

ARENA PHARMACEUTICALS INC

Form 424B5

May 15, 2012

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The information in this preliminary prospectus supplement is not complete and may be changed. A registration statement relating to these securities has been declared effective by the Securities and Exchange Commission. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities, and we are not soliciting offers to buy these securities, in any state or other jurisdiction where the offer or sale is not permitted.

Filed Pursuant to Rule 424(b)(5)
Registration No. 333-181434

SUBJECT TO COMPLETION, DATED MAY 15, 2012

PRELIMINARY PROSPECTUS SUPPLEMENT

(to Prospectus dated May 15, 2012)

Shares

Common Stock

We are offering _____ shares of our common stock. Our common stock is listed on The NASDAQ Global Select Market under the symbol ARNA. On May 14, 2012, the last reported sale price of our common stock on The NASDAQ Global Select Market was \$6.61 per share.

Investing in our common stock involves a high degree of risk. Please read Risk Factors beginning on page S-4 of this prospectus supplement and the documents incorporated by reference into this 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 supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	PER SHARE	TOTAL
Public Offering Price	\$	\$
Underwriting Discounts and Commissions	\$	\$
Proceeds to Arena before expenses	\$	\$

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Delivery of the shares of common stock is expected to be made on or about May , 2012. We have granted the underwriters an option for a period of 30 days to purchase up to an additional shares of our common stock solely to cover over-allotments. If the underwriters exercise the option in full, the total underwriting discounts and commissions payable by us will be \$ and the total proceeds to us, before expenses, will be \$.

Joint Book-Running Managers

Jefferies

Piper Jaffray

Co-Manager

BMO Capital Markets

Prospectus Supplement dated May , 2012

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We have not, and the underwriters have not, authorized anyone to provide you with information different than that contained or incorporated by reference in this prospectus supplement, the accompanying prospectus and any free writing prospectus that we have authorized for use in connection with this offering. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the underwriters are not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections of this prospectus supplement entitled **Where You Can Find More Information** and **Incorporation of Certain Information by Reference**.

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About this Prospectus Supplement

This document is in two parts. The first part is this prospectus supplement, which describes the terms of this offering of common stock and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus dated May 15, 2012, including the documents incorporated by reference therein, provides more general information about the securities we may offer from time to time, some of which may not apply to the offering described in this prospectus supplement. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document incorporated by reference in the accompanying prospectus the statement in the document having the later date modifies or supersedes the earlier statement.

Unless otherwise mentioned or unless the context requires otherwise, all references in this prospectus supplement to ARNA, we, our or similar references mean Arena Pharmaceuticals, Inc.

This prospectus supplement, the accompanying prospectus and the information incorporated herein and therein by reference may include trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus supplement or the accompanying prospectus are the property of their respective owners.

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Prospectus Supplement Summary

*This summary highlights selected information contained elsewhere or incorporated by reference in this prospectus supplement and the accompanying prospectus. This summary does not contain all the information you should consider before investing in our common stock. You should read and consider carefully the more detailed information in this prospectus supplement and the accompanying prospectus, including the factors described under the heading *Risk Factors* in this prospectus supplement beginning on page S-4 and the financial and other information incorporated by reference in this prospectus supplement and the accompanying prospectus, as well as the information included in any free writing prospectus that we have authorized for use in connection with this offering, before making an investment decision.*

Company Overview

We are a clinical-stage biopharmaceutical company focused on discovering, developing and commercializing oral drugs that target G protein-coupled receptors, or GPCRs, an important class of validated drug targets, in four major therapeutic areas: cardiovascular, central nervous system, inflammatory and metabolic diseases. We have submitted regulatory applications for US and EU approval of our most advanced drug candidate, lorcaserin, which is intended for weight management. We intend to selectively advance certain of our research and development programs, and also to seek collaborators or other licensing opportunities for our programs.

In December 2011, we resubmitted to the US Food and Drug Administration, or FDA, a New Drug Application, or NDA, for lorcaserin. The FDA accepted the resubmission for filing and review and assigned a new Prescription Drug User Fee Act, or PDUFA, target date of June 27, 2012. Previously, in October 2010, the FDA issued a Complete Response Letter, or CRL, with respect to the original lorcaserin NDA we submitted in December 2009. In the CRL, the FDA stated that it had determined that it could not approve the application in its then present form.

On May 10, 2012, the FDA's Endocrinologic and Metabolic Drugs Advisory Committee met to discuss the lorcaserin NDA. The advisory committee voted 18 to 4, with one abstention, that the available data demonstrate that the potential benefits of lorcaserin outweigh the potential risks when used long-term in a population of overweight and obese individuals.

We are also seeking regulatory approval for lorcaserin in the European Union. On March 2, 2012, we filed a marketing authorization application, or MAA, for lorcaserin through the centralized procedure with the European Medicines Agency, or EMA. The EMA accepted the filing, which initiates the EMA's review process.

Our wholly owned subsidiary, Arena Pharmaceuticals GmbH, or Arena GmbH, has provided Eisai Inc., or Eisai, exclusive rights to commercialize lorcaserin in most of North and South America, including the United States, Canada, Mexico and Brazil, subject to applicable regulatory approval. We have retained commercial rights to lorcaserin outside of North and South America, including in the European Union and Asia.

Our prioritized earlier-stage programs include APD811, an internally discovered, orally available agonist of the prostacyclin receptor intended for the treatment of pulmonary arterial hypertension. APD811 completed a single-dose, Phase 1 clinical trial in 2011, and we plan to initiate a multiple dose, dose titration, Phase 1 clinical trial of APD811 this year. We also plan to file in 2012 an Investigational New Drug, or IND, application with the FDA for APD334 (an internally discovered, orally available agonist of the S1P1 receptor intended for the treatment of a number of conditions related to autoimmune diseases, including multiple sclerosis) and to continue development of our programs on APD371 (an internally discovered, orally available agonist of the cannabinoid receptor 2 intended for the treatment of pain) and GPR119 agonists (intended for the treatment of type 2 diabetes).

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Along with lorcaserin and our prioritized earlier-stage programs, we have additional internally discovered oral drug candidates as well as active research programs intended to discover drug candidates. With respect to the additional drug candidates, we are not planning to conduct significant development activities, including any clinical trials, at this time. We may consider resuming their development in the future with one or more collaborators or independently, depending on the cost of further development, financial resources and their potential.

The headquarters of our operations outside of the United States is in Switzerland at Arena GmbH. Activities conducted at this location include manufacturing, quality control, quality assurance, development of manufacturing processes, qualifying suppliers and otherwise managing the global supply chain, regulatory compliance, distribution of finished products, and European strategic planning and development.

We have commercial rights for all of our programs and drug candidates, with the exception of Eisai's right to commercialize lorcaserin in most of North and South America. We have not received regulatory approval to market or sell any drugs or generated commercial revenues from selling any drugs, other than in connection with manufacturing drugs for Siegfried Ltd. in our Swiss drug product manufacturing facility.

Company Information

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. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this prospectus supplement or the accompanying prospectus and should not be considered part of this prospectus supplement or the accompanying prospectus.

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The Offering

Common stock offered by us	shares
Common stock to be outstanding immediately after this offering	shares
Over-allotment option	We have granted the underwriters an option to purchase up to additional shares of our common stock to cover over-allotments, if any. This option is exercisable, in whole or in part, for a period of 30 days from the date of this prospectus supplement.
Use of proceeds	We intend to use the net proceeds from this offering for general corporate purposes, which may include expenses related to the commercialization of lorcaserin, if approved, as well as for research and development expenses, capital expenditures, working capital, and general and administrative expenses. See Use of Proceeds on page S-7 of this prospectus supplement.
NASDAQ Global Select Market listing	Our common stock is listed on The NASDAQ Global Select Market under the symbol ARNA.
Risk factors	Investing in our common stock involves a high degree of risk. See Risk Factors beginning on page S-4 of this prospectus supplement.

Outstanding Shares

The number of shares of our common stock to be outstanding immediately after this offering is based on 184,500,778 shares outstanding as of May 10, 2012, and excludes as of that date:

- n 8,631,410 shares of common stock issuable upon the exercise of outstanding warrants at an exercise price of \$1.745 per share;
- n 10,368,590 shares of common stock issuable upon the exercise of outstanding warrants at an exercise price of \$1.68 per share;
- n 1,965,418 shares of common stock issuable upon the exercise of outstanding warrants at an exercise price of \$4.34 per share;
- n 1,467,405 shares of common stock issuable upon the exercise of outstanding warrants at an exercise price of \$8.76 per share;
- n 14,313,046 shares of common stock issuable upon the exercise of outstanding options at a weighted-average exercise price of \$4.29 per share;

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n 1,643,971 shares of common stock available for future issuance under our 2009 Long-Term Incentive Plan;

n 487,132 shares of common stock available for future issuance under our 2009 Employee Stock Purchase Plan; and

n 79,169 shares of common stock available for future issuance under our Deferred Compensation Plan.

Except as otherwise indicated, all information in the prospectus supplement assumes no exercise by the underwriters of their over-allotment option.

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Risk Factors

Investing in our common stock involves a high degree of risk. Our business, prospects, financial condition or operating results could be materially adversely affected by the risks identified below, as well as other risks not currently known to us or that we currently consider immaterial. The trading price of our common stock could decline due to any of these risks, and you may lose all or part of your investment. In assessing the risks described below, you should also refer to the information contained in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2012 and other documents which are incorporated by reference in this prospectus supplement and the accompanying prospectus in their entirety, and other documents that we file from time to time with the SEC.

Risks Related to this Offering

Management will have broad discretion as to the use of the proceeds from this offering and we may not use the proceeds effectively.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. Our failure to apply these funds effectively could have a material adverse effect on our business, delay the development of our product candidates and cause the price of our common stock to decline.

If you purchase the common stock sold in this offering, you will experience immediate and substantial dilution in your investment. You will experience further dilution if we issue additional securities in future fundraising transactions.

Since the price per share of our common stock being offered is substantially higher than the net tangible book value per share of our common stock, you will suffer substantial dilution with respect to the net tangible book value of the common stock you purchase in this offering. Based on the public offering price of \$ per share and our net tangible book value as of March 31, 2012, if you purchase shares of common stock in this offering you will suffer immediate and substantial dilution of \$ per share with respect to the net tangible book value of the common stock. See the section entitled Dilution for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

In addition, we have a significant number of stock options and warrants outstanding. To the extent that outstanding stock options or warrants have been or may be exercised or other securities issued, investors purchasing our common stock in this offering may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders or result in downward pressure on the price of our common stock.

We have reserved for future issuance substantially all of our authorized but unissued shares of common stock, which may impair our ability to conduct future financing and other transactions.

Our certificate of incorporation currently authorizes us to issue up to 242,500,000 shares of common stock and 7,500,000 shares of preferred stock. As of May 10, 2012, we had a total of 184,500,778 shares of common stock outstanding. Of the remaining shares of common stock that were authorized but unissued, a substantial portion are reserved for future issuance pursuant to options outstanding under our equity incentive plans, shares issuable under our 2009 Long-Term Incentive Plan, shares issuable under our 2009 Employee Stock Purchase Plan, shares issuable under our Deferred Compensation Plan, and shares issuable under warrants to purchase shares of our common stock with an expiration date of June 17, 2015, a seven-year warrant issued in June 2006 to purchase shares of our common stock and a seven-year warrant issued in August 2008 to purchase shares of our common stock. As a result, our ability to issue shares of common stock other than pursuant to existing arrangements will be limited until such time, if ever, that we are able to further amend our certificate of incorporation to increase our authorized shares of common stock or shares currently reserved for issuance otherwise become available (for example, due to the termination of the underlying agreement to issue the shares).

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In lieu of issuing common stock or securities convertible into or exercisable for shares of our common stock in any future equity financing transactions, we may need to issue some or all of our authorized but unissued shares of preferred stock, which would likely have superior rights, preferences and privileges to those of our common stock, or we may need to issue debt that is not convertible into shares of our common stock, which may require us to grant security interests in our assets and property or impose covenants upon us that restrict our business. If we are unable to issue additional shares of common stock or securities convertible into or exercisable for shares of our common stock, our ability to enter into strategic transactions, such as acquisitions of companies or technologies, may also be limited. We are proposing to our stockholders at our June 2012 annual stockholders meeting to further amend our certificate of incorporation to increase the total number of our authorized shares from 250.0 million to 375.0 million and to increase the number of authorized shares of common stock from 242.5 million to 367.5 million. This proposal requires approval by the holders of a majority of our outstanding shares of common stock then entitled to vote, and we cannot assure you that such a proposal will be approved. If we are unable to complete financing, strategic or other transactions due to our inability to issue additional shares of common stock or securities convertible into or exercisable for shares of our common stock, our financial condition and business prospects may be materially harmed.

Certain Risks Relating to Our Business

We may not receive FDA approval for lorcaserin despite the recent vote of the FDA advisory committee.

In December 2011, we resubmitted the lorcaserin NDA, and the FDA subsequently accepted the NDA for filing. On May 10, 2012, the FDA's Endocrinologic and Metabolic Drugs Advisory Committee met to discuss the resubmitted NDA, and the committee voted 18 to 4, with one abstention, that the available data demonstrate that the potential benefits of lorcaserin outweigh the potential risks when used long-term in a population of overweight and obese individuals. The FDA is not bound by the recommendations of its advisory committees, but is expected to consider their guidance during the review of the NDA. The PDUFA target date for lorcaserin is June 27, 2012. There is no assurance that we will receive approval for lorcaserin on the PDUFA target date or ever. The FDA may decide not to approve lorcaserin, may issue another CRL, may extend the PDUFA target date or may take various other actions. If lorcaserin is not approved for commercial sale or if its development or approval is delayed for any reason, our full investment in lorcaserin may be at risk, the market price of our common stock could decline significantly, we may not be able to generate sufficient revenues to continue our operations at the current level or become profitable, our reputation in the industry and in the investment community would likely be significantly damaged, additional funding may not be available to us or may not be available on terms we or others believe are favorable, our ability to enter into additional collaborative agreements would likely decrease significantly, we may face costs associated with stopping development of lorcaserin, and our business and financial condition could be materially adversely affected.

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Special Note Regarding Forward-Looking Statements

This prospectus supplement and the accompanying prospectus, including the documents that we incorporate by reference herein and therein, contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These forward-looking statements can generally be identified as such because the context of the statement will include words such as may, will, intend, plan, believe, anticipate, expect, predict, potential, continue, likely, unlikely or opportunity, the negative of these words or words of similar import. 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 the Business and Management's Discussion and Analysis of Financial Condition and Results of Operations sections incorporated by reference from our most recent Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q for the quarterly periods ended subsequent to our filing of such Annual Report on Form 10-K, as well as any amendments thereto reflected in subsequent filings with the SEC. These forward-looking statements are based largely on our expectations and projections about future events and future trends affecting our business, and are 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 noted in Risk Factors above and those included in the documents that we incorporate by reference herein.

In addition, past financial and/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 filing of this prospectus supplement or the filing of the accompanying prospectus or documents incorporated by reference herein and therein that include forward-looking statements.

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Use of Proceeds

We estimate that the net proceeds from the sale of the _____ shares of common stock that we are offering will be approximately \$ _____ million, or approximately \$ _____ million if the underwriters exercise in full their option to purchase up to _____ additional shares of common stock, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

We intend to use the net proceeds from this offering for general corporate purposes, which may include expenses related to the commercialization of lorcaserin, if approved, as well as for research and development expenses, capital expenditures, working capital, and general and administrative expenses. We may also use a portion of the net proceeds to acquire or invest in complementary businesses, products and technologies. Although we have no specific agreements, commitments or understandings with respect to any acquisition or investment, we evaluate acquisition and investment opportunities and engage in related discussions with other companies from time to time.

The amounts and timing of these expenditures will depend on a number of factors, such as the timing and progress of our research and development efforts, the timing and progress of any partnering efforts, technological advances and the competitive environment for our product candidates. As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses for the net proceeds to us from this offering. Accordingly, our management will have broad discretion in the application of these proceeds. Pending application of the net proceeds as described above, we intend to temporarily invest the proceeds in short term, investment grade, interest-bearing instruments.

Dividend Policy

To date, we have not paid cash dividends on our common stock, and we are prohibited from doing so under the terms of the Facility Agreement, dated June 17, 2009, as amended, between us and Deerfield Private Design Fund, L.P., Deerfield Private Design International, L.P., Deerfield Partners, L.P., Deerfield International Limited, Deerfield Special Situations Fund, L.P., and Deerfield Special Situations Fund International Limited. We anticipate that regardless of the restrictions in the Facility Agreement, we will retain earnings, if any, to support operations and finance the growth and development of our business and, therefore, do not expect to pay cash dividends in the foreseeable future.

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Our net tangible book value as of March 31, 2012 was approximately \$33.5 million, or \$0.19 per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of March 31, 2012. Dilution with respect to net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after this offering.

After giving effect to the sale of an aggregate of _____ shares of our common stock in this offering at the public offering price of \$ _____ per share and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2012 would have been approximately \$ _____ million, or \$ _____ per share. This represents an immediate increase in net tangible book value of \$ _____ per share to existing stockholders and immediate dilution in net tangible book value of \$ _____ per share to investors purchasing our common stock in this offering at the public offering price.

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

Public offering price per share	\$
Net tangible book value per share as of March 31, 2012	\$ 0.19
Increase in net tangible book value per share attributable to new investors purchasing our common stock in this offering	

As adjusted net tangible book value per share on March 31, 2012, after giving effect to this offering

Dilution per share to new investors purchasing our common stock in this offering	\$
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If the underwriters exercise in full their option to purchase up to _____ additional shares of common stock at the public offering price of \$ _____ per share, the as adjusted net tangible book value after this offering would have been \$ _____ per share, representing an increase in net tangible book value of \$ _____ per share to existing stockholders and immediate dilution in net tangible book value of \$ _____ per share to investors purchasing our common stock in this offering at the public offering price.

The above discussion and table are based on 180,491,878 shares outstanding as of March 31, 2012, and exclude as of that date:

- n 8,631,410 shares of common stock issuable upon the exercise of outstanding warrants at an exercise price of \$1.745 per share;
- n 14,368,590 shares of common stock issuable upon the exercise of outstanding warrants at an exercise price of \$1.68 per share;
- n 1,965,418 shares of common stock issuable upon the exercise of outstanding warrants at an exercise price of \$4.34 per share;

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- n 1,467,405 shares of common stock issuable upon the exercise of outstanding warrants at an exercise price of \$8.76 per share;

- n 14,324,096 shares of common stock issuable upon the exercise of outstanding options at a weighted-average exercise price of \$4.31 per share;

- n 1,641,821 shares of common stock available for future issuance under our 2009 Long-Term Incentive Plan;
- n 487,132 shares of common stock available for future issuance under our 2009 Employee Stock Purchase Plan; and

- n 79,169 shares of common stock available for future issuance under our Deferred Compensation Plan.

To the extent that outstanding options or warrants outstanding as of March 31, 2012 have been or may be exercised or other shares issued, investors purchasing our common stock in this offering may experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

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Subject to the terms and conditions set forth in the underwriting agreement dated May , 2012, among us and the underwriters named below, we have agreed to sell to the underwriters and the underwriters have severally agreed to purchase from us the number of shares of common stock indicated in the table below:

UNDERWRITERS	NUMBER OF SHARES OF COMMON STOCK
Jefferies & Company, Inc.	
Piper Jaffray & Co.	
BMO Capital Markets Corp.	
Total	

Jefferies & Company, Inc. and Piper Jaffray & Co. are acting as joint book-running managers of this offering and as representatives of the underwriters named above.

The underwriting agreement provides that the obligations of the several underwriters are subject to certain conditions precedent such as the receipt by the underwriters of officers' certificates and legal opinions and approval of certain legal matters by their counsel. The underwriting agreement provides that the underwriters will purchase all of the shares if any of them are purchased, except as described below under "Option to Purchase Additional Shares." If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated. We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

The underwriters have advised us that they currently intend to make a market in the shares. However, the underwriters are not obligated to do so and may discontinue any market-making activities at any time without notice. No assurance can be given as to the liquidity of the trading market for the shares.

The underwriters are offering the shares subject to their acceptance of the shares from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commission and Expenses

The underwriters have advised us that they propose to offer the shares of common stock to the public at the public offering price set forth on the cover page of this prospectus supplement and to certain dealers at that price less a concession not in excess of \$ per share. After the offering, the public offering price and concession may be reduced by the representatives. No such reduction will change the amount of proceeds to be received by us as set forth on the cover page of this prospectus supplement.

The following table shows the public offering price, the underwriting discounts and commissions that we are to pay the underwriters and the proceeds, before expenses, to us in connection with this offering. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	PER SHARE		TOTAL	
	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES
Public offering price	\$	\$	\$	\$

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Underwriting discounts and commissions paid by us	\$	\$	\$	\$
Proceeds to us, before expenses	\$	\$	\$	\$

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We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately \$.

The underwriters have agreed to reimburse us for certain of our expenses incurred in connection with the offering in an amount of up to 0.5% of the aggregate gross proceeds from the offering.

Listing

Our shares are listed on The NASDAQ Global Select Market under the trading symbol ARNA.

Option to Purchase Additional Shares

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus supplement, to purchase up to an aggregate of additional shares of common stock at the public offering price set forth on the cover page of this prospectus supplement, less underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to specified conditions, to purchase a number of additional shares proportionate to that underwriter's initial purchase commitment as indicated in the table above. This option may be exercised only if the underwriters sell more shares than the total number set forth on the cover page of this prospectus supplement.

No Sales of Similar Securities

We and each of our executive officers and directors have agreed, subject to specified exceptions (including the permitted sale of up to an aggregate of approximately 216,090 shares of our common stock by our executive officers, excluding our president and chief executive officer, subject to certain conditions set forth in the lock-up agreement), not to directly or indirectly:

- n offer, pledge, assign, encumber, 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, any shares of common stock or any securities convertible into or exercisable or exchangeable for common stock owned either of record or beneficially (as defined in the Exchange Act), or
- n enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the common stock, or
- n publicly announce an intention to do any of the foregoing for a period of 90 days after the date of this prospectus without the prior written consent of Jefferies & Company, Inc. and Piper Jaffray & Co.

These restrictions terminate after the close of trading of the shares of common stock on and including the 90 days after the date of this prospectus supplement. However, subject to certain exceptions, in the event that either:

- n during the last 17 days of the 90-day restricted period, we issue an earnings release or material news or a material event relating to us occurs, or
- n prior to the expiration of the 90-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 90-day restricted period,

then in either case the expiration of the 90-day restricted period will be extended until the expiration of the 18-day period beginning on the date of the issuance of an earnings release or the occurrence of the material news or event, as applicable, unless Jefferies & Company, Inc. and Piper Jaffray & Co. waive, in writing, such an extension.

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Jefferies & Company, Inc. and Piper Jaffray & Co. may, in their sole discretion and at any time or from time to time before the termination of the 90-day period, without public notice, release all or any portion of the securities subject to lock-up agreements.

Stabilization

The underwriters have advised us that, pursuant to Regulation M under the Securities Exchange Act of 1934, as amended, certain persons participating in the offering may engage in transactions, including over-allotment,

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stabilizing bids, syndicate covering transactions or the imposition of penalty bids, which may have the effect of stabilizing or maintaining the market price of our common stock at a level above that which might otherwise prevail in the open market. Over-allotment involves syndicate sales in excess of the offering size, which creates a syndicate short position. Establishing short sales positions may involve either covered short sales or naked short sales.

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 shares to close out the covered short position, the underwriters will consider, 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 option to purchase additional shares.

Naked short sales are sales in excess of the option to purchase additional shares of common stock. 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 there may be downward pressure on the price of the shares of common stock in the open market after pricing that could adversely affect investors who purchase in this offering.

A stabilizing bid is a bid for the purchase of shares of common stock on behalf of the underwriters for the purpose of fixing or maintaining the price of the shares of common stock. A syndicate covering transaction is the bid for or the purchase of shares of common stock on behalf of the underwriters to reduce a short position incurred by the underwriters in connection with the offering. Similar to other purchase transactions, the underwriters' purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. A penalty bid is an arrangement permitting the underwriters to reclaim the selling concession otherwise accruing to a syndicate member in connection with the offering if the shares of common stock originally sold by such syndicate member are purchased in a syndicate covering transaction and therefore have not been effectively placed by such syndicate member.

Neither we nor any of the underwriters makes any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. The underwriters are not obligated to engage in these activities and, if commenced, any of the activities may be discontinued at any time.

The underwriters may also engage in passive market making transactions in our common stock on the NASDAQ Global Select Market in accordance with Rule 103 of Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specified purchase limits are exceeded.

Electronic Distribution

This prospectus supplement and the accompanying prospectus in electronic format may be made available by e-mail or on the web sites or through online services maintained by one or more of the underwriters or their affiliates. In those cases, prospective investors may view offering terms online and may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of shares of common stock for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than this prospectus supplement and the accompanying prospectus in electronic format, the information on the underwriters' web sites and any information contained in any other web site maintained by any of the underwriters is not part of this prospectus supplement or the accompanying prospectus, has not been approved and/or endorsed by us or the underwriters and should not be relied upon by investors.

Affiliations

Certain of the underwriters and their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment

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management, investment research, principal investment, hedging, financing and brokerage activities. The underwriters and certain of their affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for us, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the underwriters and certain of their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve our securities and/or instruments. The underwriters and certain of their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

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Notice to Investors

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (as defined below) (each, a Relevant Member State), with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, or the Relevant Implementation Date, an offer of our common stock to the public may not be made in that Relevant Member State prior to the publication of a prospectus in relation to our common stock which has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the competent authority in that Relevant Member State, all in accordance with the Prospectus Directive, except that an offer to the public in that Relevant Member State of any shares of our common stock may be made at any time under the following exemptions under the Prospectus Directive if they have been implemented in the Relevant Member State:

- 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 per Relevant Member State (other than qualified investors as defined in the Prospectus Directive); or
- d) in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of our common stock shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an offer of our common stock to the public in relation to any shares of our common stock 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 our common stock to be offered so as to enable an investor to decide to purchase or subscribe for our common stock, 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

Shares of our common stock may not be offered or sold and will not be offered or sold to any persons in the United Kingdom other than to persons whose ordinary activities involve them acquiring, holding, managing or disposing of investments (as principal or as agent) for the purposes of their businesses or otherwise in circumstances which have not resulted or will not result in an offer to the public in the United Kingdom within the meaning of the Financial Services and Markets Act 2000, or the FSMA.

In addition, any invitation or inducement to engage in investment activity (within the meaning of section 21 of the FSMA) in connection with the issue or sale of shares of our common stock may only be communicated or caused to be communicated in circumstances in which Section 21(1) of the FSMA does not apply to us. Without limitation to the other restrictions referred to herein, this prospectus supplement and the accompanying prospectus are directed only at (1) persons outside the United Kingdom or (2) persons who:

- a) are qualified investors as defined in section 86(7) of FSMA, being persons falling within the meaning of article 2.1(e)(i), (ii) or (iii) of the Prospectus Directive; and
- b) are either persons who fall within article 19(1) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or Order, or are persons who fall within article 49(2)(a) to (d) (high net worth companies, unincorporated associations, etc.) of the Order; or
- c) to whom it may otherwise lawfully be communicated in circumstances in which Section 21(1) of the FSMA does not apply.

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Without limitation to the other restrictions referred to herein, any investment or investment activity to which this prospectus supplement and the accompanying prospectus relate is available only to, and will be engaged in only with, such persons, and persons within the United Kingdom who receive this communication (other than persons who fall within (2) above) should not rely or act upon this communication.

Italy

This prospectus supplement and the accompanying prospectus have not been and will not be filed with or cleared by the Italian securities exchange commission (Commissione Nazionale per le società e la Borsa, or the CONSOB) pursuant to Legislative Decree No. 58 of 24 February 1998 (as amended, the Finance Law) and to CONSOB Regulation No. 11971 of 14 May 1999 (as amended, the Issuers Regulation). Accordingly, copies of this prospectus supplement and the accompanying prospectus or any other document relating to our common stock may not be distributed, made available or advertised in Italy, nor may our common stock be offered, purchased, sold, promoted, advertised or delivered, directly or indirectly, to the public other than (i) to Professional Investors (such being the persons and entities as defined pursuant to article 31(2) of CONSOB Regulation No. 11522 of 1 July 1998, as amended, the Intermediaries Regulation) pursuant to article 100 of the Finance Law; (ii) to prospective investors where the offer of our common stock relies on the exemption from the investment solicitation rules pursuant to, and in compliance with, the conditions set out by article 100 of the Finance Law and article 33 of the Issuers Regulation, or by any applicable exemption; provided that any such offer, sale, promotion, advertising or delivery of our common stock or distribution of this prospectus supplement and the accompanying prospectus, or any part thereof, or of any other document or material relating to our common stock in Italy is made: (a) by investment firms, banks or financial intermediaries authorized to carry out such activities in the Republic of Italy in accordance with the Finance Law, the Issuers Regulation, Legislative Decree No. 385 of 1 September 1993, as amended, the Intermediaries Regulation, and any other applicable laws and regulations; and (b) in compliance with any applicable notification requirement or duty which may, from time to time, be imposed by CONSOB, Bank of Italy or by any other competent authority.

Germany

Any offer or solicitation of securities within Germany must be in full compliance with the German Securities Prospectus Act (Wertpapierprospektgesetz, or the WpPG). The offer and solicitation of securities to the public in Germany requires the publication of a prospectus that has to be filed with and approved by the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, or the BaFin). This prospectus supplement and the accompanying prospectus have not been and will not be submitted for filing and approval to the BaFin and, consequently, will not be published. Therefore, this prospectus supplement and the accompanying prospectus do not constitute a public offer under the WpPG. This prospectus supplement, the accompanying prospectus and any other document relating to our common stock, as well as any information contained therein, must therefore not be supplied to the public in Germany or used in connection with any offer for subscription of our common stock to the public in Germany, any public marketing of our common stock or any public solicitation for offers to subscribe for or otherwise acquire our common stock. This prospectus supplement, the accompanying prospectus and other offering materials relating to the offer of our common stock are strictly confidential and may not be distributed to any person or entity other than the designated recipients hereof.

France

This prospectus supplement and the accompanying prospectus have not been prepared in the context of a public offering of financial securities in France within the meaning of Article L.411-1 of the French Code Monétaire et Financier and Title I of Book II of the Règlement Général of the Autorité des marchés financiers, or the AMF, and therefore has not been and will not be filed with the AMF for prior approval or submitted for clearance to the AMF. Consequently, the shares of our common stock may not be, directly or indirectly, offered or sold to the public in France and offers and sales of the shares of our common stock may only be made in France to qualified investors (investisseurs qualifiés) acting for their own, as defined in and in accordance with Articles L.411-2 and D.411-1 to D.411-4, D.734-1, D.744-1, D.754-1 and D.764-1 of the French Code Monétaire et Financier. None of this prospectus supplement, the accompanying prospectus or any other offering material may be released, issued or distributed to the public in France or used in connection with any offer for subscription on sale of the shares of our

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common stock to the public in France. The subsequent direct or indirect retransfer of the shares of our common stock to the public in France may only be made in compliance with Articles L.411-1, L.411-2, L.412-1 and L.621-8 through L.621-8-3 of the French Code Monétaire et Financier.

Sweden

This is not a prospectus under, and has not been prepared in accordance with the prospectus requirements provided for in, the Swedish Financial Instruments Trading Act (lagen (1991:980) om handel med finansiella instrument) nor any other Swedish enactment. Neither the Swedish Financial Supervisory Authority nor any other Swedish public body has examined, approved, or registered this document.

Switzerland

The shares of our common stock may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares of our common stock or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Issuer, the shares of our common stock have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of shares of our common stock will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA and the offer of shares of our common stock has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares of our common stock.

Hong Kong

No shares of our common stock have been offered or sold, and no securities may be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent; or to professional investors as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or in other circumstances which do not result in the document being a prospectus as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap.32) of Hong Kong. No document, invitation or advertisement relating to the securities has been issued or may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to professional investors as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance.

This prospectus supplement has not been registered with the Registrar of Companies in Hong Kong. Accordingly, this prospectus supplement may not be issued, circulated or distributed in Hong Kong, and the securities may not be offered for subscription to members of the public in Hong Kong. Each person acquiring the securities will be required, and is deemed by the acquisition of the securities, to confirm that he is aware of the restriction on offers of the securities described in this prospectus supplement and the relevant offering documents and that he is not acquiring, and has not been offered any securities in circumstances that contravene any such restrictions.

Singapore

This prospectus supplement has not been and will not be lodged or registered with the Monetary Authority of Singapore. Accordingly, this prospectus supplement and any other document or material in connection with the offer or sale, or the invitation for subscription or purchase of the securities may not be issued, circulated or distributed, nor may the securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to the public or any member of the public in Singapore other than (i) to an institutional

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investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore, or the SFA, (ii) to a relevant person as defined under Section 275(2), or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions, specified in Section 275 of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of any other applicable provision of the SFA.

Where the securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

a) a corporation (which is not an accredited investor as defined under Section 4A of the SFA) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor,

shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest in that trust shall not be transferable for six months after that corporation or that trust has acquired the Offer Shares under Section 275 of the SFA except:

i) to an institutional investor under Section 274 of the SFA or to a relevant person defined in Section 275(2) of the SFA, or to any person pursuant to an offer that is made on terms that such shares, debentures and units of shares and debentures of that corporation or such rights and interest in that trust are acquired at a consideration of not less than \$200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions, specified in Section 275 of the SFA;

ii) where no consideration is given for the transfer; or

iii) where the transfer is by operation of law.

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Legal Matters

The validity of the common stock offered by this prospectus supplement and the accompanying prospectus will be passed upon for us by Cooley LLP, San Diego, California. Latham & Watkins LLP, San Diego, California, is counsel for the underwriters in connection with this offering.

Experts

Our consolidated financial statements, as of and for the years ended December 31, 2011 and 2010, and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2011, have been incorporated by reference herein and in the registration statement in reliance upon the reports of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements for the year ended December 31, 2009 included in our Annual Report on Form 10-K for the year ended December 31, 2011, as set forth in its report, which is incorporated by reference in this prospectus supplement and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on such firm's authority as experts in accounting and auditing.

Where You Can Find More Information

We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the shares of common stock we are offering under this prospectus supplement. This prospectus supplement and the accompanying prospectus do not contain all of the information set forth in the registration statement and the exhibits to the registration statement. For further information with respect to us and the securities we are offering under this prospectus supplement, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. We also file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement, as well as any other material we file with the SEC, at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for more information on the Public Reference Room. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including Arena. The SEC's Internet site can be found at <http://www.sec.gov>.

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Incorporation of Certain Information by Reference

The SEC allows us to incorporate by reference the information we file with it, which means that we can disclose important information to you by referring you to those documents. Information incorporated by reference is part of this prospectus supplement and the accompanying prospectus. Later information filed with the SEC will update and supersede this information. The SEC's Internet site can be found at <http://www.sec.gov>.

We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement until the termination of the offering of the shares covered by this prospectus supplement (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items):

- n our Annual Report on Form 10-K for the year ended December 31, 2011 filed with the SEC on March 15, 2012;
- n the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2011 from our Definitive Proxy Statement on Schedule 14A for the 2012 Annual Meeting of Stockholders, filed with the SEC on April 27, 2012;
- n our Quarterly Report on Form 10-Q for the quarter ended March 31, 2012 filed with the SEC on May 2, 2012;
- n our Current Reports on Form 8-K (other than information furnished rather than filed) filed with the SEC on January 3, 2012, January 10, 2012, January 11, 2012, January 26, 2012, February 1, 2012, February 14, 2012, March 2, 2012, March 8, 2012, March 26, 2012, May 10, 2012 and May 15, 2012;
- n the description of our Stockholders Rights Agreement contained in our registration statement on Form 8-A filed with the SEC on November 15, 2002, as amended on December 30, 2003 and November 16, 2006, including any amendments or reports filed for the purposes of updating this description; and
- n the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on July 26, 2000, including any amendments or reports filed for the purposes of updating this description.

You may request a copy of these filings, at no cost, by contacting us at:

Arena Pharmaceuticals, Inc.

Attention: Investor Relations

6166 Nancy Ridge Drive

San Diego, California 92121

Telephone number: 858.453.7200

In accordance with Rule 412 of the Securities Act, any statement contained in a document incorporated by reference herein shall be deemed modified or superseded to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement.

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PROSPECTUS

May 15, 2012

Arena Pharmaceuticals, Inc.

Common Stock

We may, from time to time, offer to sell shares of our common stock in amounts, at prices and on terms described in one or more supplements to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings.

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, in a supplement to this prospectus or in a free writing 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 into this prospectus and any applicable prospectus supplement or free writing prospectus 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 and in the applicable prospectus supplement. 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 Select Market under the symbol ARNA. On May 14, 2012, the last reported sale price of our common stock on the NASDAQ Global Select Market was \$6.61 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 that are incorporated by reference into 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 May 15, 2012.

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We have not authorized anyone to provide you with different information from that contained in or incorporated by reference into this prospectus or any applicable prospectus supplement or free writing prospectus. 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 or free writing prospectus in any jurisdiction where the offer or sale is not permitted. The information contained in this prospectus, any applicable prospectus supplement or free writing prospectus, 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 is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, using a shelf registration process as a well-known seasoned issuer, as defined in Rule 405 under the Securities Act of 1933, as amended, or the Securities Act. Under this shelf registration statement, we may sell from time to time in one or more offerings the 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 authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. We may also add, update or change in a prospectus supplement or free writing prospectus 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 any related free writing prospectus and the documents incorporated by reference into this prospectus, include all material information relating to this offering. You should carefully read this prospectus as well as any applicable prospectus supplement and free writing prospectus, together with the additional information described under Where You Can Find More Information, before buying common stock in this offering.

Arena Pharmaceuticals®, Arena® and our corporate logo are registered service marks of Arena. All other brand names or trademarks appearing in this prospectus are the property of their respective holders. Unless otherwise specified or required by context, references in this prospectus to Arena Pharmaceuticals, Arena, we, us and our refer to Arena Pharmaceuticals, Inc.

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PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere or incorporated by reference in this prospectus. This summary does not contain all the information that may be important to purchasers of our common stock. Prospective purchasers of our common stock should read and consider this entire prospectus carefully, including the factors described under the heading "Risk Factors" in this prospectus beginning on page 2 and the financial and other information incorporated by reference in this prospectus, as well as the information included in any applicable free writing prospectus, for a more complete understanding of our business and this offering.

Arena Pharmaceuticals, Inc.

We are a clinical-stage biopharmaceutical company focused on discovering, developing and commercializing oral drugs that target G protein-coupled receptors, or GPCRs, an important class of validated drug targets, in four major therapeutic areas: cardiovascular, central nervous system, inflammatory and metabolic diseases. We have submitted regulatory applications for US and EU approval of our most advanced drug candidate, lorcaserin, which is intended for weight management. We intend to selectively advance certain of our research and development programs, and also to seek collaborators or other licensing opportunities for our programs.

In December 2011, we resubmitted to the US Food and Drug Administration, or FDA, a New Drug Application, or NDA, for lorcaserin. The FDA accepted the resubmission for filing and review and assigned a new Prescription Drug User Fee Act, or PDUFA, target date of June 27, 2012. Previously, in October 2010, the FDA issued a Complete Response Letter, or CRL, with respect to the original lorcaserin NDA we submitted in December 2009. In the CRL, the FDA stated that it had determined that it could not approve the application in its then present form.

On May 10, 2012, the FDA's Endocrinologic and Metabolic Drugs Advisory Committee met to discuss the lorcaserin NDA. The advisory committee voted 18 to 4, with one abstention, that the available data demonstrate that the potential benefits of lorcaserin outweigh the potential risks when used long-term in a population of overweight and obese individuals.

We are also seeking regulatory approval for lorcaserin in the European Union. On March 2, 2012, we filed a marketing authorization application, or MAA, for lorcaserin through the centralized procedure with the European Medicines Agency, or EMA. The EMA accepted the filing, which initiates the EMA's review process.

Our wholly owned subsidiary, Arena Pharmaceuticals GmbH, or Arena GmbH, has provided Eisai Inc., or Eisai, exclusive rights to commercialize lorcaserin in most of North and South America, including the United States, Canada, Mexico and Brazil, subject to applicable regulatory approval. We have retained commercial rights to lorcaserin outside of North and South America, including in the European Union and Asia.

Our prioritized earlier-stage programs include APD811, an internally discovered, orally available agonist of the prostacyclin receptor intended for the treatment of pulmonary arterial hypertension. APD811 completed a single-dose, Phase 1 clinical trial in 2011, and we plan to initiate a multiple dose, dose titration, Phase 1 clinical trial of APD811 this year. We also plan to file in 2012 an Investigational New Drug, or IND, application with the FDA for APD334 (an internally discovered, orally available agonist of the S1P1 receptor intended for the treatment of a number of conditions related to autoimmune diseases, including multiple sclerosis) and to continue development of our programs on APD371 (an internally discovered, orally available agonist of the cannabinoid receptor 2 intended for the treatment of pain) and GPR119 agonists (intended for the treatment of type 2 diabetes).

Along with lorcaserin and our prioritized earlier-stage programs, we have additional internally discovered oral drug candidates as well as active research programs intended to discover drug candidates.

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With respect to the additional drug candidates, we are not planning to conduct significant development activities, including any clinical trials, at this time. We may consider resuming their development in the future with one or more collaborators or independently, depending on the cost of further development, financial resources and their potential.

The headquarters of our operations outside of the United States is in Switzerland at Arena GmbH. Activities conducted at this location include manufacturing, quality control, quality assurance, development of manufacturing processes, qualifying suppliers and otherwise managing the global supply chain, regulatory compliance, distribution of finished products, and European strategic planning and development.

We have commercial rights for all of our programs and drug candidates, with the exception of Eisai's right to commercialize lorcaserin in most of North and South America. We have not received regulatory approval to market or sell any drugs or generated commercial revenues from selling any drugs, other than in connection with manufacturing drugs for Siegfried Ltd. in our Swiss drug product manufacturing facility.

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. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this prospectus and should not be considered part of this prospectus.

RISK FACTORS

Investing in our common stock involves a high degree of risk. Our business, prospects, financial condition or operating results could be materially adversely affected by the risks identified below, as well as other risks not currently known to us or that we currently consider immaterial. The trading price of our common stock could decline due to any of these risks, and you may lose all or part of your investment. In assessing the risks described below, you should also refer to the information contained in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2012, and other documents which are incorporated by reference in this prospectus in their entirety, and other documents that we file from time to time with the SEC.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and any applicable prospectus supplement or free writing prospectus, including the documents that we incorporate by reference herein and therein, contain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These forward-looking statements can generally be identified as such because the context of the statement will include words such as may, will, intend, plan, believe, anticipate, expect, estimate, predict, continue, likely, unlikely or opportunity, the negative of these words or words of similar import. 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 the Business and Management's Discussion and Analysis of Financial Condition and Results of Operations sections incorporated by reference from our most recent Annual Report on Form 10-K and our Quarterly Reports on Form 10-Q for the quarterly periods ended subsequent to our filing of such Annual Report on Form 10-K, as well as any amendments thereto reflected in subsequent filings with the SEC. These forward-looking statements are based largely on our expectations and projections about future events and future trends affecting our business, and are 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 noted in Risk Factors above and in any applicable prospectus supplement or free writing prospectus, and those included in the documents that we incorporate by reference herein and therein.

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In addition, past financial and/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 filing of this prospectus or any applicable prospectus supplement or free writing prospectus, or documents incorporated by reference herein and therein, 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 securities under this prospectus for the clinical and preclinical development of drug candidates, for discovery research for new drug candidates, for general corporate purposes, including working capital, capital expenditures and debt repayment, and potentially for the commercialization of any approved drugs. We may also use a portion of the net proceeds to acquire or invest in complementary businesses, products and technologies. Although we have no specific agreements, commitments or understandings with respect to any acquisition, we evaluate acquisition opportunities and engage in related discussions with other companies from time to time.

The amounts and timing of our expenditures will depend on a number of factors, such as whether and when we obtain regulatory approval for lorcaseerin, the timing and progress of our research and development efforts, the timing and progress of any partnering efforts, technological advances and the competitive environment for our product candidates. We will retain broad discretion in determining how we will allocate the net proceeds from the sale of common stock under this prospectus.

DESCRIPTION OF CAPITAL STOCK

As of the date of this prospectus, our amended and restated certificate of incorporation authorizes us to issue 242,500,000 shares of common stock, par value \$.0001 per share, and 7,500,000 shares of preferred stock, par value \$.0001 per share. As of May 10, 2012, 184,500,778 shares of common stock were outstanding. Currently, our board of directors has designated 350,000 of the authorized shares of preferred stock as Series A Junior Participating Preferred Stock, or Series A Preferred Stock, which series is described in greater detail below under Share Purchase Rights Agreement. As of May 10, 2012, 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 amended and restated 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 of which this prospectus is a part.

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.

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Preferred Stock

Under our amended and restated certificate of incorporation, 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 our 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.

Share Purchase Rights Agreement. 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, which is incorporated by reference as an exhibit into the registration statement of which this prospectus is a part.

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.

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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, 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.

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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 (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) any merger or consolidation involving the corporation and the interested stockholder, (B) any sale, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation, (C) subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder, (D) any transaction involving the corporation that has the effect of increasing the proportionate share of its stock owned by the interested stockholder, or (E) the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation. 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 amended and restated 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 amended and restated 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 amended and restated 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.

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Transfer Agent and Registrar

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

Listing on the NASDAQ Global Select Market

Our common stock is listed on the NASDAQ Global Select 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;

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;

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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.

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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, 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.

Any underwriters who are qualified market makers on the NASDAQ Global Select Market may engage in passive market making transactions in our common stock, preferred stock, warrants and debt securities, as applicable, on the NASDAQ Global Select Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

In compliance with guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

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.

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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.

LEGAL MATTERS

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

EXPERTS

Our consolidated financial statements, as of and for the years ended December 31, 2011 and 2010, and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2011, have been incorporated by reference herein and in the registration statement in reliance upon the reports of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements for the year ended December 31, 2009, included in our Annual Report on Form 10-K for the year ended December 31, 2011, as set forth in their report, which is 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 report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy any document we file with the SEC 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 it, 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 (other than information furnished under Item 2.02 or Item 7.01 of Form 8-K) until the termination of the offering of the shares covered by this prospectus:

our Annual Report on Form 10-K for the year ended December 31, 2011, filed with the SEC on March 15, 2012;

our Definitive Proxy Statement on Schedule 14A for the 2012 Annual Meeting of Stockholders, filed with the SEC on April 27, 2012;

our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2012, filed with the SEC on May 2, 2012;

our Current Reports on Form 8-K (other than information furnished rather than filed) filed with the SEC on January 3, 2012, January 10, 2012, January 11, 2012, January 26, 2012, February 1, 2012, February 14, 2012, March 2, 2012, March 8, 2012, March 26, 2012 and May 10, 2012;

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the description of our Rights Agreement contained in our registration statement on Form 8-A filed with the SEC on November 15, 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

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.

Attn: Investor Relations

6166 Nancy Ridge Drive

San Diego, California 92121

Telephone number: 858.453.7200

This prospectus is part of 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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Shares

Common Stock

PROSPECTUS SUPPLEMENT

Joint Book-Running Managers

Jefferies

Co-Manager

Piper Jaffray

BMO Capital Markets

May , 2012