

ARENA PHARMACEUTICALS INC

Form 424B2

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PROSPECTUS

Arena Pharmaceuticals, Inc.

Common Stock

We may, from time to time, offer to sell up to 25,000,000 shares of our common stock at prices and on terms described in one or more supplements to this prospectus.

This prospectus describes some of the general terms that may apply to an offering of our common stock. The specific terms and any other information relating to a specific offering will be set forth in a post-effective amendment to the registration statement of which this prospectus is a part or in a supplement to this prospectus or may be set forth in one or more documents incorporated by reference in this prospectus. You should read this prospectus, the information incorporated by reference in this prospectus and any prospectus supplement carefully before you invest.

Shares of our common stock may be sold by us to or through underwriters or dealers, directly to purchasers or through agents designated from time to time. For additional information on the methods of sale, you should refer to the section entitled "Plan of Distribution" in this prospectus. If any underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such underwriters and any applicable discounts or commissions and over-allotment options will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

Our common stock is listed on the Nasdaq Global Market under the symbol ARNA. On March 23, 2009, the last reported sale price of our common stock on the Nasdaq Global Market was \$4.20 per share.

Investing in our common stock involves a high degree of risk. See Risk Factors on page 2 of this prospectus and as updated in our future filings made with the Securities and Exchange Commission, which are incorporated by reference in this prospectus.

This prospectus may not be used to offer or sell any securities unless accompanied by a prospectus supplement.

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

The date of this prospectus is March 23, 2009.

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You should rely only on the information contained in or incorporated by reference into this prospectus or any applicable prospectus supplement. We have not authorized anyone to provide you with different information. We are not making an offer to sell or seeking an offer to buy shares of our common stock under this prospectus or any applicable prospectus supplement in any jurisdiction where the offer or sale is not permitted. The information contained in this prospectus, any applicable prospectus supplement and the documents incorporated by reference herein and therein are accurate only as of their respective dates, regardless of the time of delivery of this prospectus or any sale of a security.

About This Prospectus

This prospectus relates to a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, using a shelf registration process. Under this shelf registration statement, we may sell from time to time in one or more offerings up to 25,000,000 shares of our common stock described in this prospectus. Each time we sell any of our common stock under this prospectus, we will provide a prospectus supplement that will contain more specific information about the terms of that offering. We may also add, update or change in a prospectus supplement any of the information contained in this prospectus or in documents we have incorporated by reference into this prospectus. This prospectus, together with any applicable prospectus supplement and the documents incorporated by reference into this prospectus, include all material information relating to this offering. You should carefully read both this prospectus and any applicable prospectus supplement together with the additional information described under Where You Can Find More Information before buying common stock in this offering.

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Summary

The following summary does not contain all the information that may be important to purchasers of our common stock. Prospective purchasers of our common stock should carefully review the entire prospectus, including the financial statements or other information incorporated by reference in this prospectus and any prospectus supplement, before making an investment decision.

Arena Pharmaceuticals, Inc.

We are a clinical-stage biopharmaceutical company committed to discovering and developing innovative therapies offering significant medical advances and new options for patients. We are focused on discovering, developing and commercializing oral drugs in four major therapeutic areas: cardiovascular, central nervous system, inflammatory and metabolic diseases. Our lead drug candidate, lorcaserin hydrochloride, or lorcaserin, is being investigated in a Phase 3 clinical trial program for the treatment of obesity. Our broad pipeline of novel compounds targets G protein-coupled receptors, or GPCRs, which are a validated class of drug targets that mediate the majority of cell-to-cell communication in humans. Our pipeline includes compounds being evaluated independently and with partners, including Merck & Co., Inc., or Merck, and Ortho-McNeil-Janssen Pharmaceuticals, Inc., or Ortho-McNeil-Janssen.

In September 2006, we initiated the first of two pivotal Phase 3 clinical trials evaluating the efficacy and safety of lorcaserin. The pivotal Phase 3 clinical trials are the trials we believe are necessary to support a new drug application, or NDA, for lorcaserin. The first pivotal trial, known as BLOOM (Behavioral modification and Lorcaserin for Overweight and Obesity Management), is a two-year, randomized, double-blind and placebo-controlled trial that enrolled 3,181 overweight and obese patients. In December 2007, we initiated the second pivotal trial, BLOSSOM (Behavioral modification and Lorcaserin Second Study for Obesity Management). The BLOSSOM trial is a one-year, randomized, double-blind and placebo-controlled trial that enrolled 4,008 overweight and obese patients. In addition to our pivotal trials, we have a lorcaserin Phase 3 clinical trial called BLOOM-DM (Behavioral modification and Lorcaserin for Overweight and Obesity Management in Diabetes Mellitus), which is a one-year, randomized, double-blind and placebo-controlled trial that is expected to enroll approximately 600 obese patients with type 2 diabetes. Assuming positive data from BLOOM and BLOSSOM, we plan to file a New Drug Application, or NDA, with the United States Food and Drug Administration, or FDA, by the end of 2009.

A standardized program of diet and exercise advice is included in all of the lorcaserin Phase 3 trials, and the primary efficacy endpoint in the trials is the proportion of patients with a 5% or greater weight reduction from baseline at week 52. We are also studying several key secondary endpoints, including changes in serum lipids and blood pressure and, in the BLOOM-DM trial, HbA1c levels and other indicators of glycemic control. In contrast to BLOOM, patients with pre-existing FDA-defined valvulopathy and other echocardiographic abnormalities are included in BLOSSOM and BLOOM-DM.

In addition to lorcaserin, our other internal programs include programs evaluating APD791, APD916 and APD811. Due to the current global economic environment and our financial condition, we are currently focusing our efforts on lorcaserin and limiting our research and development efforts with respect to these other programs.

APD791 is an oral drug candidate that we discovered and are investigating for the treatment and prevention of arterial thrombosis and other related conditions. We have completed Phase 1a and Phase 1b clinical trials of APD791 evaluating the compound's safety, pharmacokinetics and pharmacodynamics in healthy volunteers. APD916 is an oral drug candidate we discovered and are investigating for the treatment of narcolepsy and cataplexy, and potentially for other indications. Subject to our financial resources and prioritization of lorcaserin, we intend to file an Investigational New Drug, or IND, application for APD916 with FDA in 2009. We are also developing APD811, our preclinical drug candidate for the treatment of pulmonary arterial hypertension.

In addition to internal programs, we have partnerships with pharmaceutical companies, including Merck and Ortho-McNeil-Janssen. Our Merck partnership is focused on niacin receptor agonists as treatments for atherosclerosis and other disorders. In October 2008, we announced that Merck completed a randomized, double-blind, placebo-controlled Phase 1 program of a second generation oral niacin receptor agonist under our partnership, and, in February 2009, we announced that Merck initiated a Phase 2

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clinical trial of this niacin receptor agonist. Our Ortho-McNeil-Janssen partnership is focused on receptor agonists of an orphan GPCR, known as GPR119, as treatments for diabetes and other disorders. In December 2008, we announced that Ortho-McNeil-Janssen initiated a first-in-human Phase 1 clinical trial of APD597, a novel, oral drug candidate discovered by Arena.

We intend to commercialize our drug candidates with partners or independently. We have not received regulatory approval for marketing or selling any drugs. We have also not generated commercial revenues from selling any drugs other than in connection with manufacturing drugs for Siegfried Ltd.

The pharmaceutical marketplace in which we operate includes many large, well-established companies competing with us to develop or market treatments for the same diseases and disorders. See Risk Factors.

Arena Pharmaceuticals®, Arena® and our corporate logo are registered service marks of Arena. CART and BRL Screening are unregistered service marks of Arena. APD is an abbreviation for Arena Pharmaceuticals Development.

We incorporated in the state of Delaware in April 1997. Our corporate offices are located at 6166 Nancy Ridge Drive, San Diego, California 92121. Our telephone number is (858) 453-7200. Our website address is www.arenapharm.com. Information contained in our website does not constitute part of this prospectus.

Unless otherwise specified or required by context, references in this prospectus to we, us, our and Arena refer to Arena Pharmaceuticals, Inc. and its wholly owned subsidiaries on a consolidated basis.

Risk Factors

An investment in our common stock involves a high degree of risk. Before you make a decision to invest in our common stock, you should consider carefully the risks described in the section entitled Risk Factors contained in our annual report on Form 10-K for the fiscal year ended December 31, 2008, as filed with the SEC on March 16, 2009, which is incorporated herein by reference in its entirety, as well as any amendment or update thereto reflected in our subsequent filings with the SEC. If any of these risks actually occur, our business, operating results, prospects or financial condition could be materially and adversely affected. This could cause the trading price of our common stock to decline and you may lose part or all of your investment. Moreover, the risks described are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also affect our business, operating results, prospects or financial condition.

Forward-Looking Statements

This prospectus, including the documents that we incorporate by reference herein, contains, and any applicable prospectus supplement including the documents we incorporate by reference therein may contain, forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or Securities Act, and Section 21E of the Securities Exchange Act of 1934, or Exchange Act. These forward-looking statements can generally be identified as such because the context of the statements will include words such as may, will, intends, plans, believes, anticipates, expects, estimates, predicts, potential, continue, or opportunity, the negative of these words or words of similar meaning. Similarly, statements that describe our future plans, strategies, intentions, expectations, objectives, goals or prospects are also forward-looking statements. Discussions containing these forward-looking statements may be found, among other places, in Business and Management's Discussion and Analysis of Financial Condition and Results of Operations incorporated by reference from our most recent annual report on Form 10-K and our quarterly reports on Form 10-Q for the quarters ended subsequent to our filing of such annual report on Form 10-K with the SEC, as well as any amendments thereto reflected in subsequent filings with the SEC. These forward-looking statements are or will be, as applicable, based largely on our expectations, beliefs and projections about future events and future trends affecting our business, and so are or will be, as applicable, subject to risks and uncertainties that could cause actual results to differ materially from those anticipated in the forward-looking statements. The risks and uncertainties include, among others, those referenced in Risk Factors above and in any applicable prospectus supplement and any documents incorporated by reference herein or therein.

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In addition, past financial or operating performance is not necessarily a reliable indicator of future performance and you should not use our historical performance to anticipate results or future period trends. We can give no assurances that any of the events anticipated by the forward-looking statements will occur or, if any of them do, what impact they will have on our results of operations and financial condition. Except as required by law, we undertake no obligation to publicly revise our forward-looking statements to reflect events or circumstances that arise after the date of this prospectus or the prospectus supplement or the date of documents incorporated by reference in this prospectus that include forward-looking statements.

Use of Proceeds

Except as described in any prospectus supplement, we currently intend to use the net proceeds from the sale of our common stock under this prospectus for the clinical and preclinical development of our internally discovered drug candidates, for discovery research for new drug candidates, for general corporate purposes, including working capital, and potentially for the commercialization of any approved drugs.

Description of Capital Stock

As of the date of this prospectus, our amended and restated certificate of incorporation, as amended, authorizes us to issue 142,500,000 shares of common stock, par value \$.0001 per share, and 7,500,000 shares of preferred stock, par value \$.0001 per share. As of March 23, 2009, 74,194,462 shares of common stock were outstanding. To date, our board of directors has designated 350,000 of the authorized shares of preferred stock as Series A Junior Participating Preferred Stock (the "Series A Preferred Stock"), which series is described in greater detail below under "Share Purchase Rights Plan." As of March 23, 2009, no shares of Series A Preferred Stock were outstanding.

The following summary describes the material terms of our capital stock and stockholder rights plan. The description of capital stock and stockholder rights plan is qualified by reference to our amended and restated certificate of incorporation, our bylaws, the certificate of designations of our Series A Preferred Stock, and our stockholder rights plan, which are incorporated by reference as exhibits into the registration statement to which this prospectus relates.

Common Stock

Voting. Common stockholders are entitled to one vote per share for the election of directors and on all other matters that require common stockholder approval.

Dividends and Other Distributions. Holders of our common stock are entitled to share in an equal amount per share in any dividends declared by our board of directors on the common stock and paid out of legally available assets.

Distribution on Dissolution. Subject to any preferential rights of any outstanding preferred stock, in the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in the assets remaining after payment of liabilities and the liquidation preferences of any outstanding preferred stock.

Other Rights. Our common stock does not carry any preemptive rights enabling a holder to subscribe for, or receive shares of, any class of our common stock or any other securities convertible into shares of any class of our common stock, or any redemption rights.

Preferred Stock

Under our amended and restated certificate of incorporation, as amended, our board of directors has the authority, without further action by stockholders, to designate up to 7,500,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges, qualifications and restrictions granted to or imposed upon the preferred stock, including dividend rights, conversion rights, voting rights, rights and terms of redemption, liquidation preference and sinking fund terms, any or all of which may be greater than the rights of the common stock.

The issuance of preferred stock could adversely affect the voting power of holders of common stock and reduce the likelihood that common stockholders will receive dividend payments and payments upon liquidation. The issuance could have the effect of decreasing the market price of the common stock. The issuance of preferred stock also could have the effect of delaying, deterring or preventing a change in control of us.

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Share Purchase Rights Plan. Each outstanding share of our common stock has attached to it one preferred share purchase right, which we refer to as a Right. Each Right entitles the registered holder to purchase from us one one-hundredth of a share of Series A Preferred Stock at a price of \$36 (the Purchase Price), subject to adjustment. The description and terms of the Rights are set forth in a Rights Agreement dated as of October 30, 2002, as amended, between us and Computershare Trust Company, Inc. as Rights Agent.

Until the earlier to occur of (i) 10 days following a public announcement that a person or group of affiliated or associated persons (an Acquiring Person) have acquired beneficial ownership of 15% or more of our outstanding common stock or (ii) 10 business days (or such later date as may be determined by action of our board of directors prior to such time as any person or group of affiliated persons becomes an Acquiring Person) following the commencement of, or announcement of an intention to make, a tender offer or exchange offer the consummation of which would result in the beneficial ownership by a person or group of 15% or more of our outstanding common stock (the earlier of such dates being called the Distribution Date), the Rights will be evidenced, with respect to any of our common stock certificates outstanding as of November 13, 2002, by such common stock certificate with a copy of the Summary of Rights in the form attached as Exhibit C to the Rights Agreement.

The Rights Agreement provides that none of our directors or officers shall be deemed to beneficially own any of our common stock owned by any other director or officer by virtue of such persons acting in their capacities as such, including, without limitation, in connection with any formulation and publication of our board of directors recommendation of its position, and any actions taken in furtherance thereof, with respect to any acquisition proposal relating to Arena, a tender or exchange offer for any of our common stock or any solicitation of proxies with respect to any of our common stock.

The Rights Agreement provides that, until the Distribution Date (or earlier redemption or expiration of the Rights), the Rights will be transferred with and only with our common stock. Until the Distribution Date (or earlier redemption or expiration of the Rights), new common stock certificates issued after November 13, 2002, upon transfer or new issuance of our common stock will contain a notation incorporating the Rights Agreement by reference. Until the Distribution Date (or earlier redemption or expiration of the Rights), the surrender for transfer of any certificates for our common stock outstanding as of November 13, 2002, even without such notation or a copy of the Summary of Rights attached thereto, will also constitute the transfer of the Rights associated with our common stock represented by such certificate. As soon as practicable following the Distribution Date, separate certificates evidencing the Rights (Right Certificates) will be mailed to holders of record of our common stock as of the close of business on the Distribution Date and such separate Right Certificates alone will evidence the Rights.

The Rights are not exercisable until the Distribution Date. The Rights will expire on October 30, 2012, (the Final Expiration Date), unless the Final Expiration Date is extended or the Rights are earlier redeemed or exchanged by us, in each case, as described below.

The Purchase Price payable, and the number of shares of the Series A Preferred Stock or other securities or property issuable, upon exercise of the Rights are subject to adjustment from time to time to prevent dilution (i) in the event of a stock dividend on, or a subdivision, combination or reclassification of, the Series A Preferred Stock, (ii) upon the grant to holders of the Series A Preferred Stock of certain rights or warrants to subscribe for or purchase Series A Preferred Stock at a price, or securities convertible into Series A Preferred Stock with a conversion price, less than the then current market price of the Series A Preferred Stock or (iii) upon the distribution to holders of the Series A Preferred Stock of evidences of indebtedness or assets (excluding regular periodic cash dividends paid out of earnings or retained earnings or dividends payable in Series A Preferred Stock) or of subscription rights or warrants (other than those referred to above).

The number of outstanding Rights and the number of one one-hundredths of a share of Series A Preferred Stock issuable upon exercise of each Right are also subject to adjustment in the event of a stock split of our common stock or a stock dividend on our common stock payable in our common stock or subdivisions, consolidations or combinations of our common stock occurring, in any such case, prior to the Distribution Date.

Series A Preferred Stock purchasable upon exercise of the Rights will not be redeemable. Once issued upon exercise of Rights,

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each share of Series A Preferred Stock will be entitled to a minimum preferential quarterly dividend payment of \$1 per share but will be entitled to an aggregate dividend of 100 times the dividend declared per share of our common stock. In the event of liquidation, the holders of outstanding shares of Series A Preferred Stock will be entitled to a minimum preferential liquidation payment of \$100 per share but will be entitled to an aggregate payment of 100 times the payment made per share of our common stock. Each outstanding share of Series A Preferred Stock will have 100 votes, voting together with our common stock. Finally, in the event of any merger, consolidation or other transaction in which our common stock is exchanged, each outstanding share of Series A Preferred Stock will be entitled to receive 100 times the amount received per share of our common stock. These rights are protected by customary antidilution provisions.

Because of the nature of the Series A Preferred Stock's dividend, liquidation and voting rights, the value of the one one-hundredth interest in a share of Series A Preferred Stock purchasable upon exercise of each Right should approximate the value of one share of our common stock.

In the event that any person or group of affiliated or associated persons becomes an Acquiring Person, the Rights Agreement provides that proper provision shall be made so that each holder of a Right, other than Rights beneficially owned by the Acquiring Person (which will thereafter be void), will thereafter have the right to receive (subject to adjustment) upon exercise thereof at the then current Purchase Price, that number of shares of our common stock having a market value of two times the Purchase Price. At any time after any person or group becomes an Acquiring Person and prior to the acquisition by such person or group of 50% or more of our outstanding common stock, our board of directors may exchange the Rights (other than Rights owned by such person or group, which will have become void), in whole or in part, at an exchange ratio of one share of our common stock, or one one-hundredth of a share of Series A Preferred Stock (or of a share of a class or series of our preferred stock having equivalent rights, preferences and privileges), per Right (subject to adjustment).

In the event that we are acquired in a merger or other business combination transaction or 50% or more of our consolidated assets or earning power are sold after a person or group has become an Acquiring Person, proper provision will be made so that each holder of a Right will thereafter have the right to receive, upon the exercise thereof at the then current Purchase Price, that number of shares of common stock of the acquiring company which at the time of such transaction will have a market value of two times the Purchase Price.

With certain exceptions, no adjustment in the Purchase Price will be required until cumulative adjustments require an adjustment of at least 1% in the Purchase Price. No fractional shares of Series A Preferred Stock will be issued (other than fractions which are integral multiples of one one-hundredth of a share of Series A Preferred Stock, which may, at our election, be evidenced by depositary receipts) and in lieu thereof, an adjustment in cash will be made based on the market price of the Series A Preferred Stock on the last trading day prior to the date of exercise.

At any time prior to the acquisition by a person or group of affiliated or associated persons of beneficial ownership of 15% or more of our outstanding common stock, our board of directors may redeem the Rights in whole, but not in part, at a price of \$.01 per Right (the Redemption Price). The redemption of the Rights may be made effective at such time on such basis with such conditions as our board of directors in its sole discretion may establish.

The terms of the Rights may be amended by our board of directors without the consent of the holders of the Rights, including an amendment to (i) fix a Final Expiration Date later than October 30, 2012, (ii) reduce the Redemption Price or (iii) increase the Purchase Price, except that from and after such time as any person or group of affiliated or associated persons becomes an Acquiring Person no such amendment may adversely affect the interests of the holders of the Rights (other than the Acquiring Person and its affiliates and associates).

Until a Right is exercised, the holder thereof, as such, will have no rights as a stockholder of Arena, including, without limitation, the right to vote or to receive dividends.

Anti-Takeover Provisions

Delaware Law. We are governed by the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years after the date of the transaction in which the person became an interested stockholder, unless

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(i) before the date that the person became an interested stockholder, our board of directors approved either the business combination or the transaction which makes the person an interested stockholder, (ii) the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (a) shares owned by persons who are directors and also officers and (b) shares owned by 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 (iii) after the date that the person became an interested stockholder, the business combination is approved by our board of directors and the vote of at least 66-²/₃% of our outstanding voting stock that is not owned by the interested stockholder. Generally, a business combination includes a merger, asset sale or other transaction resulting in a financial benefit to the stockholder. An interested stockholder is a person who either owns 15% or more of our outstanding voting stock or, together with affiliates and associates, owns or, within three prior years, did own, 15% or more of our outstanding voting stock. The statute could have the effect of delaying, deferring or preventing a change in our control.

Bylaw and Certificate of Incorporation Provisions. Our bylaws provide that special meetings of our stockholders may be called by our board of directors or President. Our amended and restated certificate of incorporation (i) specifies that the authorized number of directors shall be fixed by our board of directors in the manner provided by our bylaws, which provide that the number of directors constituting our board of directors shall be fixed from time to time by resolution passed by a majority of our board of directors and (ii) does not include a provision for cumulative voting for directors. Under cumulative voting, a minority stockholder holding a sufficient percentage of a class of shares may be able to ensure the election of one or more directors. These and other provisions contained in our amended and restated certificate of incorporation and bylaws could delay or discourage transactions involving an actual or potential change in control of us or our management, including transactions in which stockholders might otherwise receive a premium for their shares over then current prices. Such provisions could also limit the ability of stockholders to remove current management or approve transactions that stockholders may deem to be in their best interests and could adversely affect the price of our common stock.

Transfer Agent and Registrar

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

Listing on the Nasdaq Global Market

Our common stock is listed on the Nasdaq Global Market under the symbol ARNA.

Plan of Distribution

We may sell our common stock covered by this prospectus in any of three ways (or in any combination):

to or through underwriters or dealers;

directly to one or more purchasers; or

through agents.

We may distribute the common stock:

from time to time in one or more transactions at a fixed price or prices, which may be changed from time to time;

at market prices prevailing at the time of sale;

at prices related to the prevailing market prices; or

at negotiated prices.

Each time we offer and sell shares of our common stock covered by this prospectus, we will provide a prospectus supplement or supplements that will describe the method of distribution and set forth the terms of the offering, including:

the name or names of any underwriters, dealers or agents;

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the amounts of securities underwritten or purchased by each of them;

the purchase price of the common stock and the proceeds we will receive from the sale;

any over-allotment options under which underwriters may purchase additional common stock from us;

any underwriting discounts or commissions or agency fees and other items constituting underwriters' or agents' compensation;

the public offering price of the common stock;

any discounts, commissions or concessions allowed or reallocated or paid to dealers; and

any securities exchange or market on which the common stock may be listed.

Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time. We may determine the price or other terms of the common stock offered under this prospectus by use of an electronic auction. We will describe how any auction will determine the price or any other terms, how potential investors may participate in the auction and the nature of the obligations of the underwriter, dealer or agent in the applicable prospectus supplement.

Underwriters or dealers may offer and sell the offered common stock from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. If underwriters or dealers are used in the sale of any common stock, the common stock will be acquired by the underwriters or dealers for their own account and may be resold from time to time in one or more transactions described above. The common stock may be either offered to the public through underwriting syndicates represented by managing underwriters, or directly by underwriters or dealers. Generally, the underwriters' or dealers' obligations to purchase the common stock will be subject to certain conditions precedent. The underwriters or dealers will be obligated to purchase all of the common stock if they purchase any of the common stock, unless otherwise specified in the prospectus supplement. We may use underwriters with whom we have a material relationship. We will describe the nature of any such relationship in the prospectus supplement, naming the underwriter.

We may sell the common stock through agents from time to time. The prospectus supplement will name any agent involved in the offer or sale of the common stock and any commissions we pay to them. Generally, any agent will be acting on a best efforts basis for the period of its appointment. We may authorize underwriters, dealers or agents to solicit offers by certain purchasers to purchase the common stock from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The contracts will be subject only to those conditions set forth in the prospectus supplement, and the prospectus supplement will set forth any commissions we pay for solicitation of these contracts.

Agents, dealers and underwriters may be entitled to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments which the agents, dealers or underwriters may be required to make in respect thereof. Agents, dealers and underwriters may be customers of, engage in transactions with, or perform services for us in the ordinary course of business.

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Overallotment involves sales in excess of the offering size, which create a short position. This short sales position may involve either covered short sales or naked short sales. Covered short sales are short sales made in an amount not greater than the underwriters' over-allotment option to purchase additional shares in this offering described above. The underwriters may close out any covered short position either by exercising their over-allotment option or by purchasing shares in the open market. To determine how they will close the covered short position, the underwriters will consider,

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among other things, the price of shares available for purchase in the open market, as compared to the price at which they may purchase shares through the over-allotment option. Naked short sales are short sales in excess of the over-allotment option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that, in the open market after pricing, there may be downward pressure on the price of the shares that could adversely affect investors who purchase shares in this offering. Stabilizing transactions permit bids to purchase the underlying security for the purpose of fixing the price of the security so long as the stabilizing bids do not exceed a specified maximum. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a covering transaction to cover short positions.

Similar to other purchase transactions, an underwriter's purchase to cover the syndicate short sales or to stabilize the market price of our common stock may have the effect of raising or maintaining the market price of our common stock or preventing or mitigating a decline in the market price of our common stock. As a result, the price of the shares of our common stock may be higher than the price that might otherwise exist in the open market. The imposition of a penalty bid might also have an effect on the price of the shares if it discourages resales of the shares.

Neither we nor the underwriters makes any representation or prediction as to the effect that the transactions described above may have on the price of the shares. If such transactions are commenced, they may be discontinued without notice at any time.

Equity Line of Credit

On March 23, 2009, we entered into what is sometimes termed an equity line of credit arrangement with Azimuth Opportunity Ltd., or Azimuth. Specifically, we entered into a Common Stock Purchase Agreement, or the Purchase Agreement, that provides that, upon the terms and subject to the conditions set forth therein, Azimuth is committed to purchase up to \$50 million worth of shares of our common stock over the 18-month term of the Purchase Agreement; provided, however, in no event may we sell under the Purchase Agreement more than 14,838,891 shares of common stock, which is equal to one share less than twenty percent of our outstanding shares of common stock on the effective date of the Purchase Agreement. From time to time over the term of the Purchase Agreement, and at our sole discretion, we may present Azimuth with draw down notices to purchase our common stock over ten consecutive trading days or such other period mutually agreed upon by us and Azimuth, or the draw down period, with each draw down subject to limitations based on the price of our common stock and a limit of 2.5% of our market capitalization at the time of such draw down. We are able to present Azimuth with up to 24 draw down notices during the term of the Purchase Agreement, with only one such draw down notice allowed per draw down period and a minimum of five trading days required between each draw down period.

Once presented with a draw down notice, Azimuth is required to purchase a pro rata portion of the shares on each trading day during the trading period on which the daily volume weighted average price for our common stock exceeds a threshold price determined by us for such draw down. The per share purchase price for these shares will equal the daily volume weighted average price of our common stock on each date during the draw down period on which shares are purchased, less a discount ranging from 3.00% to 6.50%, based on the trading price of our common stock. If the daily volume weighted average price of our common stock falls below the threshold price on any trading day during a draw down period, the Purchase Agreement provides that Azimuth will not be required to purchase the pro-rata portion of shares of common stock allocated to that day. However, at its election, Azimuth may buy the pro-rata portion of shares allocated to that day at the threshold price less the discount described above.

The Purchase Agreement also provides that, from time to time and at our sole discretion, we may grant Azimuth the right to exercise one or more options to purchase additional shares of our common stock during each draw down period for an amount of shares specified by us based on the trading price of our common stock. Upon Azimuth's exercise of an option, we would sell to Azimuth the shares of our common stock subject to the option at a price equal to the greater of the daily volume weighted average price of our common stock on the day Azimuth notifies us of its election to exercise its option or the threshold price for the option determined by us, less a discount calculated in the same manner as it is calculated in the draw down notices.

In addition to our issuance of shares of common stock to Azimuth pursuant to the Purchase Agreement, the registration statement to which this prospectus relates also covers the sale of those shares from time to time by Azimuth to the public. Azimuth is an underwriter within the meaning of Section 2(a)(11) of the Securities Act.

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Azimuth has informed us that it will use an unaffiliated broker-dealer to effectuate all sales, if any, of common stock that it may purchase from us pursuant to the Purchase Agreement. Such sales will be made on the Nasdaq Global Market at prices and at terms then prevailing or at prices related to the then current market price. Each such unaffiliated broker-dealer will be an underwriter within the meaning of Section 2(a)(11) of the Securities Act. Azimuth has informed us that each such broker-dealer will receive commissions from Azimuth which will not exceed customary brokerage commissions. Azimuth may also pay other expenses associated with the sale of the common stock it acquires pursuant to the Purchase Agreement.

The shares of common stock issued under the Purchase Agreement may be sold in one or more of the following manners:

ordinary brokerage transactions and transactions in which the broker solicits purchasers; or

a block trade in which the broker or dealer so engaged will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction.

Azimuth has agreed that during the term of and for a period of 90 days after the termination of the Purchase Agreement, neither Azimuth nor any of its affiliates will, directly or indirectly, sell any of our securities except the shares that it owns or has the right to purchase pursuant to the provisions of a draw down notice. Azimuth has agreed that during the periods listed above neither it nor any of its affiliates will enter into a short position with respect to shares of our common stock except that Azimuth may sell shares that it is obligated to purchase under a pending draw down notice but has not yet taken possession of so long as Azimuth covers any such sales with the shares purchased pursuant to such draw down notice. Azimuth has further agreed that during the periods listed above it will not grant any option to purchase or acquire any right to dispose or otherwise dispose for value of any shares of our common stock or any securities convertible into, or exchangeable for, or warrants to purchase, any shares of our common stock, or enter into any swap, hedge or other agreement that transfers, in whole or in part, the economic risk of ownership of our common stock, except for the sales permitted by the prior two sentences.

In addition, Azimuth and any unaffiliated broker-dealer will be subject to liability under the federal securities laws and must comply with the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 10b-5 and Regulation M under the Exchange Act. These rules and regulations may limit the timing of purchases and sales of shares of common stock by Azimuth or any unaffiliated broker-dealer. Under these rules and regulations, Azimuth and any unaffiliated broker-dealer:

may not engage in any stabilization activity in connection with our securities;

must furnish each broker which offers shares of our common stock covered by the prospectus that is a part of our Registration Statement with the number of copies of such prospectus and any prospectus supplement which are required by each broker; and

may not bid for or purchase any of our securities or attempt to induce any person to purchase any of our securities other than as permitted under the Exchange Act.

These restrictions may affect the marketability of the shares of common stock purchased and sold by Azimuth and any unaffiliated broker-dealer.

We have agreed to indemnify and hold harmless Azimuth, any unaffiliated broker-dealer and each person who controls Azimuth or any unaffiliated broker-dealer against certain liabilities, including certain liabilities under the Securities Act. We have agreed to pay up to \$35,000 of Azimuth's reasonable attorneys' fees and expenses (exclusive of disbursements and out-of-pocket expenses) incurred by Azimuth in connection with the preparation, negotiation, execution and delivery of the Purchase Agreement and related transaction documentation. We have also agreed to pay certain fees and expenses incurred by Azimuth in connection with any amendments, modifications or waivers of the Purchase Agreement, ongoing due diligence of our company and other transaction expenses associated with fixed requests made by us from time to time during the term of the Purchase Agreement, provided that we shall not be required to pay any reimbursement for any such expenses in any calendar quarter in which we provide a fixed request

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notice. Further, if we issue a draw down notice and fail to deliver the shares to Azimuth on the applicable settlement date, and such failure continues for ten trading days, we have agreed to pay Azimuth liquidated damages in cash or restricted shares of our common stock, at Azimuth's option.

Azimuth has agreed to indemnify and hold harmless us and each of our directors, officers and persons who control us against certain liabilities, including certain liabilities under the Securities Act that may be based upon written information furnished by Azimuth to us for inclusion in this prospectus or any other prospectus or prospectus supplement related to this transaction.

Upon each sale of our common stock to Azimuth under the Purchase Agreement, we have also agreed to pay Reedland Capital Partners, an Institutional Division of Financial West Group, a placement fee equal to 1.00% of the aggregate dollar amount of common stock purchased by Azimuth. We have agreed to indemnify and hold harmless Reedland against certain liabilities, including certain liabilities under the Securities Act.

Legal Matters

The validity of the securities being offered hereby will be passed upon by Cooley Godward Kronish LLP, San Diego, California.

Experts

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2008, and the effectiveness of our internal control over financial reporting as of December 31, 2008, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's reports, given on their authority as experts in accounting and auditing.

Where You Can Find More Information

We file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document we file 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. Our SEC filings are also available to the public at the SEC's website at <http://www.sec.gov>.

Incorporation of Certain Information by Reference

The SEC allows us to incorporate by reference the information we file with them, which means that we can disclose important information to you by referring you to those documents instead of having to repeat the information in this prospectus. The information incorporated by reference is considered to be part of this prospectus, and later information that we file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings we will make with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act after the date of this prospectus until the termination of the offering of the shares covered by this prospectus (other than information furnished under Item 2.02 or Item 7.01 of Form 8-K):

our annual report on Form 10-K for the year ended December 31, 2008 (filed on March 16, 2009);

our current reports on Form 8-K filed on January 29, 2009, February 18, 2009, February 26, 2009 and March 23, 2009;

the description of our Stockholders Rights Plan contained in our registration statement on Form 8-A filed on November 5, 2002, as amended on December 30, 2003 and November 16, 2006, including any amendments or reports filed for the purposes of updating such description; and

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the description of our common stock contained in our registration statement on Form 8-A filed on July 26, 2000, including any amendment or reports filed for the purpose of updating such description.

You can request a copy of these filings, at no cost, by writing or telephoning us at the following address or telephone number:

Arena Pharmaceuticals, Inc.

6166 Nancy Ridge Drive

San Diego, California 92121

(858) 453-7200

Attn: Investor Relations

This prospectus relates to a registration statement we filed with the SEC. That registration statement and the exhibits filed along with the registration statement contain more information about us and the shares in this offering. Because information about documents referred to in this prospectus is not always complete, you should read the full documents which are filed as exhibits to the registration statement. You may read and copy the full registration statement and its exhibits at the SEC's public reference rooms or their website.

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ARENA PHARMACEUTICALS, INC.

PROSPECTUS