is necessary from any third party Landlord may request that Tenant provide Landlord evidence of Tenant's authority.

26.06 ENTIRE AGREEMENT

This Lease, the Exhibits and Riders attached hereto contain the entire agreement between Landlord and Tenant concerning the Premises and there are no other agreements, either oral or written, and no other representations or statements, either oral or written, on which Tenant has relied. This Lease shall not be modified except by a writing executed by Landlord and Tenant.

26.07 MODIFICATION OF LEASE FOR BENEFIT OF MORTGAGEE

If Mortgagee of Landlord requires a modification of this Lease which shall not result in any increased cost or expense to Tenant or in any other material and adverse change in the rights and obligations of Tenant hereunder, then Tenant agrees that the Lease may be so modified.

26.08 EXCULPATION

Tenant agrees, on its behalf and on behalf of its successors and assigns, that any liability or obligation of Landlord in connection with this Lease shall only be enforced against Landlord's equity interest in the Property up to a maximum of Five Million Dollars ($5,000,000.00) and in no event against any other assets of the Landlord, or Landlord's officers or directors or partners, and that any liability of Landlord with respect to this Lease shall be so limited and Tenant shall not be entitled to any judgment in excess of such amount.

26.09 ACCORD AND SATISFACTION

No payment by Tenant or receipt by Landlord of a lesser amount than any installment or payment of Rent due shall be deemed to be other than on account of the amount due, and no endorsement or statement on any check or any letter accompanying any check or payment of Rent shall be deemed an accord and satisfaction, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such installment or payment of Rent or pursue any other remedies available to Landlord. No receipt of money by Landlord from Tenant

after the termination of this Lease or Tenant's right of possession of the Premises shall reinstate, continue or extend the Term. Receipt or acceptance of payment from anyone other than Tenant, including an assignee of Tenant, is not a waiver of any breach of Article Ten, and Landlord may accept such payment on account of the amount due without prejudice to Landlord's right to pursue any remedies available to Landlord.

26.10 LANDLORD'S OBLIGATIONS ON SALE OF BUILDING

In the event of any sale or other transfer of the Building, Landlord shall be entirely freed and relieved of all agreements and obligations of Landlord hereunder accruing or to be performed after the date of such sale or transfer, and any remaining liability of Landlord with respect to this Lease shall be limited to Five Million Dollars ($5,000,000.00) and Tenant shall not be entitled to any judgment in excess of such amount.

26.11 BINDING EFFECT

Subject to the provisions of Article Ten, this Lease shall be binding upon and inure to the benefit of Landlord and Tenant and their respective heirs, legal representatives, successors and permitted assigns.

26.12 CAPTIONS

The Article and Section captions in this Lease are inserted only as a matter of convenience and in no way define, limit, construe, or describe the scope or intent of such Articles and Sections.

26.13 TIME; APPLICABLE LAW; CONSTRUCTION

Time is of the essence of this Lease and each and all of its provisions. This Lease shall be construed in accordance with the Laws of the State of California. If more than one person signs this Lease as Tenant, the obligations hereunder imposed shall be joint and several. If any term, covenant or condition of this Lease or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Lease, or the application of such term, covenant or condition to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby and each item, covenant or condition of this Lease shall be valid and be enforced to the fullest extent permitted by Law. Wherever the term "including" or "includes" is used in this Lease, it shall have the same meaning as if followed by the phrase "but not limited to". The language in all parts of this Lease shall be construed according to its normal and usual meaning and not strictly for or against either Landlord or Tenant.

26.14 VACATION

In the event Tenant vacates or abandons the Premises but is otherwise in compliance with all the terms, covenants and conditions of this Lease, Landlord shall have the right to enter into the Premises in order to show the space to prospective tenants. Tenant expressly acknowledges that in the absence of written notice pursuant to Section 11.02(b) or pursuant to California Civil Code Section 1951.3 terminating Tenant's right to possession, none of the foregoing acts of Landlord or any other act of Landlord shall constitute a termination of Tenant's right to possession or an acceptance of Tenant's surrender of the Premises, and the Lease shall continue in effect.

26.15 LANDLORD'S RIGHT TO PERFORM TENANT'S DUTIES

If Tenant fails timely to perform any of its duties under this Lease and such failure continues beyond any applicable notice and cure period (except that no notice or cur period shall be required in case of emergency), Landlord shall have the right (but not the obligation), to perform such duty on behalf and at the expense of Tenant without prior notice to Tenant, and all sums expended or expenses incurred by Landlord in performing such duty shall be deemed to be additional Rent under this Lease and shall be due and payable upon demand by Landlord.

26.16 SECURITYSYSTEM

Landlord shall not be obligated to provide or maintain any security patrol or security system. Landlord shall not be responsible for the quality of any such patrol or system which may be provided hereunder or for damage or injury to Tenant, its employees, invitees or others due to the failure, action or inaction of such patrol or system.

26.17 NO LIGHT, AIR OR VIEW EASEMENTS

Any diminution or shutting off of light, air or view by any structure which may be erected on lands of or adjacent to the Project shall in no way affect this Lease or impose any liability on Landlord.

26.18 RECORDATION

Neither this Lease, nor any notice nor memorandum regarding the terms hereof, shall be recorded by Tenant. Any such unauthorized recording shall be a Default for which there shall be no cure or grace period. Tenant agrees to execute and acknowledge, at the request of Landlord, a memorandum of this Lease, in recordable form.

26.19 SURVIVAL

The waivers of the right of jury trial, the other waivers of claims or rights, the releases and the obligations of Tenant or Landlord under this Lease to indemnify, protect, defend and hold harmless others as specified in this Lease shall survive the expiration or termination of this Lease, and so shall all other obligations or agreements which by their terms survive expiration or termination of the Lease.

26.20 EXHIBITS OR RIDERS

All exhibits, riders and/or addenda referred to in this Lease as an exhibit, addenda or rider hereto or attached hereto, are hereby incorporated into and made a part of this Lease.

IN WITNESS WHEREOF, this Lease has been executed as of the date set forth in Section 1.01(4) hereof.

TENANT:

AcelRx Pharmaceuticals, Inc.,
a Delaware corporation

By /s/ Thomas A. Schreck

Thomas A. Schreck
Print name

Its Chairman & CEO
(Chairman of Board, President or Vice President)

By /s/ Carter King

Carter King
Print name

Its CFO
(Secretary, Assistant Secretary, CFO or Assistant Treasurer)

LANDLORD:

Metropolitan Life Insurance Company,
a New York corporation

By /s/ Greg Hill

Greg Hill
Print name

Its Director

EXHIBIT A
PLAN OF PREMISES

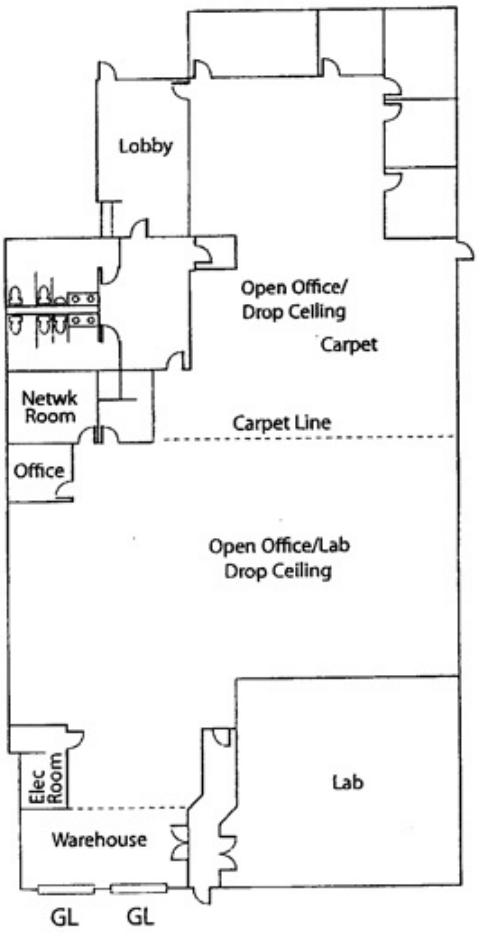


EXHIBIT B
WORKLETTER AGREEMENT
(TENANT BUILD)

This Workletter Agreement ("Workletter") is attached to and a part of a certain Lease by and between Metropolitan Life Insurance Company, a New York corporation, as Landlord, and AcelRx Pharmaceuticals, Inc., a Delaware corporation, as Tenant, for the Premises (the "Lease"). Terms used herein and not defined herein shall have the meaning of such terms as defined elsewhere in the Lease. For purposes of this Workletter, references to "State" and "City" shall mean the State and City in which the Building is located.

1. AS IS Condition; Delivery.

Landlord shall deliver the Premises broom clean in its current "as built" configuration with existing build-out of the tenant space, with the Premises and the Building (including the "Base Building", as defined below) in their AS IS condition, without any express or implied representations or warranties of any kind by Landlord, its brokers, manager or agents, or the employees of any of them; and Landlord shall not have any obligation to construct or install any tenant improvements or alterations or to pay for any such construction or installation except to the extent expressly provided in this Workletter. For purposes hereof, the "Base Building" (sometimes also referred to as the "Base Building Work") shall mean the improvements made and work performed during the Building's initial course of construction and modifications thereto, excluding all original and modified build-outs of any tenant spaces. Notwithstanding any provision of this Workletter or the Lease to the contrary, to the extent that any of the Building Systems (as defined in Section 3.2 below) which are part of the Base Building are not in good operating condition, except to the extent any of the foregoing are to be removed, demolished or altered by Tenant, and within three (3) days after the Delivery Date the Tenant gives Landlord written notice specifying what is not in good operating condition, Landlord shall make necessary repairs.

2. Landlord Work.

There shall be no Landlord Work.

3. Tenant's Plans.

3.1. Description. At its expense, Tenant shall employ:

(i) one or more architects reasonably satisfactory to Landlord and licensed by the State ("Tenant's Architect") to prepare architectural drawings and specifications for all layout and Premises improvements not included in, or requiring any change or addition to, the AS IS condition and Landlord Work, if any.

(ii) one or more engineers reasonably satisfactory to Landlord and licensed by the State ("Tenant's Engineers") to prepare structural, mechanical and electrical working drawings and specifications for all Premises improvements not included in, or requiring any change or addition to, the AS IS condition and Landlord Work, if any.

All such drawings and specifications are referred to herein as "Tenant's Plans". Tenant's Plans shall be in form and detail sufficient to secure all applicable governmental approvals. Tenant's Architect shall be responsible for coordination of all engineering work for Tenant's Plans and shall coordinate with any consultants of Tenant (the use of which is subject to Landlord's consent), and Landlord's space planner or architect to assure the consistency of Tenant's Plans with the Base Building Work and Landlord Work (if any).

Tenant shall pay Landlord, within ten (10) days of receipt of each invoice from Landlord, the cost incurred by Landlord for Landlord's architects and engineers to review Tenant's Plans for consistency of same with the Base Building Work and Landlord Work, if any. Tenant's Plans shall also include the following:

(a) Final Space Plan: The "Final Space Plan" for the Premises shall include a full and accurate description of room titles, floor loads, alterations to the Base Building or Landlord Work (if any) or requiring any change or addition to the AS IS condition, and the dimensions and location of all partitions, doors, aisles, plumbing (and furniture and equipment to the extent same affect floor loading). The Final Space Plan shall (i) be compatible with the design, construction, systems and equipment of the Base Building and Landlord Work, if any; (ii) specify only materials, equipment and installations which are new and of a grade and quality no less than existing components of the Building when they were originally installed (collectively, (i) and (ii) may be referred to as "Building Standard" or "Building Standards"); (iii) comply with Laws, (iv) be capable of logical measurement and construction, and (v) contain all such information as may be required for the preparation of the Mechanical and Electrical Working Drawings and Specifications (including, without limitation, a capacity and usage report, from engineers designated by Landlord pursuant to Section 3.1(b). below, for all mechanical and electrical systems in the Premises).

(b) Mechanical and Electrical Working Drawings and Specifications: Tenant shall employ engineers approved by Landlord to prepare Mechanical and Electrical Working Drawings and Specifications showing complete plans for electrical, life safety, automation, plumbing, water, and air cooling, ventilating, heating and temperature control and shall employ engineers designated by Landlord to prepare for Landlord a capacity and usage report ("Capacity Report") for all mechanical and electrical systems in the Premises.

(c) Issued for Construction Documents: The "Issued for Construction Documents" shall consist of all drawings (1/8" scale) and specifications necessary to construct all Premises improvements including, without limitation, architectural and structural working drawings and specifications and Mechanical and Electrical Working Drawings and Specifications and all applicable governmental authorities plan check corrections.

3.2. Approval by Landlord. Tenant's Plans and any revisions thereof shall be subject to Landlord's approval, which approval or disapproval:

(i) shall not be unreasonably withheld, provided however, that Landlord may disapprove Tenant's Plans in its sole and absolute discretion if they (a) adversely affect the structural integrity of the Building, including applicable floor loading capacity; (b) adversely affect any of the Building Systems (as defined below), the Common Areas or any other tenant space (whether or not currently occupied); (c) fail to fully comply with Laws, (d) affect the exterior appearance of the Building; (e) provide for improvements which do not meet or exceed the Building Standards; or (f) involve any installation on the roof, or otherwise affect the roof, roof membrane or any warranties regarding either. Building Systems collectively shall mean the structural, electrical, mechanical (including, without limitation, heating, ventilating and air conditioning), plumbing, fire and life-safety (including, without limitation, fire protection system and any fire alarm), communication, utility, gas (if any), and security (if any) systems in the Building.

(ii) shall not be delayed beyond ten (10) business days with respect to initial submissions and major change orders (those which impact Building Systems or any other item listed in subpart (i) of Section 3.2 above) and beyond five (5) business days with respect to required revisions and any other change orders.

If Landlord disapproves of any of Tenant's Plans, Landlord shall advise Tenant of what Landlord disapproves in reasonable detail. After being so advised by Landlord, Tenant shall submit a redesign, incorporating the revisions required by Landlord, for Landlord's approval. The approval procedure shall be repeated as necessary until Tenant's Plans are ultimately approved. Approval by Landlord shall not be deemed to be a representation or warranty by Landlord with respect to the safety, adequacy, correctness, efficiency or compliance with Laws of Tenant's Plans. Tenant shall be fully and solely responsible for the safety, adequacy, correctness and efficiency of Tenant's Plans and for the compliance of Tenant's Plans with any and all Laws.

3.3. Landlord Cooperation. Landlord shall cooperate with Tenant and make good faith efforts to coordinate Landlord's construction review procedures to expedite the planning, commencement, progress and completion of Tenant Work. Landlord shall complete its review of each stage of Tenant's Plans and any revisions thereof and communicate the results of such review within the time periods set forth in Section 3.2 above.

3.4. City Requirements. Any changes in Tenant's Plans which are made in response to requirements of the applicable governmental authorities and/or changes which affect the Base Building Work shall be immediately submitted to Landlord for Landlord's review and approval.

3.5. "As-Built" Drawings and Specifications. A CADD-DXF file on diskette or CD, pdf versions of the drawings on CD, and a set of "Xerox" type blackline on bond prints of all "as-built" drawings and specifications of the Premises (reflecting all field changes and including, without limitation, architectural, structural, mechanical and electrical drawings and specifications) prepared by Tenant's Architect and Engineers or by Contractors (defined below) shall be delivered by Tenant at Tenant's expense to the Landlord within thirty (30) days after completion of the Tenant Work. If Landlord has not received such drawings and diskette(s) within thirty (30) days, Landlord may give Tenant written notice of such failure. If Tenant does not produce such drawings and diskette(s) within ten (10) days after Landlord's written notice, Landlord may, at Tenant's sole cost which may be deducted from the Allowance, produce such drawings and diskette(s) using Landlord's personnel, managers, and outside consultants and contractors. Landlord shall receive an hourly rate reasonable for such production.

4. Tenant Work.

4.1. Tenant Work Defined. All tenant improvement work required by the Issued for Construction Documents (including, without limitation, any approved changes, additions or alterations pursuant to Section 7 below) is referred to in this Workletter as "Tenant Work."

4.2. Tenant to Construct. Tenant shall construct all Tenant Work pursuant to this Workletter, and except to the extent modified by or inconsistent with express provisions of this Workletter, pursuant with the provisions of the terms and conditions of Article Nine of the Lease, governing Tenant Alterations (except to the extent modified by this Workletter) and all such Tenant Work shall be considered "Tenant Alterations" for purposes of the Lease.

4.3. Construction Contract. All contracts and subcontracts for Tenant Work shall include any terms and conditions required by Landlord.

4.4. Contractor. Tenant shall select one or more contractors to perform the Tenant Work ("Contractor") subject to Landlord's prior written approval, which shall not unreasonably be withheld.

4.5. Division of Landlord Work and Tenant Work. Tenant Work is defined in Section 4.1. above and Landlord Work, if any, is defined in Section 2.

5. Tenant's Expense; Allowance.

Tenant agrees to pay for all Tenant Work, including, without limitation, the costs of design thereof, whether or not all such costs are included in the "Permanent Improvement Costs" (defined below). Subject to the terms and conditions of this Workletter, Tenant shall apply the "Allowance" (defined below) to payment of the Permanent Improvement Costs. The term "Permanent Improvement Costs" shall mean the actual and reasonable costs of construction of that Tenant Work which constitutes permanent improvements to the Premises, actual and reasonable costs of design thereof and governmental permits therefor, costs incurred by Landlord for Landlord's architects and engineers pursuant to Section 3.1, and Landlord's construction administration fee (defined in Section 8.10 below). Provided, however, Permanent Improvement Costs shall exclude costs of "Tenant's FF& E" (defined below). For purposes of this Workletter, "Tenant's FF& E" shall mean furniture, furnishings, telephone systems, computer systems, equipment, any other personal property, and installation thereof. Notwithstanding any provision of this Workletter or Lease to the contrary, for purposes of this Workletter and Lease, all property which becomes attached to the Premises or Building, including any part of any laboratory or laboratories for pharmaceutical, life sciences or related purposes (for example and without limitation, laboratory benches, counters, sinks, hoods, ventilation systems, or heating, ventilating or air-conditioning systems): (a) shall not be deemed to be personal property, fixtures or trade fixtures, but shall be deemed to be Tenant Work (and Tenant Additions) and part of the permanent improvements to the Premises or Building at the time of their installation, whether installed by or paid for by Landlord or Tenant, shall without compensation or credit to Tenant remain in the Premises and the Building; and (b) the costs thereof shall be deemed to be Permanent Improvement Costs reimbursable out of the Allowance. Landlord shall provide Tenant a tenant improvement allowance ("Allowance") in the amount equal to Sixty-six and 00/100 Dollars ($66.00) per square foot of the Rentable Area of the Premises. The Allowance shall be used solely to reimburse Tenant for the Permanent Improvement Costs. If Tenant does not utilize one hundred percent (100%) of the Allowance for Permanent Improvement Costs within six (6) months after the Delivery Date of the Premises, Tenant shall have no right to the unused portion of the Allowance.

6. Application and Disbursement of the Allowance .

6.1. Tenant shall prepare a budget for all Tenant Work, including the Permanent Improvement Costs and all other costs of the Tenant Work ("Budget"), which Budget shall be subject to the reasonable approval of Landlord. Such Budget shall be supported by a guaranteed maximum price construction contract and such other documentation as Landlord may require to evidence the total costs. To the extent the Budget exceeds the available Allowance ("Excess Cost"), Tenant shall be solely responsible for payment of such Excess Cost. Further, prior to any disbursement of the Allowance by Landlord, Tenant shall pay and disburse its own funds for all that portion of the Permanent Improvement Costs equal to the sum of (a) the Permanent Improvement Costs in excess of the Allowance; plus (b) the amount of "Landlord's Retention" (defined below). "Landlord's Retention" shall mean an amount equal to fifteen percent (15%) of the Allowance, which Landlord shall retain out of the Allowance and shall not be obligated to disburse unless and until after Tenant has completed the Tenant Work and complied with Section 6.4 below. Further, Landlord shall not be obligated to make any disbursement of the Allowance unless and until Tenant has provided Landlord with (a) bills and invoices covering all labor and material expended and used, (b) an affidavit from Tenant stating that all of such bills and invoices have either been paid in full by Tenant or are due and owing, and all such costs qualify as Permanent Improvement Costs, (c) contractors affidavit covering all labor and materials expended and used, (d) Tenant, contractors and architectural completion affidavits (as applicable), and (e) valid mechanics' lien releases and waivers pertaining to any completed portion of the Tenant Work which shall be conditional or unconditional, as applicable, all as provided pursuant to Section 6.2 and 6.4 below.

6.2. Upon Tenant's full compliance with the provisions of Section 6, and if Landlord determines that there are no applicable or claimed stop notices (or any other statutory or equitable liens of anyone performing any of Tenant Work or providing materials for Tenant Work) or actions thereon, Landlord shall disburse the applicable portion of the Allowance as follows:

(a) In the event of conditional releases, to the respective contractor, subcontractor, vendor, or other person who has provided labor and/or services in connection with the Tenant Work, upon the following terms and conditions: (i) such costs are included in the Budget, are Permanent Improvement Costs, are covered by the Allowance, and Tenant has completed and delivered to Landlord a written request for payment, in form reasonably approved by Landlord, setting forth the exact name of the contractor, subcontractor or vendor to whom payment is to be made and the date and amount of the bill or invoice, (ii) the request for payment is accompanied by the documentation set forth in Section 6.1; and (iii) Landlord, or Landlord's appointed representative, has inspected and approved the work for which Tenant seeks payment; or

(b) In the event of unconditional releases, directly to Tenant upon the following terms and conditions: (i) Tenant seeks reimbursement for costs of Tenant Work which have been paid by Tenant, are included in the Budget, are Permanent Improvement Costs, and are covered by the Allowance; (ii) Tenant has completed and delivered to Landlord a request for payment, in form reasonably approved by Landlord, setting forth the name of the contractor, subcontractor or vendor paid and the date of payment, (iii) the request for payment is accompanied by the documentation set forth in Section 6.1; and (iv) Landlord, or Landlord's appointed representative, has inspected and approved the work for which Tenant seeks reimbursement.

6.3. Tenant shall provide Landlord with the aforementioned documents by the 15th of the month and payment shall be made by the 30th day of the month following the month in which such documentation is provided.

6.4. Prior to Landlord disbursing the Landlord's Retention to Tenant, Tenant shall submit to Landlord the following items within thirty (30) days after completion of the Tenant Work: (i) "As Built" drawings and specifications pursuant to Section 3.5 above, (ii) all unconditional lien releases from all general contractor(s) and subcontractor(s) performing work, (iii) a "Certificate of Completion" prepared by Tenant's Architect, and (iv) a final budget with supporting documentation detailing all costs associated with the Permanent Improvement Costs.

7. Changes, Additions or Alterations .

If Tenant desires to make any non-de minimis change, addition or alteration or desires to make any change, addition or alteration to any of the Building Systems after approval of the Issued for Construction Documents, Tenant shall prepare and submit to Landlord plans and specifications with respect to such change, addition or alteration. Any such change, addition or alteration shall be subject to Landlord's approval in accordance with the provisions of Section 3.2 of this Workletter. Tenant shall be responsible for any submission to and plan check and permit requirements of the applicable governmental authorities. Tenant shall be responsible for payment of the cost of any such change, addition or alteration if it would increase the Budget and Excess Cost previously submitted and approved pursuant to Section 6 above.

8. Miscellaneous.

8.1. Scope. Except as otherwise set forth in the Lease, this Workletter shall not apply to any space added to the Premises by Lease option or otherwise.

8.2. Tenant Work shall include (at Tenant's expense) for all of the Premises:

(a) Landlord approved lighting sensor controls as necessary to meet applicable Laws;

(b) Building Standard fluorescent fixtures in all Building office areas;

(c) Building Standard meters for each of electricity and chilled water used by Tenant shall be connected to the Building's system and shall be tested and certified prior to Tenant's occupancy of the Premises by a State certified testing company;

(d) Building Standard ceiling systems (including tile and grid) and;

(e) Building Standard air conditioning distribution and Building Standard air terminal units.

8.3. Sprinklers. Subject to any terms, conditions and limitations set forth herein, Landlord shall provide an operative sprinkler system consisting of mains, laterals, and heads "AS IS" on the date of delivery of the Premises to Tenant. Tenant shall pay for piping distribution, drops and relocation of, or additional, sprinkler system heads and Building firehose or firehose valve cabinets, if Tenant's Plans and/or any applicable Laws necessitate such.

8.4. Floor Loading. Floor loading capacity shall be within building design capacity. Tenant may exceed floor loading capacity with Landlord's consent, at Landlord's sole discretion and must, at Tenant's sole cost and expense, reinforce the floor as required for such excess loading.

8.5. Work Stoppages. If any work on the Real Property other than Tenant Work is delayed, stopped or otherwise affected by construction of Tenant Work, Tenant shall immediately take those actions necessary or desirable to eliminate such delay, stoppage or effect on work on the Real Property other than Tenant Work.

8.6. Life Safety. Tenant (or Contractor) shall employ the services of a fire and life-safety subcontractor reasonably satisfactory to Landlord for all fire and life-safety work at the Building.

8.7. Locks. Tenant agrees to purchase from Landlord or its representative all cylinders and keys used in locks used in the Premises.

8.8. Authorized Representatives. Tenant has designated Carter King to act as Tenant's representative with respect to the matters set forth in this Workletter. Such representative(s) shall have full authority and responsibility to act on behalf of Tenant as required in this Workletter. Tenant may add or delete authorized representatives upon five (5) business days notice to Landlord.

8.9. Access to Premises. After Landlord has recovered possession of the Premises from any prior Tenant, prior to delivery of possession to Tenant, Tenant and its architects, engineers, consultants, and contractors shall have access at reasonable times and upon advance notice and coordination with the Building management, to the Premises for the purpose of planning Tenant Work. Such access shall not in any manner interfere with Landlord Work, if any. Such access, and all acts and omissions in connection with it, shall be subject to and governed by all other provisions of the Lease, including, without limitation, Tenant's indemnification obligations, insurance obligations, etc, except for the payment of Base Rent and Additional Rent. To the extent that such access by Tenant delays the Substantial Completion of the Landlord Work (if any), such delay shall be a Tenant Delay and the Landlord Work shall be deemed Substantially Complete on the date such Landlord Work would have been completed but for such access.

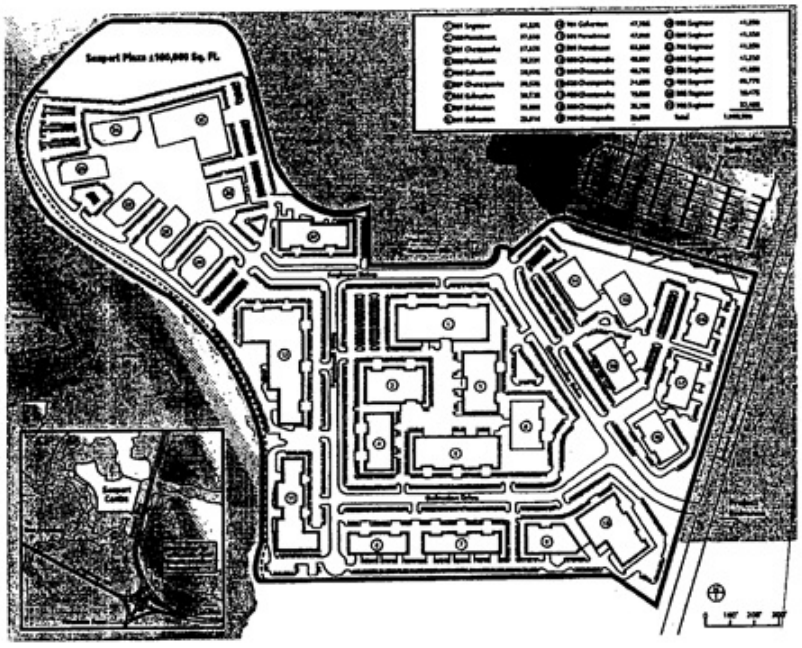
8.10. Fee. Landlord shall receive a fee equal to one percent (1.0%) of Tenant's construction contract for all costs, including, without limitation, materials, labor, supervision, profit, overhead or general conditions in connection with the construction of the Tenant Work. Such fee is in addition to Tenant's reimbursement of costs incurred by Landlord pursuant to other provisions hereof, including, without limitation, for Landlord's architects and engineers to review Tenant's Plans.

9. Force and Effect.

The terms and conditions of this Workletter shall be construed to be a part of the Lease and shall be deemed incorporated in the Lease by this reference. Should any inconsistency arise between this Workletter and the Lease as to the specific matters which are the subject of this Workletter, the terms and conditions of this Workletter shall control.

EXHIBIT C
SITE PLAN OF PROJECT

Phase III, its buildings and square footages are not a part of the Project as defined in this Lease, and are shown in this Exhibit for illustration only.



Phase I: Buildings 1-8
Phase II: Buildings 9-12, 27
Phase III: Buildings 14-26

EXHIBIT D
PERMITTED HAZARDOUS MATERIAL

Permitted Hazardous Material shall mean the substances listed below in the quantity which is the lesser of (a) the amount reasonably necessary for Tenant's day to day operations in the Premises permitted by this Lease and by Environmental Law, or (b) the quantity limit specified below.

List of Chemicals	Quantity on Hand	Manufacturer	Part Number
Ethanol – Hazard Class 3	13.2 gal.	VWR	EM-AX0441-3
Hydrochloric Acid – Hazard Class 8	1.3 gal.		
Isopropyl Alcohol – Hazard Class 3	3.2 gal.		
Methanol – Hazard Class 3	2.6 gal.		
Nitrogen, compressed	600 cu ft		
Sodium Hydroxide – Class 8	4.4 lbs	VWR	

EXHIBIT E
FORM OF LETTER OF CREDIT

FOR INTERNAL IDENTIFICATION PURPOSES ONLY
Our No. _____ Other _____
Applicant _____

TO: Metropolitan Life Insurance Company

[Address]

Attention: Director, EIM

IRREVOCABLE LETTER OF CREDIT NO. _____

We hereby establish this irrevocable Letter of Credit in favor of the aforesaid addressee ("Beneficiary") for drawings up to United States $_____ effective immediately. This Letter of Credit is issued, presentable and payable at our office at [issuing bank's address in City specified by Landlord] and expires with our close of business on _____, 20__.

The term "Beneficiary" includes any successor by operation of law of the named Beneficiary including, without limitation, any liquidator, rehabilitator, receiver or conservator.

We hereby undertake to promptly honor your sight draft(s) drawn on us, indicating our Credit No. _____, for all or any part of this Credit if presented at our office specified in paragraph one on or before the expiry date or any automatically extended expiry date.

Except as expressly stated herein, this undertaking is not subject to any agreement, condition or qualification. The obligation of [issuing bank] under this Letter of Credit is the individual obligation of [issuing bank], and is in no way contingent upon reimbursement with respect thereto.

It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year from the expiry date hereof, or any future expiration date, unless at least thirty (30) days prior to an expiration date we notify you by registered mail that we elect not to consider this Letter of Credit renewed for any such additional period.

This Letter of Credit is transferable by the Beneficiary and by any successive transferees at no charge or cost to Beneficiary or any transferee. Transfers of this Letter of Credit are subject to receipt of Beneficiary's (and subsequently, transferee's) instructions in the form attached hereto as Schedule 1 accompanied by the original Letter of Credit and amendments(s) if any.

This Letter of Credit is subject to and governed by the Laws of the State of New York and the 1993 revision of the Uniform Customs and Practice for Documentary Credits of the International Chamber of Commerce (Publication 500) and, in the event of any conflict, the Laws of the State of New York will control. If this Credit expires during an interruption of business as described in article 17 of said Publication 500, the bank hereby specifically agrees to effect payment if this Credit is drawn against within 30 days after the resumption of business.

Very truly yours,

_____
[issuing bank]

Schedule 1 to Letter of Credit

[Bank – then current issuer of Letter of Credit]

c/o _____

_____

_____

Attention:_____

Re: Irrevocable Letter of Credit No. _____

Ladies & Gentlemen:

The undersigned acknowledges receipt of your advice No. _____ of a credit issued in our favor, the terms of which are satisfactory. We now irrevocably transfer the said credit and all amendments and extensions thereof, if any, to:

_____
[Name of Transferee]

_____
[Address]

You are to inform the transferee of this transfer and such transferee shall have sole rights as beneficiary under the credit, including any amendments, extension or increases thereof, without notice to or further assent from us.

This transfer is at no charge or cost to Beneficiary or the transferee.

Yours very truly,

Beneficiary

By: _____

Acknowledged and agreed by Bank [then current issuer of Letter of Credit]:

_____
(Bank – then current issuer of Letter of Credit)

RIDER 1
COMMENCEMENT DATE AGREEMENT

Metropolitan Life Insurance Company, a New York corporation ("Landlord"), and AcelRx Pharmaceuticals, Inc., a Delaware corporation ("Tenant"), have entered into a certain Lease dated Jan. 2, 2007 ____ (the "Lease").

WHEREAS, Landlord and Tenant wish to confirm and memorialize the Commencement Date and Expiration Date of the Lease as provided for in Section 2.02(b) of the Lease;

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants contained herein and in the Lease, Landlord and Tenant agree as follows:

1. Unless otherwise defined herein, all capitalized terms shall have the same meaning ascribed to them in the Lease.

2. The Commencement Date (as defined in the Lease) of the Lease is April 9, 2007.

3. The Expiration Date (as defined in the Lease) of the Lease is April 8, 2012.

4. Tenant hereby confirms the following:

   (a) That it has accepted possession of the premises pursuant to the terms of the Lease;

   (b) That the Landlord Work, if any, is Substantially Complete; and

   (c) That the Lease is in full force and effect.

5. Except as expressly modified hereby, all terms and provisions of the Lease are hereby ratified and confirmed and shall remain in full force and effect and binding on the parties hereto.

6. The Lease and this Commencement Date Agreement contain all of the terms, covenants, conditions and agreements between the Landlord and the Tenant relating to the subject matter herein. No prior other agreements or understandings pertaining to such matters are valid or of any force and effect.

IN WITNESS WHEREOF, Landlord and Tenant have executed this Commencement Date Agreement and such execution and delivery have been duly authorized.

TENANT:

AcelRx Pharmaceuticals, Inc.,
a Delaware corporation

By /s/ Thomas A. Schreck

Thomas A. Schreck
Print name

Its Chairman
(Chairman of Board, President or Vice President)

By /s/ Carter King

Carter King
Print name

Its Treasurer
(Secretary, Assistant Secretary, CFO or Assistant Treasurer)

LANDLORD:

Metropolitan Life Insurance Company,
a New York corporation

By /s/ Joel R. Redman

Joel R. Redman
Print name

Its Assistant Vice-President

RIDER 2
ADDITIONAL PROVISIONS

This Rider 2 ("Rider") is attached to and a part of a certain Lease by Metropolitan Life Insurance Company, a New York corporation, as Landlord, and AcelRx Pharmaceuticals, Inc., a Delaware corporation, as Tenant, for the Premises as described therein (the "Lease").

SECTION 1. DEFINED TERMS; FORCE AND EFFECT

Capitalized terms used in this Rider shall have the same meanings set forth in the Lease except as otherwise specified herein and except for terms capitalized in the ordinary course of punctuation. This Rider forms a part of the Lease. Should any inconsistency arise between this Rider and any other provision of the Lease as to the specific matters which are the subject of this Rider, the terms and conditions of this Rider shall control.

SECTION 2. CONDITION OF PREMISES; DELIVERY; CONSTRUCTION PERIOD; COMMENCEMENT DATE; TERM

2.1. Projected Delivery Date; Delivery Date; Commencement Date: Tenant's Obligations During Construction Period; Term.

(a) Landlord shall tender to Tenant possession of the Premises in the condition specified in the Workletter no later than one (1) business day after execution of this Lease by both Tenant and Landlord (the "Projected Delivery Date"). On the date Landlord actually tenders to Tenant possession of the Premises (the "Delivery Date"), all the terms and conditions of the Lease shall apply, and Tenant shall observe and perform all terms and conditions of the Lease, including all that are specified to apply during the Term (for example only, Tenant's insurance and indemnification obligations), except that during the period (the "Construction Period") from the Delivery Date until the Commencement Date (defined below), in recognition of Tenant's construction and installations in, and preparation of, the Premises for the use and occupancy permitted by this Lease: (i) Tenant shall not be obligated to pay Monthly Base Rent, Rent Adjustment Deposits or Rent Adjustments; and (ii) Landlord shall not be obligated to provide services or utilities except if and to the extent expressly provided in Section 4 of the Workletter. The Term of this Lease shall be as shown in Section 1.01(5) of the Basic Lease Provisions and the Commencement Date of the Term shall be the date which is the earlier to occur of (i) the date Tenant commences its business operations in the Premises, or (ii) ninety (90) days after the Delivery Date.

(b) Upon request by Landlord, Tenant and Landlord shall enter into an agreement (the form of which is attached to this Lease as Rider 1) confirming the Commencement Date and the Expiration Date. If Tenant fails to enter into such agreement, then the Commencement Date and the Expiration Date shall be the dates designated by Landlord in such agreement.

2.2 Failure to Deliver Possession. If Landlord shall be unable to give possession of the Premises on the Projected Delivery Date by reason of the following: (i) the holding over or retention of possession of any tenant, tenants or occupants, or (ii) the Landlord Work, if any, is not Substantially Complete, or (iii) for any other reason, then Landlord shall not be subject to any liability for the failure to give possession on said date so long as Landlord has used and continues to use reasonable efforts to deliver possession to Tenant as soon as possible. Under such circumstances, by operation of Section 2.1 above and/or the definition of the Commencement Date, the Delivery Date and Commencement Date are automatically adjusted and determined in relation to the date Landlord actually tenders possession of the Premises to Tenant. No such failure to deliver possession on the originally scheduled Projected Delivery Date shall affect the validity of this Lease or the obligations of the Tenant hereunder.

SECTION 3. MONUMENT SIGNAGE.

3.1 Grant of Right. Notwithstanding any provision of Section 6.06 of the Lease to the contrary, so long as Tenant is in continuous operation at and occupancy of at least fifty percent (50%) of the entire Premises, Tenant shall have the right, to place Tenant identification on one line of one existing, exterior monument sign for the Building, subject to the terms and conditions of this Section ("Exterior Sign Right").

3.2 General Conditions & Requirements. The size, type, style, materials, color, method of installation and exact location of the sign, and the contractor for and all work in connection with the sign, contemplated by this Section shall (i) be subject to Tenant's compliance with all applicable laws, regulations and ordinances and with any covenants, conditions and restrictions of record which affect the Property; (ii) be subject to Tenant's compliance with all requirements of Landlord's current Project signage criteria at the time of installation; (iii) be consistent with the design of the Building and the Project; (iv) be further subject to Landlord's prior written consent. Tenant shall, at its sole cost and expense, procure, install, maintain and remove such sign.

3.3 Removal & Restoration. Upon the expiration or termination of the Exterior Sign Right, but in no event later than the expiration of the Term or earlier termination of the Lease, Tenant shall, at its sole cost and expense, remove such sign and shall repair and restore the area in which the sign was located to its condition prior to installation of such sign.

3.4 Right Personal. The Exterior Sign Right under this Section is personal to AcelRx Pharmaceuticals, Inc., a Delaware corporation, and may not be used by, and shall not be transferable or assignable (voluntarily or involuntarily) to any person or entity other than an assignee of the Lease which has satisfied the requirements of Article Ten of the Lease.

Exhibit 10.9

EXECUTION COPY

LOAN AND SECURITY AGREEMENT

This **LOAN AND SECURITY AGREEMENT** , dated as of September 16, 2008 (this "***Loan Agreement***"), is entered by and between **ACELRX PHARMACEUTICALS, INC.** , **a Delaware corporation ("*Borrower*"**); and **PINNACLE VENTURES, L.L.C.** as agent ("***Agent***") for the lenders identified on Schedule 1 hereto (such lenders, together with their respective successors and assigns are referred to hereinafter each individually as a " ***Lender***" and collectively as the "***Lenders***"), and the Lenders. Capitalized terms used and not otherwise defined in this Loan Agreement shall have the respective meanings given to such terms in Article 10.

In consideration of the covenants, conditions and agreements set forth herein and intending to be legally bound, the parties agree as follows:

Article 1. THE LOANS.

Section 1.01 **Commitment**. Subject to the terms and conditions of this Loan Agreement, Lenders agree to advance to Borrower (the "***Advances***"): (i) from time to time on or prior to December 31, 2008, one or more term loans in an aggregate principal amount of Six Million Dollars ($6,000,000), and (ii) from time to time on or prior to June 30, 2009 (the "***Funding Termination Date***"), one or more term loans in an aggregate principal amount of up to Six Million Dollars ($6,000,000). Advances shall be made not more often than monthly in amounts of no less than Five Hundred Thousand Dollars ($500,000) provided that if there is less than Five Hundred Thousand Dollars available to be borrowed under this Section 1.01, then such Advance shall not be less than the available principal amount to be borrowed. Borrower may prepay Advances in accordance with Section 1.02(d).

Section 1.02 **Interest and Payments**.

(a) Interest. Borrower shall pay interest in advance on the unpaid principal amount of each Advance from the date of such Advance until such Advance is paid in full, at a per annum rate of interest equal to eight and one-half percent (8.50%), based upon a year of 360 days and actual days elapsed. If Borrower pays interest on such Advance which is determined to be in excess of the then legal maximum rate, then that portion of each interest payment representing an amount in excess of the then legal maximum rate shall be deemed a payment of principal and applied against the principal of the Advance.

(b) Payments of Principal and Interest. For each Advance, Borrower shall make six (6) equal monthly payments of interest only (payable in advance) on the first Business Day of each month after the Funding Date (or, if the Funding Date occurs on the first Business Day of a month, on such Funding Date) (each a "***Payment Date***"). Thereafter, Borrower shall make thirty (30) equal payments of principal and interest (payable in advance) on the first Business Day of each month (each a " ***Payment Date***") until the Advance is paid in full. The amount of each such payment shall be sufficient to fully amortize the principal and interest due on the applicable Advance over such thirty (30) month period.

(c) Interim Interest Payment. For each Advance, unless the Funding Date is a Payment Date, Borrower shall make an advance payment of interest at the otherwise applicable rate referred to in Section 1.02(a) on the Funding Date for the period from the Funding Date to the first Payment Date.

(d) Final Payment. On the date on which the last payment is due under Section 1.02(b) with respect to each Advance, Borrower shall pay to Agent, in addition to any remaining unpaid principal and accrued interest and all other amounts previously due with respect to such Advance, an amount equal to five percent (5.0%) of the original principal amount of such Advance (the "***Final Payment***").

(e) Prepayment. Upon five (5) Business Days' prior written notice to Agent, Borrower may, at its option, at any time, prepay the Advances, in whole or in part in an amount of a least $1,000,000 of principal, in an amount equal to the outstanding principal amounts of the portion of the Advances prepaid, plus accrued and unpaid interest thereon through and including the date of such prepayment, plus the Final Payment, plus any other amounts then due to Lenders, together with all scheduled but unpaid interest payments with respect to the portion prepaid.

Section 1.03 Use of Proceeds; the Advances and the Notes; Disbursement .

(a) Use of Proceeds. The proceeds of the Advances shall be used for general corporate purposes.

(b) The Advances and the Notes. The obligation of Borrower to repay the aggregate unpaid principal amount of and interest on each Advance shall be evidenced by a Note setting forth the principal amount of such Advance and the payments due. Agent shall keep a record of the payments made under each Note on its books which records shall be prima facie evidence of the amounts paid under the Notes absent manifest error. Any failure by Agent to obtain or retain such a Note shall not limit or otherwise affect the obligations of Borrower to pay amounts due hereunder with respect to an Advance.

(c) Notice and Disbursement. Whenever Borrower desires Lenders to make an Advance, Borrower shall notify Agent in writing at least fifteen (15) Business Days in advance of the desired Funding Date, which notice shall be irrevocable. Lenders' obligation to make Advances shall be subject to the satisfaction of the conditions set forth in Section 3.01(b). Lenders shall have the right to request that Borrower furnish Lenders with such additional information with respect to the Advance as Lenders shall reasonably request. Subject to the satisfaction of the conditions set forth in this Loan Agreement, each Lender shall disburse its pro rata portion of each Advance to the account of Borrower as specified in Section 9.06.

Section 1.04 Other Payment Terms.

(a) Place and Manner. All regularly scheduled payments due to the Lenders shall be effected by automatic debit of the appropriate funds from Borrower's Primary Operating Account. Borrower shall make all other payments due to the Lenders in lawful money of the United States, in immediately available funds, at the address for payments specified in Section 9.06.

(b) Date. Whenever any payment due hereunder shall fall due on a day other than a Business Day, such payment shall be made on the next succeeding Business Day, and such extension of time shall be included in the computation of interest or fees, as the case may be.

(c) Default Rate. If any amounts required to be paid by Borrower under this Loan Agreement or the other Transaction Documents (including principal or interest payable on the Advance, any fees or other amounts) remain unpaid after such amounts are due, Borrower shall pay interest on the aggregate, outstanding principal balance hereunder from the date due until such past due amounts are paid in full, at a per annum rate equal to the Default Rate. All computations of such interest shall be based on a year of 360 days and actual days elapsed.

(d) Commitment Fee. Agent has received a commitment fee from Borrower in the amount of $25,000 (the "***Commitment Fee***"). The Commitment Fee is fully earned and will be retained by Agent;

provided, however, that the Commitment Fee will be returned to Borrower if the Advances and the Transaction Documents are not approved by Lenders' investment committee.

(e) Legal Costs. Borrower shall reimburse Lender for Lender's reasonable legal costs and expenses incurred in preparing and negotiating the Transaction Documents.

Article 2. CREATION OF SECURITY INTEREST.

Section 2.01 Grant of Security Interest. Borrower grants and pledges to Agent on behalf of all Lenders a continuing security interest in all presently existing and hereafter acquired or arising Collateral in order to secure prompt payment of any and all Obligations and in order to secure prompt performance by Borrower of each of its covenants and duties under the Transaction Documents. Such security interest constitutes a valid, first priority security interest in the presently existing Collateral, and will constitute a valid, first priority security interest in Collateral acquired after the date hereof. Notwithstanding termination of this Loan Agreement, Agent's Lien on the Collateral shall remain in effect for so long as any Obligations are outstanding.

Section 2.02 Liabilities Unconditional. Borrower is and shall remain absolutely and unconditionally liable for the performance of its obligations under the Transaction Documents, including without limitation any deficiency by reason of the failure of the Collateral to satisfy all amounts due to Agent or the Lenders under any Transaction Document.

Article 3. CLOSING.

Section 3.01 Conditions Precedent. The obligation of Lenders to fund an Advance shall be subject to the following conditions precedent:

(a) Conditions to Closing. Agent shall have received in connection with the Closing in form and substance satisfactory to Agent:

(i) This Loan Agreement, duly executed by Borrower;

(ii) Copies, certified by the Secretary or Assistant Secretary of Borrower, of: (A) the Certificate of Incorporation and Bylaws of Borrower (as amended to the date of this Loan Agreement), (B) the resolutions adopted by Borrower's board of directors authorizing the transaction and the documents being executed in connection therewith, and (C) the incumbency of the officers executing this Loan Agreement and the other Transaction Documents on behalf of Borrower.

(iii) Good Standing Certificate(s) (including tax status if available) with respect to Borrower from Borrower's state of incorporation and principal place of business, if different, (each) as of a date acceptable to Agent.

(iv) Evidence of the insurance coverage required by Section 5.06 of this Loan Agreement.

(v) All necessary consents of shareholders and other third parties with respect to the subject matter of the Loan Agreement and the other documents being executed in connection therewith.

(vi) A Warrant Purchase Agreement in the form provided by Agent and agreed to by Borrower, duly executed by Borrower.

(vii) The Warrants to be issued to the designees of the Lenders in forms provided by Agent and agreed to by Borrower, duly executed by Borrower.

(viii) A Management Rights Agreement in the form provided by Agent and agreed to by Borrower, duly executed by Borrower.

(ix) Agreements sufficient to perfect a security interest in Borrower's deposit accounts and securities accounts executed by each applicable bank or other financial institution, in forms reasonably acceptable to Agent.

(x) A legal opinion of counsel to Borrower in form and substance reasonably satisfactory to Agent.

(b) Conditions to Funding of Each Advance. Prior to the funding of each Advance, the following conditions with respect to such Advance shall have been satisfied by Borrower or waived by Agent:

(i) Borrower shall have executed and delivered a Note in the form of Exhibit A prepared by Agent setting forth the terms of the Advance.

(ii) No Event of Default or Default shall have occurred and be continuing.

(iii) In Agent's reasonable discretion, no event or condition shall exist that has had or could be reasonably expected to have a Material Adverse Effect.

(iv) The representations and warranties contained in this Loan Agreement and the other Transaction Documents to which Borrower is a party shall be true and correct in all material respects as if made on the date of funding of the Advance and the items listed on any schedule shall be reasonably acceptable to Agent, except to the extent such representations and warranties expressly refer to an earlier date, in which case they shall be true and correct in all material respects as of such earlier date.

(v) Each of the Transaction Documents shall be in full force and effect.

(vi) Borrower shall have provided to Agent a Landlord Waiver in the form of Exhibit C hereto or otherwise in form and substance satisfactory to Agent, from each owner of record of real property at which items of Collateral will be located, setting forth the rights of Agent with respect to such items of Collateral.

(vii) Borrower shall have provided to Agent such documents, instruments and agreements, including financing statements or amendments to financing statements, as Agent shall reasonably request to evidence the perfection and priority of the security interests granted to Agent.

Article 4. REPRESENTATIONS AND WARRANTIES OF BORROWER.

Borrower represents and warrants to Agent that:

Section 4.01 Due Incorporation, Qualification, etc. Each of Borrower and its Subsidiaries (i) is a corporation duly organized, validly existing and in good standing under the laws of its state of incorporation; (ii) has the power and authority to own, lease and operate its properties and carry on its business as now conducted; and (iii) is duly qualified, licensed to do business and in good standing as a foreign corporation in each jurisdiction where the failure to be so qualified or licensed could reasonably be expected to have a Material Adverse Effect.

Section 4.02 Authority. The execution, delivery and performance by Borrower of each Transaction Document to be executed by Borrower and the consummation of the transactions contemplated thereby (i) are within the power of Borrower and (ii) have been duly authorized by all necessary actions on the part of Borrower.

Section 4.03 Enforceability. Each Transaction Document executed, or to be executed, by Borrower has been, or will be, duly executed and delivered by Borrower and constitutes, or will constitute, a legal, valid and binding obligation of Borrower, enforceable against Borrower in accordance with its terms, except as limited

by bankruptcy, insolvency or other similar laws of general application relating to or affecting the enforcement of creditors' rights generally and general principles of equity.

Section 4.04 **Non-Contravention**. The execution and delivery by Borrower of the Transaction Documents executed by Borrower and the performance and consummation of the transactions contemplated thereby do not and will not (i) violate any Requirement of Law described in clause (i) of the definition of Requirement of Law or violate and other material Requirement of Law applicable to Borrower; (ii) violate any provision of, or result in the breach or the acceleration of, or entitle any other Person to accelerate (whether after the giving of notice or lapse of time or both), any material Contractual Obligation of Borrower; or (iii) result in the creation or imposition of any Lien upon any property, asset or revenue of Borrower (except such Liens as may be created in favor of Agent pursuant to this Loan Agreement or the other Transaction Documents).

Section 4.05 **Approvals**. No consent, approval, order or authorization of, or registration, declaration or filing with, any Governmental Authority or other Person (including, without limitation, the shareholders of any Person) is required in connection with the execution and delivery of the Transaction Documents executed by Borrower and the performance and consummation of the transactions contemplated thereby.

Section 4.06 **No Violation or Default**. None of Borrower or Borrower's Subsidiaries is in violation of or in default with respect to (i) any Requirement of Law; or (ii) any Contractual Obligation (nor is there any waiver in effect which, if not in effect, would result in such a violation or default), where, in each case, such violation or default, individually, or together with all such violations or defaults, could reasonably be expected to have a Material Adverse Effect. Without limiting the generality of the foregoing, neither Borrower nor Borrower's Subsidiaries, to its knowledge (A) has violated any Environmental Laws, (B) has any liability under any Environmental Laws or (C) has received notice or other communication of an investigation or is under investigation by any Governmental Authority having authority to enforce Environmental Laws, where such violation, liability or investigation could reasonably be expected to have a Material Adverse Effect. No Event of Default or Default has occurred and is continuing.

Section 4.07 **Litigation**. No actions (including, without limitation, derivative actions), suits, proceedings or investigations are pending or, to the knowledge of Borrower, threatened against Borrower or Borrower's Subsidiaries at law or in equity in any court or before any other Governmental Authority which if adversely determined (i) could reasonably be expected (alone or in the aggregate) to have a Material Adverse Effect or (ii) seeks to enjoin, either directly or indirectly, the execution, delivery or performance by Borrower of the Transaction Documents or the transactions contemplated thereby.

Section 4.08 **Title**. Borrower has good and marketable title to all Collateral, free and clear of all Liens, other than Permitted Liens. Borrower has no other deposit accounts or securities accounts, other than the deposit accounts and securities accounts described in Schedule 2. Except as described in Schedule 2, the Collateral is not in the possession of any third party bailee (such as at a warehouse). All Inventory is in all material respects of good and marketable quality, free from material defects.

Section 4.09 **Financial Statements**. The Financial Statements of Borrower which have been delivered to Agent (i) are in accordance with the books and records of Borrower and its Subsidiaries, which have been maintained in accordance with good business practice; (ii) have been prepared in conformity with generally accepted accounting principles (except in the case of unaudited financial statements for the absence of footnotes and year-end adjustments); and (iii) fairly present in all material respects the consolidated financial position of Borrower as of the dates presented therein and the results of operations, changes in financial positions or cash flows, as the case may be, for the periods presented therein. As of the date hereof, none of Borrower or any of Borrower's Subsidiaries has any contingent obligations, liability for taxes or other outstanding obligations which are material in the aggregate, except as disclosed in the most recent audited Financial Statements (including the notes thereto) furnished by Borrower to Agent prior to the date hereof.

Section 4.10 **Taxes**. Each of Borrower and its Subsidiaries has filed or caused to be filed all tax returns that are required to be filed by it except where the failure to do so could not reasonably be expected to have a

Material Adverse Effect. Borrower and Borrower's Subsidiaries have paid, or made provision for the payment of, all Taxes which have or may have become due pursuant to said returns or otherwise, except such Taxes, if any, which are being contested in good faith and as to which adequate reserves (determined in accordance with generally accepted accounting principles) have been provided or which could not reasonably be expected to have a Material Adverse Effect if unpaid.

Section 4.11 Catastrophic Events; Labor Disputes. Neither Borrower nor Borrower's Subsidiaries and none of their properties is or has been affected by any fire, explosion, accident, strike, lockout or other labor dispute, drought, storm, hail, earthquake, embargo, act of God or other casualty that could reasonably be expected to have a Material Adverse Effect. There are no disputes presently subject to grievance procedure, arbitration or litigation under any of the collective bargaining agreements, employment contracts or employee welfare or incentive plans to which Borrower or Borrower's Subsidiaries is a party, and there are no strikes, lockouts, work stoppages or slowdowns, or, to the best knowledge of Borrower, jurisdictional disputes or organizing activity occurring or threatened which could reasonably be expected to have a Material Adverse Effect.

Section 4.12 No Material Adverse Effect. No event has occurred and no condition exists (excluding general economic conditions) which could reasonably be expected to have a Material Adverse Effect.

Section 4.13 First Priority. Assuming the timely filing of financing statements covering the Collateral, the security interest granted hereby constitutes a first priority security interest in and Lien on all of the Collateral, subject only to Permitted Liens.

Section 4.14 Principal Place of Business. Borrower is incorporated in the jurisdiction stated in the first sentence of this Loan Agreement, and the office where Borrower will keep all records and files regarding the Collateral is set forth in Section 9.07. Except as disclosed on Schedule 2, Borrower has not done business under any name other than that specified on the signature page hereof. All Borrower's Inventory and Equipment is located only at the locations set forth in Section 9.07 or on Schedule 2 or at such other locations as are permitted under Section 5.12.

Section 4.15 Intellectual Property. Borrower is the sole owner of the Intellectual Property, except for non-exclusive licenses granted by Borrower to its customers in the ordinary course of business. No part of the Intellectual Property has been judged invalid or unenforceable, in whole or in part, and, to Borrower's knowledge, no claim has been made that any part of the Intellectual Property violates the rights of any third party.

Section 4.16 Investments. Borrower does not own any Investments in any Person, except for Permitted Investments.

Article 5. COVENANTS OF BORROWER.

While any Obligations or unfunded Commitments remain outstanding:

Section 5.01 Financial Statements. Borrower shall provide to Agent the financial statements specified in this Section 5.01, prepared in accordance with generally accepted accounting principles, consistently applied (except, in the case of unaudited financial statements, for the absence of footnotes and normal year-end adjustments); provided, however, that after the effective date of the initial registration statement covering a public offering of Borrower's securities, Borrower shall only be required to deliver those financial statements required to be filed by the Securities and Exchange Commission, to be provided as soon as practicable and no less frequently than quarterly.

(a) As soon as practicable (and in any event within thirty (30) days after the end of each month), an unaudited balance sheet as of the end of such month and unaudited statements of income or loss, retained earnings or deficit, cash flows and capital structure of Borrower for such month, certified by

Borrower's Chief Executive Officer or Chief Financial Officer to fairly present in all material respects the data reflected therein.

(b) As soon as practicable (and in any event within one hundred eighty (180) days after the end of each fiscal year), audited balance sheets as of the end of such year (consolidated if applicable), and related statements of income or loss, retained earnings or deficit, cash flows and capital structure of Borrower for such year, setting forth in comparative form the corresponding figures for the preceding fiscal year, and accompanied by an audit report and opinion of the independent certified public accountants of recognized national standing selected by Borrower.

Section 5.02 Other Information. Borrower shall promptly provide to Agent: (a) copies of all board packages delivered to its board of directors in connection with board meetings or otherwise, (b) notice of all actions, suits and proceedings before any court or governmental department, commission, board, bureau, agency or instrumentality, domestic or foreign, which suits or proceedings if decided adversely to Borrower could reasonably be expected to result in costs or damages to Borrower of One Hundred Thousand Dollars ($100,000) or more, (c) notice of any Default, Event of Default, Event of Loss, or any matter which has resulted or may reasonably expected to result in a Material Adverse Effect, and (d) any additional information (including but not limited to tax returns, income statements, balance sheets, and names of principal creditors) as Agent shall reasonably request which is necessary to evaluate Borrower's continuing financial obligations.

Section 5.03 Corporate Identity. Borrower shall notify Agent in writing thirty (30) days prior to any change in Borrower's principal place of business or chief executive office and any change of Borrower's name, identity or corporate structure.

Section 5.04 Reserved.

Section 5.05 Authorization for Automated Clearinghouse Funds Transfer. Borrower shall (i) authorize Agent to initiate debit entries to Borrower's account specified in Section 9.06 (" ***Borrower's Primary Operating Account*** ") through Automated Clearinghouse ("***ACH***") transfers, in order to satisfy regularly scheduled payments of principal, interest and fees; (ii) provide Agent at least thirty (30) days notice of any change in Borrower's Primary Operating Account; and (iii) grant Agent any additional authorizations necessary to begin ACH debits from a new account which becomes Borrower's Primary Operating Account.

Section 5.06 Insurance. Borrower shall, at its own expense, maintain the following types of insurance, with companies with an A-5 Best rating or better, in amounts acceptable to Agent:

(a) Property. Property insurance against loss or damage to the Collateral. The deductible shall not exceed $25,000. The policy shall name Agent as sole loss payee with respect to the Collateral, shall not be invalidated by any action of or breach of warranty by Borrower of any provision thereof and shall waive subrogation against Agent.

(b) General Liability Insurance. Commercial general liability insurance (including contractual liability, products liability and completed operations coverages) reasonably satisfactory to Agent. The limit of liability shall be at least $2,000,000 per occurrence. The policy shall be without deductible, except for products liability coverage which may have a deductible up to $25,000. The policy(ies) shall name Agent as additional insured in the full amount of Borrower's liability coverage limits (or the coverage limits of any successor to Borrower or such successor's parent which is providing coverage), be primary and without contribution as respects any insurance carried by Agent and contain cross liability and severability of interest clauses.

(c) Other Insurance. Such other insurance against risks of loss and with terms as shall be reasonably required by Agent.

All policies of insurance shall provide that Agent shall be given thirty (30) days notice of cancellation of coverage. This notice provision shall be without qualification. On or prior to the first Funding Date and prior to each policy renewal, Borrower shall furnish to Agent, certificates of insurance or other evidence satisfactory to Agent that insurance complying with all of the above requirements is in effect.

Section 5.07 Taxes and Other Liabilities. Borrower shall pay all Indebtedness when due; pay all Taxes and other governmental or regulator assessments before delinquency or before any penalty attaches thereto, except as may be contested in good faith by the appropriate procedures and for which Borrower shall maintain appropriate reserves; and timely file all required tax returns.

Section 5.08 Title. Borrower shall promptly notify Agent in writing of any event which materially affects the value of the Collateral, the ability of Borrower or Agent to dispose of the Collateral, or the rights or remedies of Agent in relation thereto, including, but not limited to, the levy of any legal process against the Collateral. Upon request by Agent, Borrower shall deliver to Agent any and all evidence of ownership of, and certificates of title to, any and all of the Equipment.

Section 5.09 Further Identification of Collateral. Borrower shall promptly advise Agent of any material change in the composition of the Collateral, and shall furnish to Agent from time to time such statements and schedules further identifying and describing the Collateral, and such other reports in connection with the Collateral as Agent may reasonably request, all in reasonable detail.

Section 5.10 Good Repair. Borrower shall keep and maintain all Collateral in good operating condition and repair, subject to ordinary wear and tear, make all necessary repairs thereto and replacement of parts thereof so that the value and operating efficiency thereof shall at all times be maintained and preserved in all material respects; and Borrower shall keep books and records with respect to the Collateral, including maintenance records, which are complete and accurate in all material respects.

Section 5.11 Loss; Damage; Destruction and Seizure.

(a) If while payment Obligations are outstanding any item of Collateral is lost, stolen, destroyed, damaged beyond repair or seized by a Governmental Authority (an "***Event of Loss***"), then, at Borrower's option, either (i) Agent shall receive from the proceeds of insurance maintained pursuant to Section 5.06, from any award paid by the seizing Governmental Authority or, to the extent not received from the proceeds of insurance or award or both, from Borrower, on or before the next scheduled Payment Date succeeding such Event of Loss, an amount equal to the replacement value of the item of Collateral subject to the Event of Loss which shall be held as additional Collateral for the Advance, or (ii) if no Event of Default has occurred and is continuing, Borrower may use any such proceeds to purchase an item of Collateral to replace the item of Collateral which was subject to the Event of Loss and such replacement Collateral shall become part of the Collateral. On the date of receipt by Agent of the amount specified hereinabove with respect to each such item of Collateral subject to an Event of Loss, the provisions of this Loan Agreement shall terminate as to such Collateral. Pending Borrower's election of the options set forth above, any proceeds of insurance maintained by Borrower with respect to the Collateral pursuant to Section 5.06 and received by Borrower shall be paid to Agent promptly upon their receipt by Borrower. If any proceeds of insurance or awards received from Governmental Authorities are in excess of the amount owed under this Section 5.11(a), Agent shall promptly remit to Borrower the amount in excess of the amount to be held by Agent.

(b) So long as no Event of Default has occurred and is continuing, any proceeds of insurance maintained pursuant to Section 5.06 received by Agent or Borrower with respect to an item of Collateral the repair of which is practicable shall, at the election of Borrower, be applied either to the repair or replacement of such Collateral or, upon Agent's receipt of evidence of the repair or replacement of the Collateral reasonably satisfactory to Agent, to the reimbursement of Borrower for the cost of such repair or replacement. All replacement parts and equipment acquired by Borrower in replacement of

Collateral pursuant to this Section 5.11 shall immediately become part of the Collateral upon acquisition by Borrower. Borrower shall take such actions and provide such documentation as may be reasonably requested by Agent to protect and preserve Agent's first priority security interest and otherwise to avoid any impairment of Agent's rights under the Transaction Documents, in connection with such repair or replacement.

Section 5.12 Collateral Control. Borrower shall not (i) terminate, waive or release any material right with respect to any Collateral, or (ii) remove any items of Collateral from Borrower's facility located at the address specified in Section 9.07, the locations specified on Schedule 2, or such other address agreed to in writing by Lender.

Section 5.13 Liens; No Disposition of Collateral. Borrower shall not (i) in any way hypothecate or create or permit to exist any Lien with respect to any of its or its Subsidiaries' property, except for Permitted Liens, (ii) permit the inclusion in any contract to which it or a Subsidiary becomes a party of any provisions that could restrict or invalidate the creation of a security interest in any of Borrower's or such Subsidiary's property, or (iii) sell, transfer, assign, pledge, collaterally assign, exchange, or otherwise dispose of (collectively, a "Transfer"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property, other than Transfers: (A) of Inventory in the ordinary course of business, (B) of non-exclusive licenses and similar arrangements for the manufacture, sale or use of the property of Borrower or its Subsidiaries in the ordinary course of business, (C) of exclusive licenses and similar arrangements for the use, manufacture or sale of the property of Borrower in a specific field or geography, or (D) worn-out or obsolete Equipment.

Section 5.14 Mergers and Acquisitions. Without the prior written consent of Agent, Borrower shall not be acquired by any "person" (as such term is used in Section 13(d) and 14(d) of the Securities Exchange Act of 1934), whether by merger or consolidation, or through a transaction or series of transactions pursuant to which the holders of Borrower's voting Equity Securities do not hold at least 50% of the voting power of Borrower or any resulting Person after such transaction or transactions, or through the sale of all or substantially all of its assets, unless (i) the Obligations are assumed or guarantied by a Person which is the ultimate parent entity (the " ***Acquirer***") of the acquiring Person and (ii) the Acquirer is a creditworthy entity (as determined by Agent in its reasonable discretion).

Section 5.15 Distributions. Prior to the effective date of the initial registration statement covering a public offering of Borrower's securities, without the prior written consent of Agent, Borrower shall not (i) pay any dividends or make any distributions on its Equity Securities; (ii) purchase, redeem, retire, defease or otherwise acquire for value any of its Equity Securities (other than repurchases pursuant to the terms of employee stock purchase plans, employee restricted stock agreements or similar arrangements in an aggregate amount not to exceed $100,000); (iii) return any capital to any holder of its Equity Securities as such; (iv) make any distribution of assets, Equity Securities, obligations or securities to any holder of its Equity Securities as such; or (v) set apart any sum for any such purpose; provided, however, Borrower may declare dividends payable solely in common stock.

Section 5.16 Indebtedness. Borrower shall not, and shall not permit its Subsidiaries to, create, incur, assume or suffer to exist any Indebtedness, other than Permitted Indebtedness.

Section 5.17 Investments. Borrower shall not, and shall not permit its Subsidiaries to, directly or indirectly acquire or own, or make any Investment in or to any Person other than Permitted Investments; or suffer or permit any Subsidiary to be a party to, or be bound by, an agreement that restricts such Subsidiary from paying dividends or otherwise distributing property to Borrower.

Section 5.18 Transactions with Affiliates. Borrower shall not, and shall not permit its Subsidiaries to, directly or indirectly enter into or permit to exist any material transaction with any Affiliate, except for transactions that are in the ordinary course of such Person's business, upon fair and reasonable terms that are no less favorable to Borrower, or such Subsidiary, than would be obtained in an arms' length transaction with a non-affiliated Person; provided that the foregoing restriction shall not apply to (i) any transaction

between Borrower and any of its Subsidiaries or between any Subsidiaries that is not otherwise prohibited by this Loan Agreement, (ii) reasonable and customary fees paid to members of the board of directors of Borrower and its Subsidiaries, and (iii) compensation arrangements and benefit plans for officers and other employees of Borrower and its Subsidiaries entered into or maintained in the ordinary course of business.

Section 5.19 Indebtedness Payments. Borrower shall not (i) prepay, redeem, purchase, defease or otherwise satisfy in any manner prior to the scheduled repayment thereof any Indebtedness for borrowed money (other than amounts due or permitted to be prepaid under this Loan Agreement) or any lease obligations, (ii) amend, modify or otherwise change the terms of any Indebtedness (other than the Advances) or lease obligations so as to accelerate the scheduled repayment thereof or (iii) repay any Indebtedness to officers, directors or shareholders.

Section 5.20 Accounts. Borrower shall not, and shall not permit its Subsidiaries to, maintain any deposit accounts or securities accounts except accounts with respect to which Agent has obtained an agreement with the bank or other financial institution sufficient to perfect a security interest in such deposit accounts or securities accounts.

Article 6. PRESERVATION OF COLLATERAL BY AGENT.

Should Borrower fail or refuse to make any payment, perform or observe any other covenant, condition or obligation, or take any other action which Borrower is obligated under any Transaction Document to make, perform, observe, take or do at the time or in the manner provided in any Transaction Document, then at Agent's reasonable discretion, without demand upon (but with notice to) Borrower and without releasing Borrower from any obligation, covenant or condition in any Transaction Document, Agent may make, perform, observe, take or do the same in such manner and to such extent as Agent may deem necessary to protect its security interest in or the value of the Collateral. In furtherance of the foregoing rights, Borrower does hereby irrevocably appoint Agent (which appointment is coupled with an interest), the true and lawful attorney-in-fact of Borrower with full power of substitution, for it and in its name (i) to perform (but Agent shall not be obligated to and shall incur no liability to Borrower or any third party for failure to perform) any act which Borrower is obligated by this Loan Agreement to perform, (ii) to ask, demand, collect, receive, receipt for, sue for, compound and give acquittance for any and all rents, issues, profits, avails, distributions, income, payment draws and other sums in which a security interest is granted under Section 2.01 with full power to settle, adjust or compromise any claim thereunder as fully as if Agent were Borrower itself, (iii) to receive payment of and to endorse the name of Borrower to any items of Collateral (including checks, drafts and other orders for the payment of money) that come into Agent's possession or under Agent's control, (iv) to make all demands, consents and waivers, or take any other action with respect to, the Collateral, (v) in Agent's discretion, to file any claim or take any other action or institute proceedings, either in its own name or in the name of Borrower or otherwise, which Agent may reasonably deem necessary or appropriate to protect and preserve the right, title and interest of Agent in and to the Collateral, and (vi) to otherwise act with respect thereto as though Agent were the outright owner of the Collateral; provided, however, that the power of attorney herein granted shall be exercisable only upon the occurrence and during the continuation of an Event of Default unless in Agent's reasonable opinion immediate action is necessary to preserve or protect the Collateral. Borrower agrees to reimburse Agent upon demand for all reasonable costs and expenses, including attorneys' fees and expenses, which Agent may incur while acting as Borrower's attorney in fact or otherwise under this Article 6, all of which costs and expenses are included within the Obligations.

Article 7. EVENTS OF DEFAULT.

Section 7.01 Events of Default. The occurrence of any of the following shall constitute an "***Event of Default***" under the Transaction Documents:

(a) Failure to Pay. Borrower shall fail to pay when due any principal, interest or other payment required under the terms of this Loan Agreement or any other Transaction Document on the date due and such payment shall not have been made within five (5) Business Days of the due date; or

(b) Insurance. Borrower or any of its Subsidiaries shall fail to observe or perform any covenant set forth in Section 5.06 and such failure shall continue for a period of ten (10) Business Days after notice thereof is received by Borrower from Agent; or

(c) Breaches of Other Covenants. Borrower or any of its Subsidiaries shall fail to perform or observe (i) any of the terms, covenants or agreements contained in Sections 5.03, 5.05, or 5.11 through 5.20 hereof or (ii) any other term, covenant, or agreement contained in any Transaction Document (other than the other Events of Default specified in this Article 7) and such failure remains unremedied for the earlier of twenty (20) days from (x) the date on which the Agent has given the Borrower written notice of such failure and (y) the date on which the Borrower knew of such failure; or

(d) Representations and Warranties. Any representation, warranty, certificate, or other statement (financial or otherwise) made or furnished by or on behalf of Borrower to Agent in writing in connection with this Loan Agreement or any of the other Transaction Documents, or as an inducement to Agent or Lenders to enter into the Transaction Documents, shall be false, incorrect, incomplete or misleading in any material respect when made or furnished; or

(e) Other Payment Obligations. Borrower or any of its Subsidiaries shall fail to make any payment when due under the terms of any Indebtedness to be paid by such Person (excluding this Loan Agreement and the other Transaction Documents but including any other Indebtedness of Borrower or any of its Subsidiaries to Agent or any Lender) and such failure shall continue beyond any period of grace provided with respect thereto, or shall default in the observance or performance of any other agreement, term or condition contained in any such Indebtedness, and the effect of such failure or default is to cause, or permit the holder or holders thereof to cause Indebtedness in an aggregate amount of One Hundred Thousand Dollars ($100,000) or more to become due prior to its stated date of maturity; or

(f) Voluntary Bankruptcy or Insolvency Proceedings. Borrower or any of its Subsidiaries shall (i) apply for or consent to the appointment of a receiver, trustee, liquidator or custodian of itself or of all or a substantial part of its property, (ii) be unable, or admit in writing its inability, to pay its debts generally as they mature, (iii) make a general assignment for the benefit of its or any of its creditors, (iv) be dissolved or liquidated in full or in part, (v) become insolvent (as such term may be defined or interpreted under any applicable statute), (vi) commence a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law now or hereafter in effect or consent to any such relief or to the appointment of or taking possession of its property by any official in an involuntary case or other proceeding commenced against it, or (vii) take any action for the purpose of affecting any of the foregoing; or

(g) Involuntary Bankruptcy or Insolvency Proceedings. Proceedings for the appointment of a receiver, trustee, liquidator or custodian of Borrower or any of its Subsidiaries or of all or a substantial part of the property thereof, or an involuntary case or other proceedings seeking liquidation, reorganization or other relief with respect to Borrower or any of its Subsidiaries or the debts thereof under any bankruptcy, insolvency or other similar law now or hereafter in effect shall be commenced and an

order for relief entered or such proceeding shall not be dismissed or discharged within thirty (30) days of commencement; or

(h) Judgments. A final judgment or order for the payment of money in excess of One Hundred Thousand Dollars ($100,000) shall be rendered against Borrower or any of its Subsidiaries and the same shall remain undischarged for a period of thirty (30) days during which execution shall not be effectively stayed, or any judgment, writ, assessment, warrant of attachment, or execution or similar process shall be issued or levied against a substantial part of the property of Borrower or any of its Subsidiaries and such judgment, writ, or similar process shall not be released, stayed, vacated or otherwise dismissed within thirty (30) days after issue or levy; or

(i) Transaction Documents. Any Transaction Document or any material term thereof shall cease to be, or be asserted by Borrower not to be, a legal, valid and binding obligation of Borrower enforceable in accordance with its terms or if the Liens of Agent in the Collateral shall cease to be or shall not be valid, first priority perfected Liens or Borrower shall assert that such Liens are not valid, first priority and perfected Liens.

Article 8. AGENT'S RIGHTS AND REMEDIES

Section 8.01 Rights of Agent upon Default. Upon the occurrence and during the existence of any Event of Default (other than an Event of Default referred to in Sections 7.01(f) and 7.01(g)) and at any time thereafter during the continuance of such Event of Default, Agent may, by written notice to Borrower, declare all outstanding Obligations, including, without limitation, the non-cancelable obligation to make each payment scheduled to be made under Sections 1.02(b), 1.02(c) and 1.02(d), payable by Borrower hereunder to be immediately due and payable without presentment, demand, protest or any other notice of any kind, all of which are hereby expressly waived, anything contained herein or in the Notes to the contrary notwithstanding. Upon the occurrence or existence of any Event of Default described in Sections 7.01(f) and 7.01(g), immediately and without notice, all outstanding Obligations, including, without limitation, the non-cancelable obligation to make each payment scheduled to be made under Sections 1.02(b), 1.02(c) and 1.02(d), payable by Borrower hereunder shall automatically become immediately due and payable, without presentment, demand, protest or any other notice of any kind, all of which are hereby expressly waived, anything contained herein or in the Notes to the contrary notwithstanding.

Section 8.02 Rights Regarding Collateral. Borrower agrees that when any Event of Default has occurred and is continuing, Lenders or Agent, on behalf of Lenders, shall have the rights, options, duties and remedies of a secured party as permitted by law and, in addition to and without limiting the foregoing, Lenders or Agent may, at the election of Lenders, exercise any one or more or all, and in any order, of the remedies herein set forth, including the following: (i) Agent or Lenders, personally or by agents or attorneys, shall have the right (subject to compliance with any applicable mandatory legal requirements) to require Borrower to assemble the Collateral and make it available to Agent at a place to be designated by Agent in California or to take immediate possession of the Collateral, or any portion thereof, and for that purpose may pursue the same wherever it may be found, and may enter any premises of Borrower, with or without notice, demand, process of law or legal procedure, to the extent permitted by applicable law, and search for, take possession of, remove, keep and store the same, or use and operate or lease the same until sold; (ii) Agent or Lenders may, if at the time such action may be lawful and always subject to compliance with any mandatory legal requirements, either with or without taking possession and either before or after taking possession, without instituting any legal proceedings whatsoever, having first given notice of such sale by registered or certified mail to Borrower once at least ten (10) days prior to the date of such sale, and having first given any other notice which may be required by law, sell and dispose of the Collateral, or any part thereof, at a private sale or at public auction, to the highest bidder, in one lot as an entirety or in separate lots, and either for cash or on credit and on such terms as Lenders may determine, and at any place (whether or not it be the location of the Collateral or any part thereof) designated in the notice referred to above. Agent and its agents and any purchasers at or after foreclosure are hereby granted a non-exclusive, irrevocable, perpetual, fully paid, royalty-free license or other right, solely pursuant to the provisions of this Section 8.02, to use, without charge,

Borrower's intellectual property that remains embedded or contained in the Collateral, including without limitation, labels, patents, copyrights, rights of use of any name, trade secrets, trade names, trademarks, service marks, and advertising matter, or any property of a similar nature, now or at any time hereafter owned or acquired by Borrower or in which Borrower now or at any time hereafter has any rights; provided, however, such license shall only be exercisable in connection with the disposition of Collateral upon Agent's or Lenders' exercise of their remedies hereunder. To the extent permitted by applicable law, any such sale or sales may be adjourned from time to time by announcement at the time and place appointed for such sale or sales, or for any such adjourned sale or sales, without further published notice, and Borrower, Agent, Lenders, or the holder or holders of the Note, or of any interest therein, may bid and become the purchaser at any such sale; and (iii) Agent or Lenders may proceed to protect and enforce this Loan Agreement and the other Transaction Documents by suit or suits or proceedings in equity, at law or in bankruptcy, and whether for the specific performance of any covenant or agreement herein contained or in execution or aid of any power herein granted; or for foreclosure hereunder, or for the appointment of a receiver or receivers for any real property security or any part thereof, or for the recovery of judgment for the Obligations or for the enforcement of any other proper, legal or equitable remedy available under applicable law. With respect to any of Borrower's owned premises, Borrower hereby grants Agent a license to enter into possession of such premises and to occupy the same, without charge, for up to one hundred twenty (120) days in order to exercise any of Agent's or Lenders' rights or remedies provided herein, at law, in equity, or otherwise.

Section 8.03 Agent's Liability for Collateral. So long as Agent complies with its obligations, if any, under the Code, neither Agent nor Lenders shall in any way or manner be liable or responsible for: (i) the safekeeping of the Collateral; (ii) any loss or damage thereto occurring or arising in any manner of fashion from any cause other than Agent's or such Lender's gross negligence or willful misconduct; (iii) any diminution in the value thereof; or (iv) any act or default of any carrier, warehouseman, bailee, forwarding agency, or other Person whomsoever. All risk of loss, damage or destruction of the Collateral shall be borne by Borrower.

Section 8.04 Application of Collateral Proceeds. The proceeds and/or avails of the Collateral, or any part thereof, and the proceeds and the avails of any remedy hereunder (as well as any other amounts of any kind held by Agent at the time of, or received by Agent after, the occurrence of an Event of Default hereunder) shall be paid to and applied as follows: (i) First, to the payment of reasonable costs and expenses, including all amounts expended to preserve the value of the Collateral, of foreclosure or suit, if any, and of such sale and the exercise of any other rights or remedies, and of all proper fees, expenses, liability and advances, including reasonable legal expenses and attorneys' fees, incurred or made hereunder by Agent or Lenders; (ii) Second, to the payment to Lenders pro rata in accordance with the Advance Percentages of the amounts then owing or unpaid on the Notes, including each payment scheduled to be made under Sections 1.02(b), 1.02(c) and 1.02(d) of this Loan Agreement; (iii) Third, to the payment of other amounts then payable to Agent or Lenders under any of the Transaction Documents; and (iv) Fourth, to the payment of the surplus, if any, to Borrower, its successors and assigns, or to whomsoever may be lawfully entitled to receive the same. In the event that, notwithstanding the foregoing, proceeds and/or avails of the Collateral, shall be received by a Lender in excess of its ratable share, then the portion of such payment or distribution in excess of such Lender's ratable share shall be received by such Lender in trust for and shall be promptly paid over to the other Lenders ratably for application to the payments of amounts due to the other Lenders.

Section 8.05 Reinstatement of Rights. If Agent shall have proceeded to enforce any right under this Loan Agreement or any other Transaction Document by foreclosure, sale, entry or otherwise, and such proceedings shall have been discontinued or abandoned for any reason or shall have been determined adversely, then and in every such case (unless otherwise ordered by a court of competent jurisdiction), Agent shall be restored to its former position and its rights hereunder with respect to the property subject to the security interest created under this Loan Agreement shall be reinstated.

Section 8.06 Agency for Perfection. Each Lender hereby appoints Agent and each other Lender as agent and bailee for the purpose of perfecting the security interests in and liens upon the Collateral in assets which, in accordance with the California Uniform Commercial Code, can be perfected only by possession or

control (or where the security interest of a secured party with possession or control has priority over the security interest of another secured party) and Agent and each Lender hereby acknowledges that it holds possession or control of any such Collateral for the benefit of the Agent as secured party. Should any Lender obtain possession or control of any such Collateral, such Lender shall notify the Agent thereof, and, promptly upon the Agent's request therefor shall deliver possession or control of such Collateral to the Agent or in accordance with the Agent's instructions. Borrower by its execution and delivery of this Loan Agreement hereby consents to the foregoing.

Article 9. MISCELLANEOUS.

Section 9.01 Modifications, Amendments or Waivers. The provisions of any Transaction Document may be modified, amended or waived only by a written instrument signed by the parties thereto.

Section 9.02 No Implied Waivers; Cumulative Remedies; Writing Required. No delay or failure of Agent or any Lender in exercising any right, power or remedy hereunder shall affect or operate as a waiver thereof; nor shall any single or partial exercise thereof or any abandonment or discontinuance of steps to enforce such a right, power or remedy preclude any further exercise thereof or of any other right, power or remedy. The rights and remedies hereunder of Agent and the Lenders are cumulative and not exclusive of any rights or remedies which they would otherwise have. Any waiver, permit, consent or approval of any kind or character on the part of Agent or any Lender of any breach or default under this Loan Agreement or any such waiver of any provision or condition of this Loan Agreement must be in writing and shall be effective only in the specified instance and to the extent specifically set forth in such writing.

Section 9.03 Reimbursement. Borrower shall reimburse Agent and the Lenders for all reasonable costs and expenses, including without limitation, reasonable attorneys' fees and disbursements expended or incurred in any arbitration, mediation, judicial reference, legal action or otherwise in connection with (i) the amendment and enforcement of the Transaction Documents, including without limitation during any workout, attempted workout and/or in connection with the rendering of legal advice as to Agent's or Lenders' rights, remedies and obligations under the Transaction Documents, (ii) collecting any sum which becomes due Agent or Lender under any Transaction Document, (iii) any proceeding for declaratory relief, any counterclaim to any proceeding, or any appeal, or (v) the protection, preservation or enforcement of any rights of Agent or Lender. For the purpose of this section, attorneys' fees shall include, without limitation, fees incurred in connection with the following: (1) contempt proceedings; (2) discovery, (3) any motion, proceeding or other activity of any kind in connection with an insolvency proceeding; (4) garnishment, levy, and debtor and third party examinations; and (5) post-judgment motions and proceedings of any kind, including without limitation, any activity taken to collect or enforce any judgment. All of the foregoing costs and expenses shall be payable by Borrower upon demand by Agent, and if not paid within thirty (30) days of presentation of invoices shall bear interest at the highest applicable Default Rate.

Section 9.04 Indemnification. Borrower agrees upon demand to pay or reimburse Agent and the Lenders for all liabilities, obligations and out-of-pocket expenses, including reasonable fees and expenses of counsel for Agent and the Lenders, from time to time arising in connection with the enforcement or collection of sums due under the Transaction Documents. Borrower shall indemnify, reimburse and hold Agent and the Lenders and their permitted assigns, each of Agent's, Lenders' or their permitted assigns' partners, and each of their respective successors, assigns, agents, officers, directors, shareholders, servants, agents and employees harmless from and against all liabilities, losses, damages, actions, suits, demands, claims of any kind and nature (including claims relating to environmental discharge, cleanup or compliance), all costs and expenses whatsoever to the extent they may be incurred or suffered by such indemnified party in connection therewith (including reasonable attorneys' fees and expenses), fines, penalties (and other charges of applicable governmental authorities), licensing fees relating to any item of Collateral, damage to or loss of use of property (including consequential or special damages to third parties or damages to Borrower's property), or bodily injury to or death of any person (including any agent or employee of Borrower) (each, a "***Claim***"), directly or indirectly relating to or arising out of the use of the proceeds of the Advance, including acquisition, use, ownership, operation, possession, control, storage, return or condition of any item of Equipment

constituting Collateral (regardless of whether such item of Equipment is at the time in the possession of Borrower), the falsity of any representation or warranty of Borrower or Borrower's failure to comply with the terms of this Loan Agreement or any other Transaction Document. The foregoing indemnity shall cover, without limitation, (i) any Claim in connection with a design or other defect (latent or patent) in any item of Equipment constituting Collateral, (ii) any Claim for infringement of any patent, copyright, trademark or other intellectual property right, (iii) any Claim resulting from the presence on or under or the escape, seepage, leakage, spillage, discharge, emission or release of any Hazardous Materials from any item of Equipment financed by an Advance or constituting Collateral, including any Claims asserted or arising under any Environmental Law, or (iv) any Claim for negligence or strict or absolute liability in tort; provided, however, that Borrower shall not indemnify Agent or any Lender for any liability incurred by such Person as a direct and sole result of that Person's gross negligence or willful misconduct. Such indemnities shall continue in full force and effect, notwithstanding the expiration or termination of this Loan Agreement. Upon Agent's written demand, Borrower shall assume and diligently conduct, at its sole cost and expense, the entire defense of Agent or any Lender and its permitted assigns, each of Agent's, Lenders' or their permitted assigns' partners, and each of their respective successors, assigns, agents, officers, directors, shareholders, servants, agents and employees against any indemnified Claim described in this Section 9.04. Borrower shall not settle or compromise any Claim against or involving Agent or any Lender without first obtaining such Person's written consent thereto, which consent shall not be unreasonably withheld. The obligations in this Section 9.04 shall survive payment of all other Obligations until all applicable statute of limitation periods with respect to actions that may be brought against Agent or Lenders have run. All amounts owing under this Section 9.04 shall be paid within thirty (30) days after written demand.

Section 9.05 Limitation on Damages. NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN THIS LOAN AGREEMENT OR ANYWHERE ELSE, BORROWER AGREES THAT IT SHALL NOT SEEK FROM AGENT OR ANY LENDER UNDER ANY THEORY OF LIABILITY (INCLUDING ANY THEORY IN TORTS), ANY SPECIAL, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES.

Section 9.06 Disbursements and Payments.

(a) Disbursements. Lenders shall disburse each Advance to Borrower according to the following account and wire transfer instructions:

Credit:
Further Credit
Bank Name:
Bank Address:
Account Number:
ABA Routing Number:
Reference:

(b) Regularly Scheduled Payments. All regularly scheduled payments due to Agent shall be effected by automatic debit of the appropriate funds from Borrower's primary operating account set forth below:

Account Holder:
Bank Name:
Further Credit
Bank Address:
Account Number:
ABA Routing Number:

(c) Other Payments. All payments to Agent other than regularly scheduled payments may be made via wire transfer as follows:

Wire Transfer Payment

Credit:
Bank Name:
Bank Address:

Account Number:
ABA Routing Number:
Reference:

Section 9.07 Notices. All notices and other communications given to or made upon any party hereto in connection with this Loan Agreement shall be in writing and (except for financial statements and other informational documents which may be sent by email) shall be delivered by certified mail, postage prepaid, return receipt requested, by a nationally recognized overnight courier, or by prepaid facsimile or personally delivered to the respective parties, as follows:

Borrower: **ACELRX PHARMACEUTICALS, INC.**
575 Chesapeake Drive
Redwood City, CA 94063
Telephone: 650.216.3516
Telecopier: 650.216.6500
Attention: Carter King, Vice President, Finance

Agent: **PINNACLE VENTURES, L.L.C.**
130 Lytton Avenue, Suite 220
Palo Alto, CA 94301
Telephone: (650) 926-7800
Telecopier: (650) 926-7801
Email: rsavoie@pinnacleventures.com
Attention: Chief Operating Officer

or in accordance with any subsequent written direction from either party to the other. All such notices and other communications shall, except as otherwise expressly herein provided, be effective when received; or in the case of delivery by messenger or overnight delivery service, when left at the appropriate address.

Section 9.08 Lenders and Allocations of Advances . Notwithstanding anything herein to the contrary, each Lender severally commits to make such Lender's Advance Percentage of each Advance. No Lender shall have liability for the commitment to make Advances of any other Lender. Borrower agrees that by notice to Borrower, Agent may reallocate the Advance Percentages among the Lenders or among the Lenders and other investment funds affiliated with Agent. Whether or not specified in any provision of this Loan Agreement, all references to Agent in this Loan Agreement shall mean Agent for the benefit of the Lenders unless the context otherwise requires.

Section 9.09 **Severability**. If any provision of any Transaction Document is held invalid or unenforceable to any extent or in any application, the remainder of such Transaction Document and all other Transaction Documents, or the application of such provision to different Persons or circumstances or in different jurisdictions, shall not be affected thereby.

Section 9.10 **Reliance by Agent and the Lenders**. All covenants, agreements, representations and warranties made herein by Borrower shall be deemed to have been relied upon by Agent and the Lenders, notwithstanding investigation by Agent.

Section 9.11 **No Set-Offs by Borrower**. All sums payable by Borrower pursuant to this Loan Agreement or any of the other Transaction Documents shall be payable without notice or demand and shall be payable without set-off or reduction of any manner whatsoever.

Section 9.12 **Survival**. All representations, warranties, covenants and agreements of Borrower contained herein or made in writing in connection herewith shall survive the execution and delivery of the Transaction Documents, the making of Advances hereunder, the granting of security and the issuance of the Notes.

Section 9.13 **Confidentiality**. Agent and the Lenders agree to hold non-public information received in confidence and shall not disclose such information to third parties except to their employees, members, partners or the partners of its affiliated investment funds, their lenders, and professional advisors to the foregoing, including attorneys and accountants, and others under a similar duty of confidentiality, and as Agent may deem necessary in its reasonable judgment to satisfy its legal obligations or to enforce Agent's or Lenders' rights under any Transaction Document. Borrower acknowledges that Lenders may issue press releases, advertisements, and other promotional materials, either in print or on Lenders' website(s), describing any successful outcome of services provided on Borrower's behalf. Borrower agrees that Lenders shall have the right to identify Borrower by name and use Borrower's corporate logo in those materials, solely for marketing purposes.

Section 9.14 **Choice of Law and Venue; Jury Trial Waiver**. THIS LOAN AGREEMENT SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE INTERNAL LAWS OF THE STATE OF CALIFORNIA, WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW. BORROWER, AGENT AND THE LENDERS HEREBY SUBMIT TO THE EXCLUSIVE JURISDICTION OF THE STATE AND FEDERAL COURTS LOCATED IN THE NORTHERN DISTRICT OF CALIFORNIA. BORROWER, AGENT AND THE LENDERS HEREBY WAIVE THEIR RESPECTIVE RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF ANY OF THE TRANSACTION DOCUMENTS OR ANY OF THE TRANSACTIONS CONTEMPLATED THEREIN, INCLUDING CONTRACT CLAIMS, TORT CLAIMS, BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW OR STATUTORY CLAIMS.

Section 9.15 **Successors and Assigns**. This Loan Agreement and the other Transaction Documents shall be binding upon and inure to the benefit of Agent and the Lenders, all future holders of the Note, Borrower and their respective successors and permitted assigns, except that Borrower may not assign or transfer its rights hereunder or thereunder or any interest herein or therein without the prior written consent of Agent unless (A) the Obligations are assumed or guaranteed by the Acquirer or the ultimate parent entity of the Acquirer, and (B) the Acquirer is a creditworthy entity (as determined by Agent in its reasonable discretion). Agent or Lenders may assign all or any portion of their rights hereunder and under one or more Notes to any of its affiliated investment funds or to any one or more financial institutions or funds or an agent or trustee for such financial institutions or funds (an " ***Assignee***") and may sell to any of its affiliated investment funds or to any one or more financial institutions or funds or an agent or trustee for such financial institutions or funds (a "***Participant***") participation interests in Agent's or Lenders' rights hereunder and under one or more Notes. Agent and the Lenders may disclose the Transaction Documents and any other financial or other information relating to Borrower or any Subsidiary to any potential Assignee or Participant, provided that such Participant agrees to protect the confidentiality of such documents and information using the same measures that it uses to protect its own confidential information.

Section 9.16 Counterparts. This Loan Agreement may be executed in any number of counterparts and by different parties hereto on separate counterparts, each of which, when so executed and delivered, shall be an original, but all such counterparts shall together constitute one and the same instrument.

Section 9.17 Further Assurances. Borrower will, at its own expense, from time to time do, execute, acknowledge and deliver all and every further acts, deeds, conveyances, transfers and assurances, and all financing and continuation statements and similar notices, reasonably necessary or proper for the perfection of the security interest being herein provided for in the Collateral, whether now owned or hereafter acquired.

Section 9.18 Entire Agreement. This Loan Agreement and each of the other Transaction Documents, taken together, constitute and contain the entire agreement of Borrower, Agent and the Lenders and supersede any and all prior agreements, negotiations, correspondence, understandings and communications among the parties, whether written or oral, respecting the subject matter hereof.

Section 9.19 Equity Investment. Borrower shall permit Agent and the Lenders, at their option, to purchase in Borrower's next round of private equity financing the securities sold in such equity financing at the same price and on the same terms as paid and received by the lead investor of the equity financing in an aggregate amount of up to five percent (5.0%) of the aggregate amount of the equity financing. Borrower agrees that it shall notify Agent promptly upon the execution by Borrower of a term sheet or letter of intent setting forth the terms and conditions of such financing and in any event within ten (10) days of such execution. Within twenty (20) days of receipt of such notice from Borrower, Agent and the Lenders agree that they shall notify Borrower in writing of their intent to purchase securities in such financing. Agent and the Lenders may assign this right of purchase to their Affiliates.

Article 10. DEFINITIONS.

All terms defined in the Code shall have the respective meanings specified in the Code. In addition, for purposes of this Loan Agreement the following capitalized terms shall have the meanings set forth below:

"***Advance***" shall have the meaning set forth in Section 1.01 of this Loan Agreement.

"***Advance Percentage***" shall mean, with respect to a Lender, the percentage of each Advance specified opposite such Lender's name on Schedule 1 hereto.

"***Affiliate***" shall mean any Person that owns or controls directly or indirectly ten percent (10%) or more of the stock of another entity, any Person that controls or is controlled by or is under common control with such Persons or any Affiliate of such Persons and each of such Person's officers, directors, members, joint venturers or partners. When used with respect to a Lender, Affiliate shall also include any Affiliate of Agent.

"***Borrower's Books***" shall mean all of Borrower's books and records including without limitation: ledgers; records concerning Borrower's assets or liabilities, the Collateral, business operations or financial condition; and all computer programs, or tape files, and the equipment, containing such information.

"***Borrower's Primary Operating Account***" shall have the meaning set forth in Section 5.05 of this Loan Agreement.

"***Business Day***" shall mean any day on which commercial banks are not authorized or required to close in San Francisco, California.

"***Closing***" shall mean the date, time and place as the parties may agree for the execution of this Loan Agreement.

"***Code***" shall mean the Uniform Commercial Code as in effect from time to time in the state of California.

"***Collateral***" shall mean property described on Exhibit B attached hereto.

"***Commitment***" shall have the meaning set forth in Section 1.01 of this Loan Agreement.

"***Contractual Obligation***" of any Person shall mean, any indenture, note, security, deed of trust, mortgage, security agreement, lease, guaranty, instrument, contract, agreement or other form of obligation or undertaking to which such Person is a party or by which such Person or any of its property is bound.

"***Copyrights***" shall mean any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret, now or hereafter existing, created, acquired or held.

"***Default***" shall mean any event or circumstance not yet constituting an Event of Default but which, with the giving of any notice or the lapse of any period of time or both, would become an Event of Default.

"***Default Rate***" shall mean, as of any date of determination, an interest rate per annum equal to five percent (5%) in excess of the rate per annum otherwise applicable on such date.

"***Environmental Laws***" shall mean all Requirements of Law relating to the protection of human health or the environment, including, without limitation, (i) all Requirements of Law, pertaining to reporting, licensing, permitting, investigation, and remediation of emissions, discharges, releases, or threatened releases of hazardous materials, chemical substances, pollutants, contaminants, or hazardous or toxic substances, materials or wastes whether solid, liquid, or gaseous in nature, into the air, surface water, groundwater, or land, or relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport, or handling of chemical substances, pollutants, contaminants, or hazardous or toxic substances, materials, or wastes, whether solid, liquid, or gaseous in nature; and (ii) all Requirements of Law pertaining to the protection of the health and safety of employees or the public.

"***Equipment***" shall mean all present and future machinery, equipment, tenant improvements, furniture, fixtures, vehicles, tools, parts and attachments in which Borrower has any interest.

"***Equity Securities***" of any Person shall mean (i) all common stock, preferred stock, participations, shares, partnership interests, membership interests or other equity interests in and of such Person (regardless of how designated and whether or not voting or non-voting) and (ii) all warrants, options and other rights to acquire any of the foregoing.

"***Event of Default***" shall have the meaning set forth in Article 7 of this Loan Agreement.

"***Event of Loss***" shall have the meaning set forth in Section 5.11(a) of this Loan Agreement.

"***Financial Statements***" shall mean, with respect to any accounting period for any Person, statements of operations, retained earnings and cash flow of such Person for such period, and balance sheets of such Person as of the end of such period, setting forth in each case in comparative form figures for the corresponding period in the preceding fiscal year if such period is less than a full fiscal year or, if such period is a full fiscal year, corresponding figures from the preceding fiscal year, all prepared in reasonable detail and in accordance with generally accepted accounting principles, except in the case of unaudited Financial Statements, for the absence of footnotes and normal year-end adjustments. Unless otherwise indicated, each reference to Financial Statements of any Person shall be deemed to refer to Financial Statements prepared on a consolidated basis.

"***Funding Date***" shall mean any date on which an Advance is made to or on account of Borrower under this Loan Agreement.

"***Funding Termination Date***" shall have the meaning set forth in Section 1.01 of this Loan Agreement.

"***Governmental Authority***" shall mean any domestic or foreign national, state or local government, any political subdivision thereof, any department, agency, authority or bureau of any of the foregoing, or any other entity exercising executive, legislative, judicial, regulatory or administrative functions of or pertaining to government.

"***Governmental Rule***" shall mean any law, rule, regulation, ordinance, order, code interpretation, judgment, decree, directive, guidelines, policy or similar form of decision of any Governmental Authority.

"***Indebtedness***" of any Person shall mean and include the aggregate amount of, without duplication (i) all obligations of such Person for borrowed money, (ii) all obligations of such Person evidenced by bonds, debentures, notes or other similar instruments, (iii) all obligations of such Person to pay the deferred purchase price of property or services (other than accounts payable incurred in the ordinary course of business determined in accordance with generally accepted accounting principles), (iv) all obligations under capital leases of such Person, (v) all obligations or liabilities of others secured by a lien on any asset of such Person, whether or not such obligation or liability is assumed, (vi) all guaranties of such Person of the obligations of another Person, (vii) all obligations created or arising under any conditional sale or other title retention agreement with respect to property acquired by such Person (even if the rights and remedies of the seller or lender under such agreement upon an event of default are limited to repossession or sale of such property), (viii) net exposure under any interest rate swap, currency swap, forward, cap, floor or other similar contract that is not entered to in connection with a bona fide hedging operation that provides offsetting benefits to such Person, which agreements shall be marked to market on a current basis, and (ix) all reimbursement and other payment obligations, contingent or otherwise, in respect of letters of credit.

"***Intellectual Property****"* shall mean*:* (i) Copyrights, Trademarks, Patents, and Mask Works; (ii) any and all trade secrets, and any and all intellectual property rights in computer software and computer software products now or hereafter existing, created, acquired or held; (iii) any and all design rights which may be available to Borrower now or hereafter existing, created, acquired or held; (iv) any and all claims for damages by way of past, present and future infringement of any of the rights included above, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the intellectual property rights identified above; (v) all licenses or other rights to use any of the Copyrights, Patents, Trademarks, or Mask Works, and all license fees and royalties arising from such use; (vi) all amendments, renewals and extensions of any of the Copyrights, Trademarks, Patents or Mask Works; and (vii) all proceeds and products of the foregoing, including without limitation all payments under insurance or any indemnity or warranty payable in respect of any of the foregoing.

"***Inventory***" shall mean all present and future inventory in which Borrower has any interest, including merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products intended for sale or lease or to be furnished under a contract of service, of every kind and description now or at any time hereafter owned by or in the custody or possession, actual or constructive, of Borrower, including such inventory as is temporarily out of its custody or possession or in transit and including any returns upon any accounts or other proceeds, including insurance proceeds, resulting from the sale or disposition of any of the foregoing and any documents of title representing any of the above, and Borrower's Books relating to any of the foregoing.

"***Investment***" shall mean the purchase or acquisition of any capital stock, equity interest, or any obligations or other securities of, or any interest in, any Person, or the extension of any advance, loan, extension of credit or capital contribution to, or any other investment in, any Person.

"***Landlord Waiver***" shall mean the Landlord Waiver substantially in the form attached as Exhibit D hereto.

"***Lien***" shall mean, with respect to any property, any security interest, mortgage, pledge, lien, claim, charge or other encumbrance in, of, or on such property or the income therefrom, including, without limitation, the interest of a vendor or lessor under a conditional sale agreement, capital lease or other title retention agreement, or any agreement to provide any of the foregoing, and the filing of any financing statement or similar instrument under the Code or comparable law of any jurisdiction.

"***Loan Agreement***" shall mean this Loan and Security Agreement, as amended, restated or otherwise modified from time to time.

"***Management Rights Agreement***" shall mean a management rights agreement entered into by Borrower and Agent contemporaneously with the execution of this Loan Agreement.

"***Mask Works***" shall mean all mask works or similar rights available for the protection of semiconductor chips, now owned or hereafter acquired.

"***Material Adverse Effect***" shall mean a material adverse effect on (i) the business, assets, operations, prospects or financial or other condition of Borrower and its Subsidiaries, taken as a whole; (ii) the ability of Borrower and its Subsidiaries to pay or perform the Obligations in accordance with the terms of this Loan Agreement and the other Transaction Documents and to avoid an Event of Default under any Transaction Document; or (iii) the rights and remedies of any Lender under this Loan Agreement, the other Transaction Documents or any related document, instrument or agreement.

"***Note***" shall mean a promissory note or notes of Borrower substantially in the form attached as Exhibit A hereto.

"***Obligations***" shall mean and include all loans, advances, debts, liabilities, and obligations, including, without limitation, the noncancelable obligation to make each payment scheduled to be made under Sections 1.02(b), 1.02(c) and 1.02(d), howsoever arising, owed by Borrower to Lenders of every kind and description (whether or not evidenced by any note or instrument and whether or not for the payment of money), now existing or hereafter arising under or pursuant to the terms of this Loan Agreement or the other Transaction Documents, including, without limitation, all interest, fees, charges, expenses, attorneys' fees and costs and accountants' fees and costs chargeable to and payable by Borrower hereunder and thereunder, in each case, whether direct or indirect, absolute or contingent, due or to become due, and whether or not arising after the commencement of a proceeding under Title 11 of the United States Code (11 U.S.C. Section 101 *et seq*.), as amended from time to time (including post-petition interest) and whether or not allowed or allowable as a claim in any such proceeding.

"***Patents***" shall mean all patents, patent applications and like protections, including without limitation improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same.

"***Payment Date***" shall have the meaning set forth in Section 1.02(b) of this Loan Agreement.

"***Permitted Indebtedness***" shall mean: (i) Indebtedness of Borrower in favor of Lenders arising under this Loan Agreement or any other Transaction Document; (ii) Indebtedness existing at Closing and disclosed on Schedule 2; (iii) Indebtedness secured by a lien described in clause (vi)(A) of the defined term "Permitted Liens," provided (A) such Indebtedness does not exceed the lesser of the cost or fair market value of the equipment financed with such Indebtedness, (B) such Indebtedness does not exceed $500,000 in the aggregate at any given time, and (C) the holder of such Indebtedness agrees to waive any rights of set off such holder may have with respect to such Indebtedness in the deposit or investment accounts of Borrower and its Subsidiaries on terms reasonably satisfactory to Agent; (iv) Subordinated Debt; (v) Indebtedness

incurred for the acquisition of supplies or inventory on normal trade credit; and (vi) extensions, refinancings, modifications, amendments and restatements of any item of Permitted Indebtedness (i) through (v) above.

"***Permitted Investments***" shall mean: (i) Investments existing at Closing disclosed on Schedule 2; (ii) consistent with the Company's Investment Policy, a portfolio with an average maturity of less than one (1) year comprised of instruments with maturities not to exceed two (2) years at time of purchase, including (A) marketable direct obligations issued or unconditionally guaranteed by the United States of America or any agency or any State thereof, (B) commercial paper currently having rating of at least A-2 or P-2 from either Standard & Poor's Corporation or Moody's Investors Service, Inc., and (C) certificates of deposit; (iii) temporary advances to cover incidental expenses in the ordinary course of business; (iv) investments in joint ventures, strategic alliances, licensing and similar arrangements customary in Borrower's industry and which do not require Borrower to assume or otherwise become liable for the obligations of any third party not directly related to or arising out of such arrangement or require Borrower to transfer ownership of non-cash assets to such joint venture or other entity; (v) Investments consisting of (A) travel advances, employee relocation loans and other employee loans and advances in the ordinary course of business not to exceed $50,000 and (B) non-cash loans to employees, officers or directors relating to the purchase of equity securities of Borrower pursuant to employee stock purchase plans or arrangements approved by Borrower's board of directors; (vi) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of business; and (vii) Investments consisting of notes receivable or, prepaid royalties and other credit obligations to customers and suppliers who are not Affiliates, in the ordinary course of business.

"***Permitted Liens***" shall mean and include: (i) Liens in favor of Agent; (ii) Liens existing at Closing and disclosed on Schedule 2; (iii) other Liens subordinated to the Liens in favor of Agent; (iv) Liens of carriers, warehousemen, mechanics, materialmen, vendors, and landlords incurred in the ordinary course of business for sums not overdue or being contested in good faith, provided provision is made to the reasonable satisfaction of Agent for the eventual payment thereof if subsequently found payable; (v) leases or subleases and licenses or sublicenses granted in the ordinary course of Borrower's business; (vi) Liens (A) upon or in any Equipment which was acquired or held by Borrower or any of its Subsidiaries to secure the purchase price of such Equipment or indebtedness incurred solely for the purpose of financing the acquisition of such Equipment, or (B) existing on such equipment at the time of its acquisition, provided that the Lien is confined solely to the property so acquired and improvements thereon, and the proceeds of such equipment; (vii) bankers' liens, rights of setoff and similar Liens incurred on deposits made in the ordinary course of business; (viii) Liens arising from judgments, decrees or attachments in circumstances not constituting an Event of Default; (ix) Liens for taxes or other Taxes not at the time delinquent or thereafter payable without penalty or being contested in good faith, provided provision is made to the reasonable satisfaction of Agent for the eventual payment thereof if subsequently found payable; (x) Liens in favor of customs and revenue authorities arising as a matter of law to secure payments of customs duties in connection with the importation of goods; (xi) Liens on insurance proceeds in favor of insurance companies granted solely as security for financed premiums; and (xii) Liens incurred in connection with the extension, renewal or refinancing of the indebtedness secured by Liens of the type described in clauses (i) through (iii) above, provided that any extension, renewal or replacement Lien shall be limited to the property encumbered by the existing Lien and the principal amount of the indebtedness being extended, renewed or refinanced does not increase.

"***Person***" shall mean and include an individual, a partnership, a corporation (including a business trust), a joint stock company, a limited liability company, an unincorporated association, a joint venture or other entity or a Governmental Authority.

"***Requirement of Law***" applicable to any Person shall mean (i) the articles or certificate of incorporation, bylaws or other governing documents of such Person, (ii) any Governmental Rule applicable to such Person, (iii) any license, permit, approval or other authorization granted by any Governmental Authority to or for the benefit of such Person and (iv) any judgment, decision or determination of any Governmental

Authority or arbitrator, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"***Subordinated Debt***" shall mean any debt incurred by Borrower that is subordinated to the debt owing by Borrower to Lenders on terms reasonably acceptable to Lenders (and identified as being such by Borrower and Lenders).

"***Subsidiary***" of any Person shall mean (i) any corporation of which more than fifty percent (50%) of the issued and outstanding equity securities having ordinary voting power to elect a majority of the Board of Directors of such corporation (irrespective of whether at the time capital stock of any other class or classes of such corporation shall or might have voting power upon the occurrence of any contingency) is at the time directly or indirectly owned or controlled by such Person, by such Person and one or more of its other Subsidiaries or by one or more of such Person's other Subsidiaries, (ii) any partnership, joint venture, or other association of which more than fifty percent (50%) of the equity interest having the power to vote, direct or control the management of such partnership, joint venture or other association is at the time owned and controlled by such Person, by such Person and one or more of the other Subsidiaries or by one or more of such Person's other subsidiaries and (iii) any other Person included in the financial statements of such Person on a consolidated basis. Any reference to a Subsidiary without designation of the ownership of such Subsidiary shall be deemed to refer to a Subsidiary of Borrower.

"*Tax*" or **"*Taxes*"** shall mean any present or future tax, levy, impost, duty, charge, fee, deduction or withholding of any nature and whatever called, by whomsoever, on whomsoever and wherever imposed, levied, collected, withheld or assessed, including interest, penalties, additions to tax and any similar liabilities with respect thereto; except that, in the case of a Lender, there shall be excluded (i) taxes that are imposed on the overall net income or net profits (including franchise taxes imposed in lieu thereof) (a) by the United States, (b) by any other Governmental Authority under the laws of which such Lender is organized or has its principal office or maintains its applicable lending office, or (c) by any jurisdiction solely as a result of a present or former connection between such Lender and such jurisdiction (other than any such connection arising solely from such Lender having executed, delivered or performed its obligations or received a payment under, or enforced, any of the Transaction Documents), and (ii) any branch profits taxes imposed by the United States or any similar tax imposed by any other jurisdiction in which such Lender is located.

"***Trademarks***" shall mean any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Borrower connected with and symbolized by such trademarks.

"***Transaction Documents***" shall mean, collectively, the Loan Agreement, the Notes, the Management Rights Agreement, the Warrant Purchase Agreement, the Warrants and the other documents executed in connection herewith.

"***Warrant***" shall mean a warrant or warrants to purchase capital stock of the Borrower issued by Borrower to an Affiliate of Lenders pursuant to a Warrant Purchase Agreement contemporaneously with the execution of this Loan Agreement.

"***Warrant Purchase Agreement***" shall mean a warrant purchase agreement under which a Warrant is issued entered into by Borrower and an Affiliate of Lenders contemporaneously with the execution of this Loan Agreement.

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IN WITNESS WHEREOF, the parties hereto have executed this Loan Agreement as of the date first written above.

AGENT:

PINNACLE VENTURES, L.L.C.,
a Delaware limited liability company

By: /s/ Robert N. Savoie

Name: Robert N. Savoie

Title: Chief Operating Officer

BORROWER:

ACELRX PHARMACEUTICALS, INC.,
a Delaware corporation

By: /s/ Thomas A. Schreck

Name: Thomas A. Schreck

Title: CEO

LENDERS:

PINNACLE VENTURES II-A (SUB), L.P.,
a Delaware limited partnership
PINNACLE VENTURES II-B, L.P.,
a Delaware limited partnership
PINNACLE VENTURES II-C, L.P.,
a Delaware limited partnership
PINNACLE VENTURES II-R (SUB), L.P.,
a Delaware limited partnership

By: Pinnacle Ventures Management II, L.L.C.,
their general partner

By: /s/ Robert N. Savoie

Name: Robert N. Savoie

Title: Chief Financial Officer

SCHEDULE 1

Lender	Advance Percentage
PINNACLE VENTURES II-A (SUB), L.P.	2%
PINNACLE VENTURES II-B, L.P.	84%
PINNACLE VENTURES II-C, L.P.	7%
PINNACLE VENTURES II-R (SUB), L.P.	7%
TOTAL	100%

SCHEDULE 2

Other Names:	None
Deposit and Securities Accounts:	
Other Collateral Locations:	None
Existing Indebtedness:	Equipment financing of up to $750,000 pursuant to the Security Agreement and Credit Agreement dated March 15, 2007 with Wells Fargo Bank, National Association
Existing Investments:	(see Deposit and Securities Accounts above)
Existing Liens:	Lien on equipment financed pursuant to the Security Agreement and Credit Agreement dated March 15, 2007 with Wells Fargo Bank, National Association (see Existing Indebtedness above)

EXHIBIT A

SECURED PROMISSORY NOTE

$ 12,000,000.00 Dated: November 3, 2008

FOR VALUE RECEIVED, the undersigned, ACELRX PHARMACEUTICALS, INC. ("Borrower"), a Delaware corporation, HEREBY PROMISES TO PAY to the order of Pinnacle Ventures, L.L.C. ("Agent") for the account of the Lenders the principal amount of Twelve Million Dollars ($12,000,000.00) or such lesser amount as shall equal the aggregate outstanding principal balance of the Advance made by Agent on the date hereof to Borrower pursuant to the Loan and Security Agreement referred to below (the "Loan Agreement"), plus all payments arising under Sections 1.02(b) (excluding the portion of the payments representing the original principal amount), 1.02(c) and 1.02(d) of the Loan Agreement with respect to such Advance, on the dates and in the amounts set forth in the Loan Agreement. Capitalized terms used herein and not otherwise defined have the respective meanings set forth in the Loan Agreement.

Payments under this Note shall be made as follows:

Interim Payment on Funding Date:	$ 79,333.33
6 monthly payments on the first Business Day of each Month after the Funding Date	$ 85,000.00, commencing December 1, 2008
30 monthly payments on the first Business Day of each Month after the Funding Date	$ 442,280.96, commencing June 1, 2009
Final Payment:	$ 600,000.00 on November 1, 2011

All other payments due under this Note or under the Loan Agreement shall be payable as and when specified in the Loan Agreement.

This Note is one of the Notes referred to in, and is entitled to the benefits of, the Loan and Security Agreement, dated as of September 16, 2008, between Borrower, Agent and the Lenders. This Note and the obligation of Borrower to repay the unpaid principal amount of the Advance, interest on the Advance, premium, if any, and all other amounts due Agent and Lenders under the Loan Agreement is secured under the Loan Agreement.

Presentment for payment, demand, notice of protest and all other demands and notices of any kind in connection with the execution, delivery, performance and enforcement of this Note are hereby waived.

Borrower shall pay all reasonable fees and expenses, including, without limitation, reasonable attorneys' fees and costs, incurred by Agent or any Lender in the enforcement or attempt to enforce any of Borrower's obligations hereunder not performed when due. This Note shall be governed by, and construed and interpreted in accordance with, the laws of the State of California.

IN WITNESS WHEREOF, Borrower has caused this Note to be duly executed by one of its officers thereunto duly authorized on the date hereof.

ACELRX PHARMACEUTICALS, INC.,
a Delaware corporation

By: /s/ Thomas A. Schreck

Name: Thomas A. Schreck

Title: CEO

EXHIBIT B

The Collateral shall consist of all right, title, interest, claims and demands of Borrower in and to the following:

(a) All goods and equipment now owned or hereafter acquired, including, without limitation, all laboratory equipment, computer equipment, office equipment, machinery, fixtures, vehicles, and any interest in any of the foregoing, and all attachments, accessories, accessions, replacements, substitutions, additions, and improvements to any of the foregoing, wherever located;

(b) All inventory now owned or hereafter acquired, including, without limitation, all merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products including such inventory as is temporarily out of Borrower's custody or possession or in transit and including any returns upon any accounts or other proceeds, including insurance proceeds, resulting from the sale or disposition of any of the foregoing and any documents of title representing any of the above, and Borrower's books relating to any of the foregoing;

(c) All contract rights, general intangibles, health care insurance receivables, payment intangibles and commercial tort claims, now owned or hereafter acquired, including, without limitation, all patents, patent rights (and applications and registrations therefor), trademarks and service marks (and applications and registrations therefor), inventions, copyrights, mask works (and applications and registrations therefor), trade names, trade styles, software and computer programs, trade secrets, methods, processes, know how, drawings, specifications, descriptions, and all memoranda, notes, and records with respect to any research and development, goodwill, license agreements, franchise agreements, blueprints, drawings, purchase orders, customer lists, route lists, infringements, claims, computer programs, computer disks, computer tapes, literature, reports, catalogs, design rights, income tax refunds, payments of insurance and rights to payment of any kind and whether in tangible or intangible form or contained on magnetic media readable by machine together with all such magnetic media;

(d) All now existing and hereafter arising accounts, contract rights, royalties, license rights and all other forms of obligations owing to Borrower arising out of the sale or lease of goods, the licensing of technology or the rendering of services by Borrower (subject, in each case, to the contractual rights of third parties to require funds received by Borrower to be expended in a particular manner), whether or not earned by performance, and any and all credit insurance, guaranties, and other security therefor, as well as all merchandise returned to or reclaimed by Borrower and Borrower's books relating to any of the foregoing;

(e) All documents, cash, deposit accounts letters of credit, letter of credit rights, supporting obligations, certificates of deposit, instruments, chattel paper, electronic chattel paper, tangible chattel paper and investment property, including, without limitation, all securities, whether certificated or uncertificated, security entitlements, securities accounts, commodity contracts and commodity accounts, and all financial assets held in any securities account or otherwise, wherever located, now owned or hereafter acquired and Borrower's books relating to the foregoing; and

(f) Any and all claims, rights and interests in any of the above and all substitutions for, additions and accessions to and proceeds thereof, including, without limitation, insurance, condemnation, requisition or similar payments and the proceeds thereof.

Notwithstanding the foregoing, the Collateral shall not be deemed to include any equipment financed pursuant to the Security Agreement and Credit Agreement dated March 15, 2007 with Wells Fargo Bank, National Association.

Notwithstanding the foregoing, the Collateral shall not be deemed to include any copyrights, copyright applications, copyright registrations and like protection in each work of authorship and derivative work thereof, whether published or unpublished, now owned or hereafter acquired; any patents, patent applications and like protections including without limitation improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same, trademarks, servicemarks and applications therefor, whether registered or not, and the goodwill of the business of Borrower connected with and symbolized by such trademarks, any trade secret rights, including any rights to unpatented inventions, know-how, operating manuals, license rights and agreements and confidential information, now owned or hereafter acquired; or any claims for damage by way of any past, present and future infringement of any of the foregoing (collectively, the “Intellectual Property”), except that the Collateral shall include (A) the proceeds of all the Intellectual Property that are accounts, (i.e. accounts receivable) of Borrower, or general intangibles consisting of rights to payment, and (B) if a judicial authority (including a U.S. Bankruptcy Court) holds that a security interest in the underlying Intellectual Property is necessary to have a security interest in such accounts and general intangibles of Borrower that are proceeds of the Intellectual Property, then the Collateral shall automatically, and effective as of the date of Closing, include the Intellectual Property to the extent necessary to permit perfection of Agent’s security interest in such accounts and general intangibles of Borrower that are proceeds of the Intellectual Property.

EXHIBIT C

LANDLORD WAIVER

_____ ("Landlord") is the owner of real property commonly known as _____ (the " *Premises*") and has leased the Premises to ACELRX PHARMACEUTICALS, INC. (" *Tenant*").

Landlord acknowledges that it has received notice that Tenant has or will enter into a Loan and Security Agreement (the "*Loan Agreement*") with PINNACLE VENTURES L.L.C., as agent for certain Lenders (" *Agent*"), and the lenders party thereto (the "*Lenders*"), whereby Tenant will grant to Agent a first priority security interest in certain equipment (the "*Equipment*"), all or part of which is currently or may be located upon or affixed to the Premises.

Landlord agrees that Agent's rights in the Equipment are superior to any right or claim which Landlord may have and waives and releases any and all rights it may have against the Equipment for any rent or other sums due or to become due, under any lease for the Premises or otherwise, and all claims and demands of every kind against the Equipment.

Landlord agrees that the Equipment will remain personal property and will not become part of the Premises, regardless of the manner in which it may be affixed to real property, and will allow Agent or its agents to enter the Premises any time to remove the Equipment in the exercise of its rights and remedies arising under the Loan Agreement.

This Waiver shall be binding upon the heirs, administrators, executors, successors and assigns of the Landlord, and shall inure to the benefit of the successors and assigns of Agent and the Lenders.

IN WITNESS WHEREOF, the undersigned has executed and delivered this Waiver this _____ day of _____, 2008.

LANDLORD:

_____

By: _____

Name: _____

Title: _____

Exhibit 10.10

ACELRX PHARMACEUTICALS, INC.

NOTE AND WARRANT PURCHASE AGREEMENT

THIS NOTE AND WARRANT PURCHASE AGREEMENT (the "***Agreement***") is made as of the 14th day of September, 2010 (the "***Effective Date***") by and among **ACELRX PHARMACEUTICALS, INC.,** a Delaware corporation (the "***Company***"), and the persons and entities named on the Schedule of Purchasers attached hereto as **EXHIBIT A** (individually, a "***Purchaser***" and collectively, the "***Purchasers***").

RECITAL

WHEREAS, to provide the Company with additional resources to conduct its business, the Purchasers are willing to loan to the Company up to an aggregate amount of up to twelve million dollars ($12,000,000), subject to the conditions specified herein.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing, and the representations, warranties, covenants and conditions set forth below, the Company and each Purchaser, intending to be legally bound, hereby agree as follows:

1. AMOUNT AND TERMS OF THE LOAN(S); ISSUANCE OF WARRANTS

1.1 The Loan(s). Subject to the terms of this Agreement, each Purchaser agrees to lend to the Company the amount set forth opposite each such Purchaser's name on **EXHIBIT A** hereto (each, a "***Loan Amount***" and collectively the "***Total Loan Amount***" or "***Loan***") against the issuance and delivery by the Company of a convertible promissory note or notes for such amount(s), in substantially the form attached hereto as **EXHIBIT B** (each, a "***Note***" and collectively, the "***Notes***"). Each Note shall be convertible into shares of Equity Securities as provided in such Note.

1.2 Issuance of Warrants. At each Closing (as defined below), the Company shall issue and sell to each Purchaser, and each Purchaser shall purchase from the Company, a warrant in substantially the form attached hereto as **EXHIBIT C** (each, a "***Warrant***" and collectively the "***Warrants***") for a purchase price equal to one hundredth of one percent (0.01%) of the principal amount of the Note issued at such Closing (the "***Warrant Purchase Price***"). Each Warrant will be exercisable for the number of shares of preferred stock (rounded to the nearest whole share) at the exercise price as provided for in such Warrant. The shares of preferred stock issuable upon exercise of the Warrants are hereinafter referred to as the "***Warrant Shares***".

1.3 The Company and the Purchasers, as a result of arm's length bargaining, agree that:

(a) Neither the Purchasers nor any affiliated company has rendered any services to the Company in connection with this Agreement;

(b) The Warrants are not being issued as compensation;

(c) The aggregate fair market value of the Notes, if issued apart from the Warrants, is equal to the Total Loan Amount; and the aggregate fair market value of the Warrants, if issued apart from the Notes, is equal to the aggregate Warrant Purchase Price for all Warrants issued in accordance with the terms of this Agreement; and

(d) All tax returns and other information return of each party relative to this Agreement and the Notes and Warrants issued pursuant hereto shall consistently reflect the matters agreed to in (a) through (c) above.

2. THE CLOSING(S)

2.1 Closing Date(s). The initial closing of the sale and purchase of the Notes and Warrants (the "***Initial Closing***") shall be held on the Effective Date, or at such other time as the Company and a majority in interest of the Purchasers shall agree. The portion of the Loan Amount to be funded by each Purchaser at the Initial Closing is set forth on the Schedule of Purchasers hereto.

2.2 Second Closing. At any time on or before one hundred eighty (180) days following the Initial Closing or at such later time as the Requisite Holders (as hereinafter defined) may mutually agree, and upon receipt of the written election of the Requisite Holders, the Company shall issue up to the balance of the authorized Notes and Warrants not sold at the Initial Closing pursuant to this Agreement to Purchasers in their respective amounts as indicated in the Schedule of Purchasers under the heading "Second Closing" (the "***Second Closing***," together with the Initial Closing, the "***Closings***" and each a "***Closing***"). Notwithstanding the above, in the event that the Company is contemplating a Deemed Liquidation (as such term is defined in the Company's Amended and Restated Certificate of Incorporation) of the Company, the consent of the Company must also be obtained in order for the Second Closing to occur. For all sales made at the Second Closing (i) such sales shall be made on the terms and conditions set forth in this Agreement, (ii) the representations and warranties of the Company set forth in Section 3 hereof shall speak as of the Second Closing, except for the representations and warranties contained in Section 3.6, which shall speak only as of the Initial Closing, and (iii) the representations and warranties of the Purchasers in Section 4 hereof shall speak as of such Second Closing.

2.3 Delivery. At each Closing (i) each Purchaser shall deliver to the Company a check or wire transfer funds in the amount of such Purchaser's portion of the Loan Amount funded at such Closing plus the applicable Warrant Purchase Price and (ii) the Company shall issue and deliver to each Purchaser (a) a Note in favor of such Purchaser payable in the principal amount of such Purchaser's portion of the Loan Amount funded at such Closing and (b) a corresponding Warrant, as specified in Section 1.2.

3. REPRESENTATIONS, WARRANTIES AND COVENANTS OF THE COMPANY

The Company hereby represents and warrants to each Purchaser as follows:

3.1 Organization, Good Standing and Qualification. The Company is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware. The Company has the requisite corporate power to own and operate its properties and assets and to carry on its business as now conducted and as proposed to be conducted. The Company is duly qualified and is authorized to do business and is in good standing as a foreign corporation in all jurisdictions in which the nature of its activities and of its properties (both owned and leased) makes such qualification necessary, except for those jurisdictions in which failure to do so would not have a material adverse effect on the Company or its business.

3.2 Corporate Power. The Company has all requisite corporate power to execute and deliver this Agreement, to issue each Note, to issue each Warrant (collectively, the "***Loan Documents***") and to carry out and perform its obligations under the terms of this Agreement and under the terms of each Note and each Warrant. The Company's Board of Directors has approved the Loan Documents

based upon a reasonable belief that the Loan is appropriate for the Company after reasonable inquiry concerning the Company's financing objectives and financial situation.

3.3 Authorization. All corporate action on the part of the Company, its directors and its stockholders necessary for the authorization, execution, delivery and performance of this Agreement by the Company and the performance of the Company's obligations hereunder, including the issuance and delivery of the Notes and Warrants and the reservation of the equity securities issuable upon conversion of the Notes and exercise of the Warrants (collectively, the "***Conversion Securities***") has been taken or will be taken prior to the issuance of such Conversion Securities. This Agreement, the Notes and the Warrants, when executed and delivered by the Company, shall constitute valid and binding obligations of the Company enforceable in accordance with their terms, subject to laws of general application relating to bankruptcy, insolvency, the relief of debtors and, with respect to rights to indemnity, subject to federal and state securities laws. The Conversion Securities, when issued in compliance with the provisions of this Agreement, the Notes and the Warrants will be validly issued, fully paid and nonassessable and free of any liens or encumbrances and issued in compliance with all applicable federal and securities laws.

3.4 Governmental Consents. All consents, approvals, orders, or authorizations of, or registrations, qualifications, designations, declarations, or filings with, any governmental authority, required on the part of the Company in connection with the valid execution and delivery of this Agreement, the offer, sale or issuance of the Notes, the Warrants and the Conversion Securities issuable upon conversion of the Notes, the exercise of the Warrants or the consummation of any other transaction contemplated hereby shall have been obtained and will be effective at the Closing.

3.5 Compliance with Laws. To its knowledge, the Company is not in violation of any applicable statute, rule, regulation, order or restriction of any domestic or foreign government or any instrumentality or agency thereof in respect of the conduct of its business or the ownership of its properties, which violation of which would materially and adversely affect the business, assets, liabilities, financial condition, operations or prospects of the Company.

3.6 Compliance with Other Instruments. The Company is not in violation or default of any term of its certificate of incorporation or bylaws, or of any provision of any mortgage, indenture or contract to which it is a party and by which it is bound or of any judgment, decree, order or writ, other than such violation(s) that would not have a material adverse effect on the Company. The execution, delivery and performance of this Agreement, the Notes and the Warrants, and the consummation of the transactions contemplated hereby or thereby will not result in any such violation or be in conflict with, or constitute, with or without the passage of time and giving of notice, either a default under any such provision, instrument, judgment, decree, order or writ or an event that results in the creation of any lien, charge or encumbrance upon any assets of the Company or the suspension, revocation, impairment, forfeiture, or nonrenewal of any material permit, license, authorization or approval applicable to the Company, its business or operations or any of its assets or properties. Without limiting the foregoing, the Company has obtained all waivers reasonably necessary with respect to any preemptive rights, rights of first refusal or similar rights, including any notice or offering periods provided for as part of any such rights, in order for the Company to consummate the transactions contemplated hereunder without any third party obtaining any rights to cause the Company to offer or issue any securities of the Company as a result of the consummation of the transactions contemplated hereunder.

3.7 Offering. Assuming the accuracy of the representations and warranties of the Purchasers contained in Section 4 hereof, the offer, issue, and sale of the Notes and the Warrants and the Conversion Securities are and will be exempt from the registration and prospectus delivery requirements of the Securities Act of 1933, as amended (the "***Securities Act***"), and have been registered or qualified (or are

exempt from registration and qualification) under the registration, permit, or qualification requirements of all applicable state securities laws.

4. REPRESENTATIONS AND WARRANTIES OF THE PURCHASERS

4.1 Purchase for Own Account. Each Purchaser represents that it is acquiring the Notes, the Warrants and the Conversion Securities (collectively, the "***Securities***") solely for its own account and beneficial interest for investment and not for sale or with a view to distribution of the Securities or any part thereof, has no present intention of selling (in connection with a distribution or otherwise), granting any participation in, or otherwise distributing the same, and does not presently have reason to anticipate a change in such intention.

4.2 Information and Sophistication. Without lessening or obviating the representations and warranties of the Company set forth in Section 3, each Purchaser hereby: (i) acknowledges that it has received all the information it has requested from the Company and it considers necessary or appropriate for deciding whether to acquire the Securities, (ii) represents that it has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of the Securities and to obtain any additional information necessary to verify the accuracy of the information given the Purchaser and (iii) further represents that it has such knowledge and experience in financial and business matters that it is capable of evaluating the merits and risk of this investment.

4.3 Ability to Bear Economic Risk. Each Purchaser acknowledges that investment in the Securities involves a high degree of risk, and represents that it is able, without materially impairing its financial condition, to hold the Securities for an indefinite period of time and to suffer a complete loss of its investment.

4.4 Further Limitations on Disposition. Without in any way limiting the representations set forth above, each Purchaser further agrees not to make any disposition of all or any portion of the Securities unless and until:

(a) There is then in effect a Registration Statement under the Securities Act covering such proposed disposition and such disposition is made in accordance with such Registration Statement; or

(b) The Purchaser shall have notified the Company of the proposed disposition and shall have furnished the Company with a detailed statement of the circumstances surrounding the proposed disposition, and if reasonably requested by the Company, such Purchaser shall have furnished the Company with an opinion of counsel, reasonably satisfactory to the Company, that such disposition will not require registration under the Securities Act or any applicable state securities laws, provided that no such opinion shall be required for dispositions in compliance with Rule 144 promulgated under the Securities Act, except in unusual circumstances.

(c) Notwithstanding the provisions of paragraphs (a) and (b) above, no such registration statement or opinion of counsel shall be necessary for a transfer by such Purchaser to a partner (or retired partner) or member (or retired member) of such Purchaser in accordance with partnership or limited liability company interests, or transfers by gift, will or intestate succession to any spouse or lineal descendants or ancestors, if all transferees agree in writing to be subject to the terms hereof to the same extent as if they were Purchasers hereunder.

4.5 Accredited Investor Status. Each Purchaser is an "accredited investor" as such term is defined in Rule 501 under the Securities Act.

4.6 Foreign Investor. If the Purchaser is not a United States person (as defined by Section 7701(a)(30) of the Internal Revenue Code of 1986, as amended), the Purchaser hereby represents that it has satisfied itself as to the full observance of the laws of its jurisdiction in connection with any invitation to subscribe for the Securities or any use of this Agreement, including (i) the legal requirements within its jurisdiction for the purchase of the Securities, (ii) any foreign exchange restrictions applicable to such purchase, (iii) any governmental or other consents that may need to be obtained, and (iv) the income tax and other tax consequences, if any, that may be relevant to the purchase, holding, redemption, sale, or transfer of the Securities. The Purchaser's subscription and payment for and continued beneficial ownership of the Securities will not violate any applicable securities or other laws of the Purchaser's jurisdiction.

4.7 Further Assurances. Each Purchaser agrees and covenants that at any time and from time to time it will promptly execute and deliver to the Company such further instruments and documents and take such further action as the Company may reasonably require in order to carry out the full intent and purpose of this Agreement and to comply with state or federal securities laws or other regulatory approvals.

5. MARKET STANDOFF AGREEMENT

Each Purchaser hereby agrees that such Purchaser shall not sell, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale, any common stock (or other securities) of the Company held by such Purchaser (other than those included in the registration) for a period specified by the representative of the underwriters of common stock (or other securities) of the Company not to exceed one hundred eighty (180) days following the effective date of a registration statement of the Company filed under the Securities Act (or such longer period, not to exceed eighteen (18) days after the expiration of the one hundred eighty (180) day period, as the underwriters or the Company shall request in order to facilitate compliance with FINRA Rule 2711); *provided* that:

(a) such agreement shall apply only to the Company's first firm commitment underwritten public offering of its common stock registered under the Securities Act; and

(b) all officers and directors of the Company enter into similar agreements.

The Company agrees to use all reasonable efforts to ensure that the "lock-up" obligation of the Purchasers under this Section 5, and any agreement entered into by the Purchasers as a result of their obligations under this Section 5, shall provide that all Purchasers will participate on a pro-rata basis in any early release of portions of the securities of any stockholder subject to such "lock-up" obligations.

6. MISCELLANEOUS

6.1 Binding Agreement. The terms and conditions of this Agreement shall inure to the benefit of and be binding upon the respective successors and assigns of the parties. Nothing in this Agreement, expressed or implied, is intended to confer upon any third party any rights, remedies, obligations, or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement.

6.2 Governing Law. This Agreement shall be governed by and construed under the laws of the State of California as applied to agreements among California residents, made and to be performed entirely within the State of California, without giving effect to conflicts of laws principles.

6.3 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

6.4 Titles and Subtitles. The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 Notices. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed telex, electronic mail or facsimile if sent during normal business hours of the recipient, if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) 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 Company at the address set forth on the signature page hereto, and to Purchaser at the address(es) set forth on the Schedule of Purchasers attached hereto or at such other address(es) as the Company or Purchaser may designate by ten (10) days advance written notice to the other parties hereto.

6.6 Modification; Waiver. No modification or waiver of any provision of this Agreement or consent to departure therefrom shall be effective unless in writing and approved by the Company and the holders of a majority of the aggregate principal amount payable under all the Notes outstanding (such holders being the "***Requisite Holders***"). Any provision of the Notes or Warrants may be amended or waived by the written consent of the Company and Requisite Holders.

6.7 Expenses. The Company and each Purchaser shall each bear its respective expenses and legal fees incurred with respect to this Agreement and the transactions contemplated herein, except that, the Company shall pay the reasonable, documented legal fees and expenses incurred by (a) Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP in its capacity as counsel for certain of the Purchasers, not to exceed seventeen thousand dollars ($17,000) and (b) special counsel to Kaiser Permanente Ventures, not to exceed three thousand dollars ($3,000).

6.8 Waiver of Conflicts. Each party to this Agreement acknowledges that Cooley LLP ("***Cooley***"), outside general counsel to the Company, has in the past performed and is or may now or in the future represent one or more Purchasers or their affiliates in matters unrelated to the transactions contemplated by this Agreement (the "***Bridge Financing***"), including representation of such Purchasers or their affiliates in matters of a similar nature to the Bridge Financing. The applicable rules of professional conduct require that Cooley inform the parties hereunder of this representation and obtain their consent. Cooley has served as outside general counsel to the Company and has negotiated the terms of the Bridge Financing solely on behalf of the Company. The Company and each Purchaser hereby (a) acknowledge that they have had an opportunity to ask for and have obtained information relevant to such representation, including disclosure of the reasonably foreseeable adverse consequences of such representation; (b) acknowledge that with respect to the Bridge Financing, Cooley has represented solely the Company, and not any Purchaser or any stockholder, director or employee of the Company or any Purchaser; and (c) gives its informed consent to Cooley's representation of the Company in the Bridge Financing.

6.9 Delays or Omissions. It is agreed that no delay or omission to exercise any right, power or remedy accruing to each Purchaser, upon any breach or default of the Company under this Agreement or any Note, or Warrant shall impair any such right, power or remedy, nor shall it be construed to be a waiver of any such breach or default, or any acquiescence therein, or of or in any similar breach or default thereafter occurring; nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. It is further agreed that any waiver, permit, consent or approval of any kind or character by Purchaser of any breach or default under this Agreement, or any

waiver by any Purchaser of any provisions or conditions of this Agreement must be in writing and shall be effective only to the extent specifically set forth in writing and that all remedies, either under this Agreement, or by law or otherwise afforded to the Purchaser, shall be cumulative and not alternative.

6.10 Entire Agreement. This Agreement and the Exhibits hereto constitute the full and entire understanding and agreement between the parties with regard to the subjects hereof and no party shall be liable or bound to any other party in any manner by any representations, warranties, covenants and agreements except as specifically set forth herein.

[SIGNATURE PAGES FOLLOW]

IN WITNESS WHEREOF, the parties have executed this **NOTE AND WARRANT PURCHASE AGREEMENT** as of the date first written above.

COMPANY:

ACELRX PHARMACEUTICALS, INC.

By: /s/ Richard King
Richard King
Chief Executive Officer

Address: 575 Chesapeake Drive
Redwood City, CA 94063

PURCHASER:

THREE ARCH PARTNERS III, L.P.
BY THREE ARCH MANAGEMENT III, L.L.C.,
ITS GENERAL PARTNER

By: /s/ Mark Wan
Mark Wan
Managing Member

THREE ARCH ASSOCIATES III, L.P.
BY THREE ARCH MANAGEMENT III, L.L.C.,
ITS GENERAL PARTNER

By: /s/ Mark Wan
Mark Wan
Managing Member

THREE ARCH PARTNERS IV, L.P.
BY THREE ARCH MANAGEMENT IV, L.L.C.,
ITS GENERAL PARTNER

By: /s/ Mark Wan
Mark Wan
Managing Member

THREE ARCH ASSOCIATES IV, L.P.
BY THREE ARCH MANAGEMENT IV, L.L.C.,
ITS GENERAL PARTNER

By: /s/ Mark Wan
Mark Wan
Managing Member

PURCHASER:

Skyline Venture Partners Qualified Purchaser Fund IV, L.P.

By: Skyline Venture Management IV, LLC
Its: General Partner

By: /s/ John G. Freund
Name: John G. Freund
Its: Managing Director

PURCHASER:

ACP IV, L.P.
By: ACMP IV, LLC.
Its: General Partner

By: /s/ Hilary Strain
Chief Financial Officer

PURCHASER:

Kaiser Foundation Hospitals

By: /s/ Thomas Meier
Name: Thomas Meier
Title: SVP & Treasurer

The Permanente Federation LLC – Series I

By: /s/ Glen Hentges
Name: Glen Hentges
Title: CFO

EXHIBIT A

SCHEDULE OF PURCHASERS

INITIAL CLOSING – SEPTEMBER 14, 2010

NAME AND ADDRESS	LOAN AMOUNT	WARRANT PURCHASE PRICE	TOTAL AGGREGATE PURCHASE PRICE
THREE ARCH PARTNERS III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	$1,799,869.22	$179.99	$1,800,049.21
THREE ARCH ASSOCIATES III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	$96,767.17	$9.68	$96,776.85
THREE ARCH PARTNERS IV, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	$1,855,663.23	$185.57	$1,855,848.80
THREE ARCH ASSOCIATES IV, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	$40,973.37	$4.10	$40,977.47
SKYLINE VENTURE PARTNERS QUALIFIED PURCHASER FUND IV, L.P. 525 University Avenue Suite 520 Palo Alto, CA 94301 Fax Number: (650) 329-1090 Attention: Stephen J. Sullivan	$1,977,503.11	$197.76	$1,977,700.87
ACP IV, L.P. One Embarcadero Center Suite 3700 San Francisco, CA 94111 Fax Number: (415) 362-6178 Attention: Guy P. Nohra	$1,742,043.52	$174.21	$1,742,217.73

NAME AND ADDRESS	LOAN AMOUNT	WARRANT PURCHASE PRICE	TOTAL AGGREGATE PURCHASE PRICE
KAISER FOUNDATION HOSPITALS One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Chris M. Grant	$243,590.07	$24.36	$243,614.43
THE PERMANENTE FEDERATION LLC – SERIES I One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Chris M. Grant	$243,590.31	$24.36	$243,614.67
TOTAL:	**$8,000,000.00**	**$800.03**	**$8,000,800.03**

SECOND CLOSING – _____, 2010

NAME AND ADDRESS	COMMITTED LOAN AMOUNT	COMMITTED WARRANT PURCHASE PRICE	TOTAL COMMITTED AGGREGATE PURCHASE PRICE
THREE ARCH PARTNERS III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	$899,934.60	$90.00	$900,024.60
THREE ARCH ASSOCIATES III, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	$48,383.58	$4.84	$ 48,388.42
THREE ARCH PARTNERS IV, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	$927,831.62	$92.79	$927,924.41
THREE ARCH ASSOCIATES IV, L.P. 3200 Alpine Road Portola Valley, CA 94208 Fax Number: (650) 529-8039 Attention: Stephen J. Bonelli	$20,486.69	$2.05	$20,488.74
SKYLINE VENTURE PARTNERS QUALIFIED PURCHASER FUND IV, L.P. 525 University Avenue Suite 520 Palo Alto, CA 94301 Fax Number: (650) 329-1090 Attention: Stephen J. Sullivan	$988,751.55	$98.88	$988,850.43
ACP IV, L.P. One Embarcadero Center Suite 3700 San Francisco, CA 94111 Fax Number: (415) 362-6178 Attention: Guy P. Nohra	$871,021.76	$87.11	$871,108.87

NAME AND ADDRESS	COMMITTED LOAN AMOUNT	COMMITTED WARRANT PURCHASE PRICE	TOTAL COMMITTED AGGREGATE PURCHASE PRICE
KAISER FOUNDATION HOSPITALS One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Chris M. Grant	$121,795.04	$12.18	$121,807.22
THE PERMANENTE FEDERATION LLC – SERIES I One Kaiser Plaza 22nd Floor Oakland, CA 94612 Fax Number: (510) 891-7943 Attention: Chris M. Grant	$121,795.16	$12.18	$121,807.34
TOTAL:	**$4,000,000.00**	**$400.03**	**$4,000,400.03**
GRAND TOTAL:	**$12,000,000.00**	**$1,200.06**	**$12,001,200.06**

EXHIBIT B

FORM OF CONVERTIBLE PROMISSORY NOTE

THIS CONVERTIBLE PROMISSORY NOTE HAS NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"). NO SALE OR DISPOSITION MAY BE EFFECTED EXCEPT IN COMPLIANCE WITH RULE 144 UNDER THE SECURITIES ACT OR AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR AN OPINION OF COUNSEL FOR THE HOLDER SATISFACTORY TO THE PAYOR THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE SECURITIES ACT OR RECEIPT OF A NO-ACTION LETTER FROM THE SECURITIES AND EXCHANGE COMMISSION.

THIS CONVERTIBLE PROMISSORY NOTE AND THE RIGHTS AND OBLIGATIONS EVIDENCED HEREBY ARE SUBORDINATE IN THE MANNER AND TO THE EXTENT SET FORTH IN SECTION 9 HEREOF, AND EACH HOLDER OF THIS CONVERTIBLE PROMISSORY NOTE, BY ITS ACCEPTANCE HEREOF, SHALL BE BOUND BY THE PROVISIONS THEREOF.

CONVERTIBLE PROMISSORY NOTE

$_____ **September 14, 2010**
Redwood City, California

For value received **ACELRX PHARMACEUTICALS, INC.,** a Delaware corporation ("***Payor***") promises to pay to _____ or its assigns ("***Holder***") the principal sum of _____ with interest on the outstanding principal amount at the rate of four percent (4.0%) per annum, compounded annually. Interest shall commence with the date hereof and shall continue until paid in full or converted. Interest shall be computed on the basis of a year of three hundred sixty days (360) days for the actual number of days elapsed.

1. Purchase Agreement. This convertible promissory note (the "***Note***") is issued as part of a series of similar notes (collectively, the "***Notes***") issued or issuable pursuant to the terms of that certain Note and Warrant Purchase Agreement, dated September 14, 2010, as it may be amended from time to time (the "***Agreement***") to the persons and entities listed on the Schedule of Purchasers thereof (collectively, the "***Holders***"). Any capitalized terms used but not defined herein shall have the meanings ascribed to them in the Agreement.

2. Application of Payments. All payments of interest and principal shall be in lawful money of the United States of America and shall be made pro rata among all Holders. All payments under this Note shall be applied first to accrued interest, and thereafter to principal.

3. Conversion.

(a) Maturity Date; Mandatory Conversion upon a Qualified Financing . In the event that Payor issues and sells shares of its Equity Securities (as defined hereinafter) on or before September 14, 2011 (the " ***Maturity Date***"), which shall be subject to extension as provided in Section 4 hereof, in an equity financing with total proceeds to Payor of not less than fifteen million dollars ($15,000,000) (excluding the conversion of the Notes) (a " ***Qualified Financing***"), then the outstanding balance of this Note (including interest accrued hereunder) shall automatically convert in whole without any further action by the Holder into such Equity Securities at a conversion price equal to the price per share paid by the investors purchasing the Equity Securities and on the same terms and conditions as given to the investors in the Qualified Financing. For purposes of this Note, the following terms shall have the meanings as set forth:

(i) "***Equity Securities***" shall mean Payor's Preferred Stock or any securities conferring the right to purchase Payor's Preferred Stock or securities convertible into, or exchangeable for (with or without additional consideration), Payor's Preferred Stock (excluding the Note and the Warrant), issued in the Qualified Financing, following the date hereof, except that such defined term shall not include any security granted, issued and/or sold by Payor to any employee, director or consultant in such capacity.

(b) Mandatory Conversion Upon a Initial Offering. If the Payor sells shares in a firm-commitment underwritten initial public offering prior to a Qualified Financing (the "***IPO***"), the outstanding balance of this Note (including interest accrued hereunder) shall automatically convert, effective immediately prior to the closing of the IPO, in whole without any further action by the Holder into the shares of stock issued by the Payor in the IPO at a conversion price equal to eighty percent (80%) of the gross public offering price per share of the stock sold by Payor in the IPO.

(c) Optional Conversion Upon a Corporate Transaction. To the extent this Note remains outstanding and has not been earlier converted pursuant to Sections 3(a) or 3(b) above, Payor shall provide the Holder ten (10) days advance written notice of the closing of any proposed Liquidation Transaction (as such term is defined in the Payor's Amended and Restated Certificate of Incorporation, as amended), and upon the election of the Requisite Holders to convert all of the Notes evidenced by the delivery of a written notice of such election to Payor at least two (2) business days prior to the closing of such proposed Liquidation Transaction, the outstanding balance of this Note (including interest accrued hereunder) shall automatically convert in whole without any further action by the Holder into shares of Payor's Series C Preferred Stock at the original issue price for such stock, as adjusted for stock splits, stock dividends, reclassification and the like, which as of the date hereof is equal to $0.9857 per share (the "***Series C Price***").

(d) Mandatory Conversion Upon Consent of Requisite Holders . To the extent this Note remains outstanding after the Maturity Date and has not been earlier converted pursuant to Sections 3(a), 3(b) or 3(c) above, then upon the election of the Requisite Holders to convert all of the Notes evidenced by the delivery of a written notice of such election to Payor at any time after (30) days following the Maturity Date, the outstanding balance of this Note (including interest accrued hereunder) shall automatically convert in whole without any further action by the Holder into shares of Payor's Series C Preferred Stock at the Series C Price (a "***Maturity Conversion***").

4. Due On Maturity Date. Unless this Note has been converted in accordance with the terms of Section 3 above, the entire outstanding principal balance and all unpaid accrued interest shall become fully due and payable on the Maturity Date; *provided, however*, the Maturity Date may be extended with the consent of the Requisite Holders.

5. Prepayment. Payor may not prepay this Note prior to the Maturity Date unless the Requisite Holders consent to such prepayment, in which case, this Note may be prepaid by Payor without penalty.

6. Events of Default. If there shall be any Event of Default hereunder, at the option and upon the declaration of the Requisite Holders and upon written notice to the Payor (which election and notice shall not be required in the case of an Event of Default under Section 6(c) or 6(d)), this Note shall accelerate and all principal and unpaid accrued interest shall become due and payable. The occurrence of any one or more of the following shall constitute an Event of Default:

(a) Payor fails to pay timely any of the principal amount due under this Note on the date the same becomes due and payable or any accrued interest or other amounts due under this Note on

the date the same becomes due and payable and such payment shall remain unpaid thirty (30) days following the due date;

(b) Payor shall default in its performance of any covenant under the Agreement and such failure remains unremedied for thirty (30) days following Payor's receipt of notice of such default;

(c) Payor files any petition or action for relief under any bankruptcy, reorganization, insolvency or moratorium law or any other law for the relief of, or relating to, debtors, now or hereafter in effect, or makes any assignment for the benefit of creditors or takes any corporate action in furtherance of any of the foregoing; or

(d) An involuntary petition is filed against Payor (unless such petition is dismissed or discharged within sixty (60) days under any bankruptcy statute now or hereafter in effect, or a custodian, receiver, trustee, assignee for the benefit of creditors (or other similar official) is appointed to take possession, custody or control of any property of Payor.

7. Waiver of Demand. Payor hereby waives demand, notice, presentment, protest and notice of dishonor.

8. Governing Law. This Note shall be governed by construed and under the laws of the State of California, as applied to agreements among California residents, made and to be performed entirely within the State of California, without giving effect to conflicts of laws principles.

9. Subordination. The payment of all amounts owed under this Note and all other obligations, liabilities or indebtedness of every nature of Payor to Holder pursuant to this Note, whether now existing or hereafter arising (collectively, the ***"Subordinated Debt***") is hereby subordinated to the payment in full in cash of all Senior Debt (as defined below), and no payments or other distributions whatsoever in respect of any Subordinated Debt shall be made by the Payor and no property or assets of the Payor shall be applied to the purchase, redemption or other acquisition or retirement of any Subordinated Debt, until the Senior Debt shall have been indefeasibly paid in full in cash and discharged and all financing arrangements between the Payor and all of the Senior Lenders (as defined below) under any document or instrument evidencing or securing Senior Debt have been terminated, and all obligations under any letter of credit issued by any Senior Lender for the account of Payor shall have terminated or expired; *provided, however*, nothing in this Section 9 shall prevent or otherwise prohibit Holder from converting the indebtedness evidenced by this Note pursuant to Section 3 of this Note. As used herein, (a) ***"Senior Debt***" shall mean any and all obligations, indebtedness and liabilities now or hereafter owing or due from Payor to any Senior Lender howsoever created, arising or evidenced, whether direct or indirect, absolute or contingent, due or to become due, now existing pursuant to that certain Loan and Security Agreement dated September 16, 2008, among Payor, the Lenders and Pinnacle Ventures, L.L.C., as agent to the Lenders (the ***"Loan and Security Agreement***"); and (b) ***"Senior Lenders***" shall mean the lenders identified on Schedule 1 (the "Lenders") to the Loan and Security Agreement.

10. Amendment. Any term of this Note may be amended or waived with the written consent of Payor and the Requisite Holders, provided that all Notes are similarly affected. Upon the effectuation of any amendment or waiver in conformance with this Section 10, Payor shall promptly given written notice thereof to the Holders of the Notes who have not previously consented thereto in writing.

11. **Transfer**. This Note may be transferred only upon its surrender to Payor for registration of transfer, duly endorsed, or accompanied by a duly executed written instrument of transfer in form satisfactory to Payor. Thereupon, this Note shall be reissued to, and registered in the name of, the transferee, or a new Note for like principal amount and interest shall be issued to, and registered in the name of, the transferee. Interest and principal shall be paid solely to the registered holder of this Note. Such payment shall constitute full discharge of Payor's obligation to pay such interest and principal.

12. **Notices**. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient, if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) 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 Payor at the address listed below and to Holder at the address designated on the records of Payor or at such other address as Payor or Holder may designate by ten (10) days' advance written notice to the other parties hereto.

13. **Expenses**. Payor hereby agrees, subject only to any limitation imposed by applicable law, to pay all expenses, including reasonable attorneys' fees and legal expenses, incurred by the holder of this Note ("***Costs***") in endeavoring to collect any amounts payable hereunder which are not paid when due, whether by declaration or otherwise. Payor agrees that any delay on the part of Holder in exercising any rights hereunder will not operate as a waiver of such rights. Holder shall not by any act, delay, omission or otherwise be deemed to have waived any of its rights or remedies, and no waiver of any kind shall be valid unless in writing and signed by the party or parties waiving such rights or remedies.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, Payor has executed this Convertible Promissory Note as of the date first written above.

PAYOR:

ACELRX PHARMACEUTICALS, INC.

By: _____

Richard King
Chief Executivel Officer

Address: 575 Chesapeake Drive
Redwood City, CA 94063

EXHIBIT C

FORM OF WARRANT

THIS WARRANT AND THE UNDERLYING SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"). THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO SUCH SECURITIES UNDER THE SECURITIES ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED.

ACELRX PHARMACEUTICALS, INC.

WARRANT TO PURCHASE PREFERRED STOCK

No. PW-_____ **September 14, 2010**

THIS CERTIFIES THAT, for value received, _____, with its principal office at _____, or its permitted assigns (the "***Holder***"), is entitled to subscribe for and purchase from **ACELRX PHARMACEUTICALS, INC.**, a Delaware corporation, with its principal office at 575 Chesapeake Drive, Redwood City, CA 94063 (the "***Company***") the Exercise Shares at the Exercise Price (each subject to adjustment as provided herein). This Warrant is being issued pursuant to that certain Note and Warrant Purchase Agreement, dated as of September 14, 2010, among Holder and the Company, and the other parties named therein (the " ***Purchase Agreement***"). The aggregate number of Exercise Shares that Holder may purchase by exercising this warrant is equal to twenty-five percent (25%) of the Loan Amount advanced to the Company by the Holder at the applicable Closing (as defined in the Purchase Agreement) on the date hereof, in accordance with the Purchase Agreement, divided by the Exercise Price (subject to adjustment pursuant to the terms hereof, including but not limited to adjustments pursuant to Section 5 below).

1. DEFINITIONS. As used herein, the following terms shall have the following respective meanings:

(a) "***Exercise Period***" shall mean the period commencing with the date hereof and ending on September 14, 2017, unless sooner terminated in accordance with Section 7 below.

(b) "***Exercise Price***" shall mean (a) if the Exercise Shares are the type of Preferred Stock issued in the Qualified Financing, an amount equal to the per share selling price of shares of that stock issued in the Qualified Financing and (b) if the Exercise Shares are Series C Preferred Stock, the Series C Price, subject in each case to adjustment pursuant to Section 5 hereof.

(c) "***Exercise Shares***" shall mean (i) if the Qualified Financing is closed on or before the Maturity Date, the Preferred Stock sold in the Qualified Financing and (ii) (x) if the Qualified Financing is not closed on or before the Maturity Date, (y) if an Initial Offering or Liquidation Transaction occurs prior to the closing of the Qualified Financing or (z) in the event of a Maturity Conversion, the Series C Preferred Stock. The number and character of shares of Exercise Shares are subject to adjustment as provided herein and the term "Exercise Shares" shall include stock and other securities and property at any time receivable or issuable upon exercise of this Warrant in accordance with its terms.

(d) "***Initial Offering***" shall mean the first firm commitment underwritten public offering of its common stock registered under the Securities Act.

(e) "***Investor Rights Agreement***" shall mean the Amended and Restated Investor Rights Agreement, by and among the Company and the persons and entities listed on Exhibit A thereto, dated as of November 23, 2009, as may be amended from time to time.

(f) "***Liquidation Transaction***" shall have the meaning set forth in the Restated Certificate.

(g) "***Maturity Conversion***" shall have the meaning set forth in the Notes.

(h) "***Maturity Date***" shall have the meaning set forth in the Notes.

(i) "***Notes***" shall have the meaning set forth in the Purchase Agreement.

(j) "***Loan Amount***" shall have the meaning set forth in the Purchase Agreement.

(k) "***Preferred Stock***" shall mean the preferred stock of the Company.

(l) "***Qualified Financing***" shall have the meaning set forth in the Notes.

(m) "***Requisite Holders***" shall have the meaning set forth in the Purchase Agreement.

(n) "***Restated Certificate***" shall mean the Company's Amended and Restated Certificate of Incorporation, as it may be amended from time to time.

(o) "***Securities Act***" shall mean the Securities Act of 1933, as amended.

(p) "***Series C Preferred Stock***" shall mean the Series C Preferred Stock of the Company.

(q) "***Series C Price***" shall have the meaning set forth in the Notes, which as of the date hereof is equal to $0.9857.

2. EXERCISE OF WARRANT.

2.1 General. The rights represented by this Warrant may be exercised in whole or in part at any time during the Exercise Period, by delivery of the following to the Company at its address set forth above (or at such other address as it may designate by notice in writing to the Holder):

(a) An executed Notice of Exercise in the form attached hereto as **EXHIBIT A**;

(b) Payment of the Exercise Price either (i) in cash or by check, or (ii) by cancellation of indebtedness; and

(c) This Warrant.

Upon the exercise of the rights represented by this Warrant, a certificate or certificates for the Exercise Shares so purchased, registered in the name of the Holder or persons affiliated with the Holder, if the Holder so designates, shall be issued and delivered to the Holder within a reasonable time after the rights represented by this Warrant shall have been so exercised. In the event that this Warrant is being exercised for less than all of the then-current number of Exercise Shares purchasable hereunder, the Company shall, concurrently with the issuance by the Company of the number of Exercise Shares for which this Warrant is then being exercised, issue a new Warrant exercisable for the remaining number of Exercise Shares purchasable hereunder.

The person in whose name any certificate or certificates for Exercise Shares are to be issued upon exercise of this Warrant shall be deemed to have become the holder of record of such shares on the date on which this Warrant was surrendered and payment of the Exercise Price was made, irrespective of the date of delivery of such certificate or certificates, except that, if the date of such surrender and payment is

a date when the stock transfer books of the Company are closed, such person shall be deemed to have become the holder of such shares at the close of business on the next succeeding date on which the stock transfer books are open.

2.2 Net Exercise. In lieu of exercising this Warrant by payment of cash, the Holder may elect to receive shares equal to the value (as determined below) of this Warrant (or the portion thereof being canceled) by surrender of this Warrant at the principal office of the Company together with the properly endorsed Notice of Exercise in which event the Company shall issue to the Holder a number of Exercise Shares computed using the following formula:

$$X = \frac{Y\ (A-B)}{A}$$

Where X = the number of Exercise Shares to be issued to the Holder

Y = the number of Exercise Shares purchasable under the Warrant or, if only a portion of the Warrant is being exercised, that portion of the Warrant being canceled (at the date of such calculation)

A = the fair market value of one Exercise Share (at the date of such calculation)

B = Exercise Price (as adjusted to the date of such calculation)

For purposes of the above calculation, the fair market value of one Exercise Share shall be determined by the Company's Board of Directors in good faith; provided, however, that in the event that this Warrant is exercised pursuant to this Section 2.2 in connection with the Initial Offering of the Company's Common Stock, the fair market value per share shall be the product of (i) the per share offering price to the public in the Initial Offering, and (ii) the number of shares of Common Stock into which each Exercise Share is convertible at the time of such exercise.

3. COVENANTS OF THE COMPANY.

3.1 Covenants as to Exercise Shares. The Company covenants and agrees that all Exercise Shares that may be issued upon the exercise of the rights represented by this Warrant will, upon issuance, be validly issued and outstanding, fully paid and nonassessable, and free from all taxes, liens and charges with respect to the issuance thereof. The Company further covenants and agrees that the Company will at all times during the Exercise Period, have authorized and reserved, free from preemptive rights, a sufficient number of shares of the series of equity securities comprising the Exercise Shares to provide for the exercise of the rights represented by this Warrant. If at any time during the Exercise Period the number of authorized but unissued shares of such series of the Company's equity securities shall not be sufficient to permit exercise of this Warrant, the Company will take such corporate action as may, in the opinion of its counsel, be necessary to increase its authorized but unissued shares of such series of the Company's equity securities to such number of shares as shall be sufficient for such purposes.

3.2 Notices of Record Date. In the event of any taking by the Company of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend or other distribution, the Company shall mail to the Holder, at least ten (10) days prior to the date specified herein, a notice specifying the date on which any such record is to be taken for the purpose of such dividend or distribution.

4. REPRESENTATIONS OF HOLDER.

4.1 Acquisition of Warrant for Personal Account. The Holder represents and warrants that it is acquiring the Warrant and the Exercise Shares solely for its account for investment and not with a view to or for sale or distribution of said Warrant or Exercise Shares or any part thereof. The Holder also represents that the entire legal and beneficial interests of the Warrant and Exercise Shares the Holder is acquiring is being acquired for, and will be held for, its account only.

4.2 Securities Are Not Registered.

(a) The Holder understands that the Warrant and the Exercise Shares have not been registered under the Securities Act on the basis that no distribution or public offering of the stock of the Company is to be effected. The Holder realizes that the basis for the exemption may not be present if, notwithstanding its representations, the Holder has a present intention of acquiring the securities for a fixed or determinable period in the future, selling (in connection with a distribution or otherwise), granting any participation in, or otherwise distributing the securities. The Holder has no such present intention.

(b) The Holder recognizes that the Warrant and the Exercise Shares must be held indefinitely unless they are subsequently registered under the Securities Act or an exemption from such registration is available. The Holder recognizes that the Company has no obligation to register the Warrant or the Exercise Shares of the Company, or to comply with any exemption from such registration.

(c) The Holder is aware that neither the Warrant nor the Exercise Shares may be sold pursuant to Rule 144 adopted under the Securities Act unless certain conditions are met, including, among other things, the existence of a public market for the shares, the availability of certain current public information about the Company, the resale following the required holding period under Rule 144 and the number of shares being sold during any three month period not exceeding specified limitations. Holder is aware that the conditions for resale set forth in Rule 144 have not been satisfied and that the Company presently has no plans to satisfy these conditions in the foreseeable future.

4.3 Disposition of Warrant and Exercise Shares.

(a) The Holder further agrees not to make any disposition of all or any part of the Warrant or Exercise Shares in any event unless and until:

(i) The Company shall have received a letter secured by the Holder from the Securities and Exchange Commission stating that no action will be recommended to the Commission with respect to the proposed disposition;

(ii) There is then in effect a registration statement under the Securities Act covering such proposed disposition and such disposition is made in accordance with said registration statement; or

(iii) The Holder shall have notified the Company of the proposed disposition and shall have furnished the Company with a detailed statement of the circumstances surrounding the proposed disposition, and if reasonably requested by the Company, the Holder shall have furnished the Company with an opinion of counsel, reasonably satisfactory to the Company, for the Holder to the effect that such disposition will not require registration of such Warrant or Exercise Shares under the Securities Act or any applicable state securities laws. The Company agrees that it will not require an opinion of counsel with respect to transactions under Rule 144 of the Securities Act, except in unusual circumstances.

(b) The Holder understands and agrees that all certificates evidencing the shares to be issued to the Holder may bear the following legend:

THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "***SECURITIES ACT***"). THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT AS TO THE SECURITIES UNDER THE SECURITIES ACT OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED.

4.4 Accredited Investor Status. The Holder is an "accredited investor" as defined in Regulation D promulgated under the Securities Act.

5. ADJUSTMENT OF EXERCISE PRICE AND NUMBER OF EXERCISE SHARES.

5.1 Changes in Securities. In the event of changes in the series of equity securities of the Company comprising the Exercise Shares by reason of stock dividends, splits, recapitalizations, reclassifications, combinations or exchanges of shares, separations, reorganizations, liquidations, or the like, the number and class of Exercise Shares available under the Warrant in the aggregate and the Aggregate Exercise Price shall be correspondingly adjusted to give the Holder of the Warrant, on exercise for the same Aggregate Exercise Price, the total number, class, and kind of shares as the Holder would have owned had the Warrant been exercised prior to the event and had the Holder continued to hold such shares until after the event requiring adjustment; provided, however, that such adjustment shall not be made with respect to, and this Warrant shall terminate if not exercised prior to, the events set forth in Section 7 below. For purposes of this Section 5, the "***Aggregate Exercise Price***" shall mean the aggregate Exercise Price payable in connection with the exercise in full of this Warrant. The form of this Warrant need not be changed because of any adjustment in the number of Exercise Shares subject to this Warrant.

5.2 Automatic Conversion. Upon the automatic conversion of all outstanding shares of the series of equity securities comprising the Exercise Shares, this Warrant shall become exercisable for that number of shares of Common Stock of the Company into which the Exercise Shares would then be convertible, so long as such shares, if this Warrant had been exercised prior to such automatic conversion, would have been converted into shares of the Company's Common Stock pursuant to the Restated Certificate. In such case, all references to "Exercise Shares" shall mean shares of the Company's Common Stock issuable upon exercise of this Warrant, as appropriate.

6. FRACTIONAL SHARES. No fractional shares shall be issued upon the exercise of this Warrant as a consequence of any adjustment pursuant hereto. All Exercise Shares (including fractions) to be issued upon exercise of this Warrant shall be aggregated for purposes of determining whether the exercise would result in the issuance of any fractional share. If, after aggregation, the exercise would result in the issuance of a fractional share, the Company shall, in lieu of issuance of any fractional share, pay the Holder otherwise entitled to such fraction a sum in cash equal to the product resulting from multiplying the then current fair market value of one Exercise Share by such fraction.

7. EARLY TERMINATION. In the event of, at any time during the Exercise Period, an Initial Offering or a Liquidation Transaction, the Company shall provide to the Holder ten (10) days' advance written notice of such Initial Offering or Liquidation Transaction, and this Warrant shall terminate unless exercised immediately prior to the date such Initial Offering is closed or the closing of such Liquidation Transaction.

8. REGISTRATION RIGHTS. To the extent the Holder is a party to the Investor Rights Agreement, the Exercise Shares issuable upon exercise of this Warrant shall be deemed "Registrable Securities" for all purposes under the Investor Rights Agreement and shall be subject to the rights and covenants therein.

9. MARKET STAND-OFF AGREEMENT. The Holder acknowledges and agrees that any and all shares of common stock of the Company acquired by Holder pursuant to the exercise of this Warrant shall be irrevocably and unconditionally subject to the "Market Stand-Off" provision set forth in Section 5 of the Purchase Agreement.

10. NO STOCKHOLDER RIGHTS. This Warrant in and of itself shall not entitle the Holder to any voting rights or other rights as a stockholder of the Company.

11. TRANSFER OF WARRANT. Subject to applicable laws and the restriction on transfer set forth on the first page of this Warrant, this Warrant and all rights hereunder are transferable in full only, by the Holder in person or by duly authorized attorney, upon delivery of this Warrant and the form of assignment attached hereto as **EXHIBIT B** to any transferee designated by Holder. The transferee shall sign an investment letter in form and substance satisfactory to the Company.

12. LOST, STOLEN, MUTILATED OR DESTROYED WARRANT. If this Warrant is lost, stolen, mutilated or destroyed, the Company may, on such terms as to indemnity or otherwise as it may reasonably impose (which shall, in the case of a mutilated Warrant, include the surrender thereof), issue a new Warrant of like denomination and tenor as the Warrant so lost, stolen, mutilated or destroyed. Any such new Warrant shall constitute an original contractual obligation of the Company, whether or not the allegedly lost, stolen, mutilated or destroyed Warrant shall be at any time enforceable by anyone.

13. AMENDMENT. Any term of this Warrant may be amended or waived with the written consent of the Company and the Requisite Holders, provided that all Warrants are similarly affected. Upon the effectuation of any such amendment or waiver in conformance with this Section 13, the Company shall promptly give written notice thereof to the record holders of the Warrants who have not previously consented thereto in writing.

14. NOTICES. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient, if not, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) 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 Company at the address listed above and to Holder at the address listed above or at such other address as the Company or Holder may designate by ten (10) days' advance written notice to the other parties hereto.

15. ACCEPTANCE. Receipt of this Warrant by the Holder shall constitute acceptance of and agreement to all of the terms and conditions contained herein.

16. GOVERNING LAW. This Warrant and all rights, obligations and liabilities hereunder shall be governed by and construed under the laws of the State of California as applied to agreements among California residents, made and to be performed entirely within the State of California without giving effect to conflicts of laws principles.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Company has caused this Warrant to be executed by its duly authorized officer as of the date first written above.

ACELRX PHARMACEUTICALS, INC.

By: _____

Richard King
Chief Executive Officer

EXHIBIT A

NOTICE OF EXERCISE

TO: ACELRX PHARMACEUTICALS, INC.

(1) ☐ The undersigned hereby elects to purchase _____ shares of Preferred Stock (as such term is defined in the foregoing Warrant) (the "***Exercise Shares***") of **ACELRX PHARMACEUTICALS, INC.** (the "***Company***") pursuant to the terms of the attached Warrant, and tenders herewith payment of the exercise price in full, together with all applicable transfer taxes, if any; or

☐ The undersigned hereby elects to purchase _____ shares of Preferred Stock (as such term is defined in the foregoing Warrant) (the "***Exercise Shares***") of **ACELRX PHARMACEUTICALS, INC.** (the "***Company***") pursuant to the terms of the net exercise provisions set forth in Section 2.1 of the attached Warrant, and shall tender payment of all applicable transfer taxes, if any.

(2) Please issue a certificate or certificates representing said Exercise Shares in the name of the undersigned or in such other name as is specified below:

_____
(Name)

_____

_____
(Address)

(3) The undersigned represents that (i) the aforesaid Exercise Shares are being acquired for the account of the undersigned for investment and not with a view to, or for resale in connection with, the distribution thereof and that the undersigned has no present intention of distributing or reselling such shares; (ii) the undersigned is aware of the Company's business affairs and financial condition and has acquired sufficient information about the Company to reach an informed and knowledgeable decision regarding its investment in the Company; (iii) the undersigned is experienced in making investments of this type and has such knowledge and background in financial and business matters that the undersigned is capable of evaluating the merits and risks of this investment and protecting the undersigned's own interests; (iv) the undersigned understands that Exercise Shares issuable upon exercise of this Warrant have not been registered under the Securities Act of 1933, as amended (the "***Securities Act***"), by reason of a specific exemption from the registration provisions of the Securities Act, which exemption depends upon, among other things, the bona fide nature of the investment intent as expressed herein, and, because such securities have not been registered under the Securities Act, they must be held indefinitely unless subsequently registered under the Securities Act or an exemption from such registration is available; (v) the undersigned is aware that the aforesaid Exercise Shares may not be sold pursuant to Rule 144 adopted under the Securities Act unless certain conditions are met and until the undersigned has held the shares for the time period prescribed by Rule 144, that among the conditions for use of the Rule is the availability of current information to the public about the Company and the Company has not made such information available and has no present plans to do so; and (vi) the undersigned agrees not to make any disposition of all or any part of the aforesaid shares of Exercise Shares unless and until there is then in effect a registration statement under the Securities Act covering such proposed disposition and such disposition is made in accordance with said registration statement, or, if reasonably requested by the Company, the undersigned has provided the Company with an opinion of counsel satisfactory to the Company, stating that such registration is not required.

_____ _____
(Date) (Signature)

_____
(Print name)

EXHIBIT B

ASSIGNMENT FORM

(To assign the foregoing Warrant, execute this form and supply required information. Do not use this form to purchase shares.)

FOR VALUE RECEIVED, the foregoing Warrant and all rights evidenced thereby are hereby assigned to

Name: _____
(Please Print)

Address: _____
(Please Print)

Dated: _____, 20__

Holder's
Signature: _____

Holder's
Address: _____

NOTE: The signature to this Assignment Form must correspond with the name as it appears on the face of the Warrant, without alteration or enlargement or any change whatever. Officers of corporations and those acting in a fiduciary or other representative capacity should file proper evidence of authority to assign the foregoing Warrant.

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 (Form S-1) and related Prospectus of AcelRx Pharmaceuticals, Inc. dated November 12, 2010.

/s/ Ernst & Young LLP

San Francisco, California
November 12, 2010