

ARROWHEAD RESEARCH CORP
 Form 424B5
 August 14, 2012
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PROSPECTUS SUPPLEMENT
 (To Prospectus dated August 17, 2011)

Filed pursuant to Rule 424(b)(5)
 Registration No. 333-176159

Arrowhead Research Corporation

2,260,869 Units Consisting of

One Share of Common Stock and

One Warrant to Purchase .75 of a Share of Common Stock

Arrowhead Research Corporation is offering by this prospectus supplement 2,260,869 units, with each unit consisting of one share of our common stock and one warrant to purchase .75 of a share of our common stock (the Units) (and the 1,695,652 shares of our common stock issuable from time to time upon exercise of the offered warrants). The Units will not be issued or certificated. The shares of common stock and the warrants are immediately separable and will be issued separately, but will be purchased together in this offering.

Our common stock is listed on the NASDAQ Capital Market under the symbol ARWR. On August 10, 2012, the last reported sales price of our common stock on the NASDAQ Capital Market was \$3.25 per share. We do not intend to list the warrants on the NASDAQ Capital Market, any other national securities exchange or any other nationally recognized trading system.

Investing in our securities involves certain risks. Before purchasing our common stock and warrants, please review the information, including the information incorporated by reference, under the heading Risk Factors beginning on Page S-6 of this prospectus supplement and Page 2 of the accompanying prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

We have retained Rodman & Renshaw, LLC to act as our exclusive placement agent in connection with the Units offered by this prospectus supplement. We have agreed to pay the placement agent the placement agent fees set forth in the table below, which assumes that we sell all of the Units we are offering. The placement agent is not purchasing or selling any of the Units we are offering, and it is not required to arrange the purchase or sale of any specific number of Units or dollar amount, but they have agreed to use their reasonable efforts to arrange for the sale of the Units offered by this prospectus supplement.

	Per Unit	Total
Offering price	\$2.76	\$ 6,240,000
Placement agent fees ⁽¹⁾	\$0.08	\$ 180,000
Proceeds, before expenses, to us	\$2.68	\$ 6,060,000

- (1) We have agreed to pay the placement agent a percentage of the aggregate gross proceeds of the offering, but only on the portion of the aggregate gross proceeds for which the placement agent has arranged for the sale of Units. The placement agent will receive no payment on the portion of the aggregate gross proceeds of the offering for which the Company has directly arranged for sale of any Units. In addition, we have agreed to reimburse the placement agent for certain of its expenses as described under Plan of Distribution on page S-9 of this prospectus supplement.

We estimate the expenses of this offering, excluding placement agent fees, will be approximately \$220,000. Because there is no minimum offering amount required as a condition to closing this offering, the actual offering amount, the placement agent fees and net proceeds to us, if any, in this offering may be substantially less than the maximum offering amounts set forth above.

Delivery of the shares of common stock and warrants is expected to be made on or about August 16, 2012, subject to customary closing conditions.

RODMAN & RENSHAW, LLC

The date of this prospectus supplement is August 10, 2012.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document consists of two parts. The first part is this prospectus supplement, which describes the specific terms of this offering. The second part, the accompanying prospectus, gives more general information, some of which may not apply to this offering. Generally, when we refer only to the prospectus, we are referring to both parts combined. This prospectus supplement may add to, update or change information in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement or the accompanying prospectus.

If information in this prospectus supplement is inconsistent with the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission before the date of this prospectus supplement, you should rely on 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. This prospectus supplement, the accompanying prospectus and the documents incorporated into each by reference include important information about us, the shares and warrants being offered and other information you should know before investing in shares of our common stock and warrants to purchase our common stock. Before you invest, you should carefully read this prospectus supplement, the accompanying prospectus, all information incorporated by reference herein and therein, as well as the additional information described under **Where You Can Find Additional Information** on page 5 of the accompanying prospectus.

You should rely only on this prospectus supplement, the accompanying prospectus and the information incorporated or deemed to be incorporated by reference in this prospectus supplement and the accompanying prospectus. We have not, and the placement agent has not, authorized anyone to provide you with information that is in addition to, or different from, that contained or incorporated by reference in this prospectus supplement and the accompanying prospectus. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the placement agent is not, offering to sell shares of our common stock or warrants to purchase our common stock in any jurisdiction where the offer or sale is not permitted. You should not assume that the information contained or incorporated by reference in this prospectus supplement or the accompanying prospectus is accurate as of any date other than as of the date of this prospectus supplement or the accompanying prospectus, as the case may be, or in the case of the documents incorporated by reference, the date of such documents regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or any sale of shares of our common stock or warrants to purchase our common stock. Our business, financial condition, liquidity, results of operations, and prospects may have changed since those dates.

*Unless otherwise noted, (1) the term **Arrowhead Research** refers to Arrowhead Research Corporation, a Delaware corporation, formerly known as InterActive Group, Inc., (2) the terms **Arrowhead**, **the Company**, **we**, **us**, and **our**, refer to the ongoing business operations of Arrowhead Research and its subsidiaries, whether conducted through Arrowhead Research or a subsidiary of the company, (3) the term **Common Stock** refers to shares of Arrowhead Research's Common Stock, (4) the term **Warrants** refers to warrants to purchase shares of Common Stock and (5) the term **stockholder(s)** refers to the holders of Common Stock or securities exercisable for Common Stock.*

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement contains forward-looking statements within the meaning of the federal securities laws. You can identify forward-looking statements by the use of the words **believe**, **expect**, **anticipate**, **intend**, **estimate**, **project**, **will**, **should**, **may**, **plan** and other expressions which predict or indicate future events and trends and which do not relate to historical matters. You should not rely on forward-looking statements, because they involve known and unknown risks, uncertainties and other factors, some of which are beyond the control of the Company. These risks, uncertainties and other factors may cause the actual results, performance or achievements of the Company to be materially different from the anticipated future results, performance or achievements expressed or implied by the forward-looking statements.

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Factors that might cause these differences include the following:

the integration of multiple technologies and programs;

the ability to successfully complete development and commercialization of products and the Company's expectations regarding market growth;

the cost, timing, scope and results of ongoing safety and efficacy trials of preclinical and clinical testing;

the ability to successfully complete product research and further development;

the volume and profitability of product sales of future products;

changes in existing and potential relationships with corporate collaborators and partners;

the availability, cost, delivery and quality of materials supplied by contract manufacturers;

the timing, cost and uncertainty of obtaining regulatory approvals of our products;

the ability to obtain substantial additional funding;

the ability to develop and commercialize products before competitors that are superior to the alternatives developed by competitors;

the ability to retain certain members of management;

the Company's expectations regarding research and development expenses and general and administrative expenses;

the Company's expectations regarding cash balances, capital requirements, anticipated revenue and expenses, including infrastructure expenses;

our belief regarding the validity of our patents and potential litigation; and

other factors detailed from time to time in filings with the Securities and Exchange Commission.

In addition, the factors described under the section captioned "Risk Factors" in this prospectus supplement, as may be updated from time to time by our future filings under the Securities Exchange Act of 1934, and elsewhere in the documents incorporated by reference in this prospectus, may result in these differences. You should carefully review all of these factors. These forward-looking statements were based on information, plans and estimates at the date of this prospectus supplement, and we assume no obligation to update any forward-looking statements to reflect changes in underlying assumptions or factors, new information, future events or other changes.

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This summary highlights selected information appearing elsewhere or incorporated by reference in this prospectus supplement and accompanying prospectus and may not contain all of the information that is important to you. This prospectus supplement and the accompanying prospectus include or incorporate by reference information about the Common Stock and Warrants we are offering as well as information regarding our business and detailed financial data. You should read this prospectus supplement and the accompanying prospectus in their entirety, including the information incorporated by reference.

About the Company

Arrowhead Research Corporation is a nanomedicine company developing innovative therapies at the interface of biology and nanoengineering to cure disease and improve human health. Arrowhead has one of the most advanced and broadest technology platforms for therapeutics based on RNA interference (RNAi), including access to several different RNAi delivery systems and small interfering RNA (siRNA) structures in commercial development for RNAi therapeutics. This broad technology platform enables optimization of siRNA therapeutic candidates for delivery based on siRNA chemistry, tissue type, disease state, target gene and siRNA type and chemistry on a target-by-target basis. Through its acquisition of Alvos Therapeutics, Arrowhead has access to a large platform of proprietary human-derived homing peptides and the method for their discovery. These targeting peptide sequences can be linked to our siRNA delivery vehicles as well as to traditional small molecule drugs to preferentially shuttle them into target cells. Arrowhead is leveraging its in-house R&D expertise and capabilities, as well as a broad intellectual property portfolio for RNAi therapeutics, delivery vehicles and targeting methods to seek development partnerships with other pharmaceutical and biotech companies committed to bringing RNAi therapeutics to market, as well as continuing the preclinical and clinical development of its own clinical candidates. Arrowhead's non-RNAi development programs include a unique therapeutic candidate that shows promise in pre-clinical studies for the potential treatment of obesity.

Our common stock is listed on the Nasdaq Capital Market under the symbol **ARWR**.

Our executive offices are located at 225 South Lake Avenue, Suite 300, Pasadena CA 91101 and our telephone number is (626) 304-3400. Additional information regarding our company, including our audited financial statements and descriptions of our business, is contained in the documents incorporated by reference into this prospectus. See **Where You Can Find More Information** and **Incorporation of Documents by Reference** on page 5 of the accompanying prospectus.

Recent Events

The following is a summary of (unaudited) financial results for the three months ended June 30, 2012, as compared to the three months ended June 30, 2011:

	Three Months Ended June 30, 2012	Three Months Ended June 30, 2011
Revenue	\$ 47,917	\$ 0
Operating expenses	6,850,853	1,770,165
Other income (expense)	(1,436,802)	(174,507)
Loss from continuing operations	(8,239,738)	(1,944,672)
Net income (loss) from discontinued operations	677	(68,742)
Net loss	(8,239,061)	(2,013,414)
Net loss attributable to noncontrolling interests	247,551	193,497
Net loss attributable to Arrowhead	\$ (7,991,510)	\$ (1,819,917)
Earnings per share:		
Net loss attributable to Arrowhead shareholders	\$ (0.71)	\$ (0.25)
Weighted average shares outstanding	11,238,291	7,182,628

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During the quarter ended June 30, 2012, the Company's unconsolidated affiliate, Nanotope, Inc., moved its R&D operations from its facility in Skokie, Illinois to the laboratories of Northwestern University under the direction of Dr. Samuel Stupp, the Company's founder. Development work will be performed by personnel in Dr. Stupp's lab, and the Nanotope terminated the employment of its staff. Nanotope's intellectual property portfolio continues to be maintained, potentially allowing Nanotope to benefit from future successful developments. These circumstances required Arrowhead to examine its investment in Nanotope, as well as its receivable from Nanotope, for impairment. Upon review, it was determined that the remaining book value of its investment exceeded its fair value as determined by discounted future cash flows. As a result, upon completion of the assessment, management recorded a non-cash impairment charge of \$1.4 million during the quarter ended June 30, 2012 to reduce the carrying value of the investment to \$0. Additionally, the company recorded a full reserve against its receivable from Nanotope in the amount of the \$1.9 million.

During the nine months ended June 30, 2012, cash used in operating activities was \$10.8 million, cash provided from investing activities was \$0.3 million, and cash provided by financing activities was \$5.3 million, generating a decrease in cash during the nine months ended June 30, 2012 of \$5.2 million. The Company's cash balance at June 30, 2012 was \$2.3 million.

Table of Contents**THE OFFERING**

Units offered by us	2,260,869 Units. Each Unit consists of one share of Common Stock and one Warrant to purchase .75 of a share of Common Stock. The shares of Common Stock and Warrants offered hereby are immediately separable and will be issued separately.
Warrants offered by us	Each warrant will have an exercise price of \$3.25 per share, will become exercisable on the six month anniversary of the date of issuance and will expire four years from the date of issuance. For additional information, see Description of the Securities on page S-10 of this prospectus supplement. This prospectus supplement also relates to the offering of the shares of Common Stock issuable upon exercise of the Warrants.
Common stock to be outstanding immediately after this offering	13,571,685 Shares
Use of proceeds	We intend to use the net proceeds of this offering for general corporate purposes, including working capital, capital expenditures, research and development expenditures and clinical trial expenditures. A portion of the net proceeds may also be used for the acquisition of businesses, products and technologies that are complementary to ours, or for other strategic purposes.
Risk Factors	See Risk Factors beginning on page S-6 of this prospectus supplement and page 2 of the accompanying prospectus for a discussion of factors that you should read and consider before investing in our securities.
NASDAQ Capital Market symbol	Our Common Stock is listed on the NASDAQ Capital Market under the symbol ARWR .
The number of shares of common stock shown above to be outstanding after this offering is based on the 11,310,816 shares outstanding as of June 30, 2012, excludes the shares of common stock issuable upon exercise of the Warrants being offered by us in this offering and excludes the following as of June 30, 2012:	
Ø	1,606,094 shares of our common stock subject to options outstanding having a weighted average exercise price of \$6.63 per share;
Ø	764,166 shares of our common stock that have been reserved for issuance in connection with future grants under our 2004 equity compensation plan;
Ø	2,427,993 shares of our common stock that have been reserved for issuance upon exercise of outstanding warrants having a weighted average exercise price of \$9.77 per share, 329,649 of which have an exercise price of \$3.70, such exercise price will be adjusted as a result of this offering, however the number of warrant shares will not change;
Ø	131,579 shares owed to Galloway Limited as compensation pursuant to a services agreement dated September 30, 2011;
Ø	27,000 shares of our common stock issuable upon exchange of exchange rights sold to certain stockholders of Ablaris Therapeutics, Inc., a majority owned subsidiary of the Company, in connection with the financing of Ablaris Therapeutics, Inc.;

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- Ø 163,900 shares of our common stock issuable to an affiliate of Hoffmann-La Roche Inc. on October 21, 2012 as additional consideration pursuant to the Stock and Asset Purchase Agreement, entered into between the Company and Hoffmann-La Roche Inc. and F Hoffmann-La Roche Ltd on October 21, 2011 (the Roche Purchase Agreement); and

- Ø A number of shares of common stock equal to 9.9% of the common shares issued in this financing transaction, but only with respect to the first \$2,118,612 of cash raised in this offering, issuable to an affiliate of Hoffmann-La Roche Inc. on October 21, 2012 as additional consideration pursuant to the Roche Purchase Agreement.

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RISK FACTORS

We are a development-stage company and we have limited historical operations. Before making an investment decision, you should carefully consider the risks described below and in the sections entitled "Risk Factors" in our most recent Annual Report on Form 10-K or Quarterly Report on Form 10-Q, as filed with the Securities and Exchange Commission, which are incorporated herein by reference in their entirety, as well any amendment or updates to our risk factors reflected in subsequent filings with the Securities and Exchange Commission, including any applicable prospectus supplement. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. 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. This prospectus and the incorporated documents also contain forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks mentioned elsewhere in this prospectus supplement.

Risks Related to This Offering

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

Our management will have broad discretion as to the application of the net proceeds and could use them for purposes other than those contemplated at the time of this offering. Our stockholders may not agree with the manner in which our management chooses to allocate and spend the net proceeds. Moreover, our management may use the net proceeds for corporate purposes that may not increase our market value.

Investors in this offering will experience immediate and substantial dilution.

The public offering price of the securities offered pursuant to this prospectus supplement may be substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase Units in this offering, you will incur immediate and substantial dilution in the pro forma net tangible book value per share of common stock from the price per share that you pay for the Units. If the holders of outstanding options or other securities convertible into our common stock exercise those options or other such securities at prices below the public offering price, you will incur further dilution. See "Dilution" on page S-8 of this prospectus supplement for a more detailed discussion of the dilution you will incur in this offering.

The warrants are a new issue of securities with no established trading market.

The warrants are a new issue of securities with no established trading market. The warrants will not be listed on any securities exchange or quotation system. A trading market for the warrants may not develop and even if a market develops it may not provide meaningful liquidity. The absence of a trading market or liquidity for the warrants may adversely affect their value.

Future sales of substantial amounts of our common stock could adversely affect the market price of our common stock.

Future sales of substantial amounts of our common stock, or securities convertible or exchangeable into shares of our common stock, into the public market, including shares of our common stock issued upon exercise of options and warrants, or perceptions that those sales could occur, could adversely affect the prevailing market price of our common stock and our ability to raise capital in the future. We also may offer and sell up to an aggregate of \$15,000,000 of shares of our common stock pursuant to a purchase agreement entered into with Lincoln Park Capital Fund, LLC on October 20, 2011.

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USE OF PROCEEDS

We estimate that the net proceeds from this offering, based on an offering price of \$2.76 per Unit, after deducting placement agent fees and offering expenses of approximately \$400,000 and excluding the proceeds, if any, from any exercise of the warrants by the holder thereof, will be approximately \$5,840,000, assuming that we sell the maximum number of Units we are offering pursuant to this prospectus supplement. Because there is no minimum offering amount required as a condition to the closing of this offering, the actual number of units sold, placement agent fees and proceeds to us are not presently determinable and may be substantially less than the maximum amount set forth above.

We intend to use the net proceeds of this offering (including any resulting from the exercise of warrants, if any) for general corporate purposes, including working capital, capital expenditures, research and development expenditures and clinical trial expenditures. A portion of the net proceeds may also be used for the acquisition of businesses, products and technologies that are complementary to ours, or for other strategic purposes.

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If you invest in our common stock, your interest will be diluted immediately to the extent of the difference between the public offering price per Unit and the adjusted net tangible book value per share of our common stock after this offering.

The net tangible book value of our common stock as of June 30, 2012, was approximately \$3.8 million, or approximately \$0.33 per share. Net tangible book value per share represents the amount of our total tangible assets, excluding goodwill and intangible assets, less total liabilities, divided by the total number of shares of our common stock outstanding.

Dilution per share to new investors represents the difference between the amount per share paid by purchasers for each Unit in this offering and the net tangible book value per share of our common stock immediately following the completion of this offering.

After giving effect to the sale of 2,260,869 Units offered by this prospectus supplement at an offering price of \$2.76 per Unit in connection with this offering and after deducting the estimated placement agent fees and offering expenses and excluding the proceeds, if any, from the exercise of the warrants issued pursuant to this offering, our pro forma net tangible book value as of June 30, 2012 would have been approximately \$9,568,040 or approximately \$0.70 per share. This represents an immediate increase in net tangible book value of approximately \$0.37 per share to our existing stockholders and an immediate dilution in pro forma net tangible book value of approximately \$2.06 per share to purchasers of Units in this offering, as illustrated by the following table:

Offering price per Unit	\$ 2.76
Net tangible book value per share as of June 30, 2012	\$0.33
Increase per share attributable to the offering	\$0.37
As adjusted net tangible book value per share after this offering	\$ 0.70
Dilution per share to new investors	\$ 2.06

The discussion of dilution, and the table quantifying it, assume no exercise of any outstanding options or warrants or the issuance of other potentially dilutive securities. The exercise of potentially dilutive securities having an exercise price less than the offering price would increase the dilutive effect to new investors.

The number of shares of common stock shown above to be outstanding after this offering is based on the 11,310,816 shares outstanding as of June 30, 2012, excludes the shares of common stock issuable upon exercise of the Warrants being offered by us in this offering and excludes the following as of June 30, 2012:

- Ø 1,606,094 shares of our common stock subject to options outstanding having a weighted average exercise price of \$6.63 per share;
- Ø 764,166 shares of our common stock that have been reserved for issuance in connection with future grants under our 2004 equity compensation plan;
- Ø 2,427,993 shares of our common stock that have been reserved for issuance upon exercise of outstanding warrants having a weighted average exercise price of \$9.77 per share, 329,649 of which have an exercise price of \$3.70, such exercise price will be adjusted as a result of this offering, however the number of warrant shares will not change;
- Ø 131,579 shares owed to Galloway Limited as compensation pursuant to a services agreement dated September 30, 2011;

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- Ø 27,000 shares of our common stock issuable upon exchange of exchange rights sold to certain stockholders of Ablaris Therapeutics, Inc., a majority owned subsidiary of the Company, in connection with the financing of Ablaris Therapeutics, Inc.;

- Ø 163,900 shares of our common stock issuable to an affiliate of Hoffmann-La Roche Inc. on October 21, 2012 as additional consideration pursuant to the Stock and Asset Purchase Agreement, entered into between the Company and Hoffmann-La Roche Inc. and F Hoffmann-La Roche Ltd on October 21, 2011 (the "Roche Purchase Agreement"); and

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- Ø A number of shares of common stock equal to 9.9% of the common shares issued in this financing transaction, but only with respect to the first \$2,118,612 of cash raised in this offering, issuable to an affiliate of Hoffmann-La Roche Inc. on October 21, 2012 as additional consideration pursuant to the Roche Purchase Agreement.

PLAN OF DISTRIBUTION

Pursuant to a placement agent agreement between us and Rodman & Renshaw, LLC, we have engaged Rodman & Renshaw, LLC as our exclusive placement agent to solicit offers to purchase the Units offered by this prospectus supplement. The placement agent is not purchasing or selling any of the Units we are offering, and it is not required to arrange the purchase or sale of any specific number of Units or dollar amount, but the placement agent has agreed to use its reasonable best efforts to arrange for the sale of the Units offered by this prospectus supplement.

The placement agent proposes to arrange for the sale of the Units we are offering pursuant to this prospectus supplement to one or more investors through a securities purchase agreement directly between the purchasers and us. Any such securities purchase agreement will contain customary representations and warranties by us and each of the purchasers, and provide that the obligations of the purchasers to purchase the Units will be subject to certain customary conditions precedent. All of the Units will be sold at the same price in one or more closings. We established the price following negotiations with prospective investors and with reference to the prevailing market price of our common stock, recent trends in such price and other factors. It is possible that not all of the Units we are offering pursuant to this prospectus supplement will be sold, in which case our net proceeds would be reduced.

In connection with this offering, the placement agent may distribute this prospectus supplement and the accompanying prospectus electronically.

We will pay the placement agent an aggregate placement agent fee equal to 6% of the portion of the gross proceeds of this offering for which it has arranged for the sale of Units. Subject to compliance with FINRA Rule 5110(f)(2)(D), we will also reimburse the placement agent for legal and other expenses incurred by it in connection with this offering in an aggregate amount equal to 0.8% of the aggregate gross offering proceeds, but in no event more than \$35,000. The following table shows the per share and total placement agent fees we will pay to the placement agent in connection with the sale of the units, assuming the purchase of all of the units we are offering.

Per Unit	\$ 0.08
Total	\$ 180,000

We estimate the total expenses of this offering which will be payable by us, excluding the placement agent fees, will be approximately \$220,000. After deducting certain fees due to the placement agent and our estimated offering expenses, we expect the net proceeds from this offering will be approximately \$5,840,000.

We have agreed to indemnify the placement agent against certain liabilities, including liabilities relating to or arising out of (i) any actions taken or omitted to be taken by the Company, (ii) any actions taken or omitted to be taken by the placement agent (or its affiliates) in connection with the Company's engagement with the placement agent and (iii) the placement agent's activities on the Company's behalf under the placement agent's engagement. We have also agreed to reimburse the placement agent for certain expenses (including the reasonable fees and expenses of counsel) incurred by the placement agent in connection with defending any claim, action, suit or proceeding in respect of such liabilities.

The placement agent agreement will be included as an exhibit to our Current Report on Form 8-K that we will file with the SEC in connection with this offering.

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The placement agent and its affiliates may in the future provide certain commercial banking, financial advisory or investment banking services for us for which it has received and may in the future receive fees, but there are no current arrangements between us. The placement agent and its affiliates may also from time to time in the future engage in transactions with us and perform services for us in the ordinary course of its business, but there are no current arrangements between us.

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DESCRIPTION OF THE SECURITIES

Common Stock

The material terms and provisions of our common stock are described in our registration statement on Form 8-A/A (Registration No. 000-21898), filed on November 1, 2010, including any amendments or reports filed for the purpose of updating such description.

Warrants

The following is a brief summary of certain terms and conditions of the warrants and is subject in all respects to the provisions contained in the warrants.

Form. The warrants will be issued as individual warrant agreements to the investors. You should review a copy of the form of warrant, which will be filed with the Securities and Exchange Commission by us as an exhibit to a Current Report on Form 8-K in connection with this offering within the time period required by such form, for a complete description of the terms and conditions applicable to the warrants.

Exercisability. The warrants are exercisable at any time on or after the date immediately after the six month anniversary of their original issuance, expected to be August 16, 2012, and at any time up to the date that is four years after their original issuance. The warrants will be exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice and, at any time a registration statement registering the issuance of the shares of common stock underlying the warrants under the Securities Act of 1933, as amended, or the Securities Act, is effective and available for the issuance of such shares, or an exemption from registration under the Securities Act is available for the issuance of such shares, by payment in full in immediately available funds for the number of shares of common stock purchased upon such exercise. If a registration statement registering the issuance of the shares of common stock underlying the warrants under the Securities Act is not then effective or available, the holder may only exercise the warrant through a cashless exercise, in which case the holder would receive upon such exercise the net number of shares of common stock determined according to the formula set forth in the warrant. No fractional shares of common stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price.

Exercise Limitation. A holder will not have the right to exercise any portion of the warrant if the holder (together with its affiliates) would beneficially own in excess of 4.99% of the number of shares of our stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the warrants. However, any holder may increase or decrease such percentage to any other percentage not in excess of 9.99% upon at least 61 days prior notice from the holder to us.

Exercise Price. The exercise price per share of common stock purchasable upon exercise of the warrants is \$3.25 per share of common stock. The exercise price is subject to appropriate adjustment in the event of certain stock dividends and distributions, stock splits, stock combinations, reclassifications or similar events affecting our common stock and also upon any distributions of assets, including cash, stock or other property to our stockholders.

Transferability. Subject to applicable laws, the warrants may be offered for sale, sold, transferred or assigned without our consent. There is currently no trading market for the warrants and a trading market may not develop.

Exchange Listing. We do not plan on applying to list the warrants on the NASDAQ Capital Market, any other national securities exchange or any other nationally recognized trading system.

Fundamental Transactions. In the event of a fundamental transaction, as described in the warrants and generally including any reorganization, recapitalization or reclassification of our common stock, the sale, transfer or other disposition of all or substantially all of our properties or assets, our consolidation or merger with or into another person, the holders of the warrants will be entitled to receive upon exercise of the warrants the kind and amount of securities, cash or other property that the holders would have received had they exercised the warrants immediately prior to such fundamental transaction. In the event of a fundamental transaction that is an all cash transaction, a going private transaction as defined in Rule 13e-3 under the Securities Exchange Act of 1934, or a fundamental transaction involving a person or entity not traded on a national securities exchange, the Company or any successor

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entity will, at the Warrant holder's option, purchase the Warrants by paying to the Warrant holder an amount of cash equal to the value of the remaining unexercised portion of the Warrants on the date of the consummation of such fundamental transaction, as calculated based on the Black-Scholes Option Pricing Model obtained from the *OV* function on Bloomberg, L.P., determined as of the day of consummation of the applicable fundamental transaction for pricing purposes as set forth in the Warrants.

Rights as a Stockholder. Except as otherwise provided in the warrants or by virtue of such holder's ownership of shares of our common stock, the holder of a warrant does not have the rights or privileges of a holder of our common stock, including any voting rights, until the holder exercises the warrant.

Listing; Transfer Agent

Our shares of common stock are traded on the NASDAQ Capital Market under the symbol *ARWR*. The transfer agent for our shares of common stock to be issued in this offering is Computershare Trust Company, located at 350 Indiana Street, Suite 800, Golden, CO, 80401, telephone number 800-962-4284.

DIVIDEND POLICY

We have never declared or paid dividends on our common stock and do not anticipate paying any dividends on our common stock in the foreseeable future.

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LEGAL MATTERS

Ropes & Gray LLP, San Francisco, California, will pass upon the validity of the common stock and warrants offered by this prospectus supplement and the accompanying prospectus. Ellenoff Grossman & Schole LLP, New York, New York is acting as counsel for the placement agent in connection with certain legal matters related to this offering.

EXPERTS

The financial statements of the Company incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K for the year ended September 30, 2011, have been audited by Rose, Snyder & Jacobs, LLP, as stated in their report incorporated by reference, and given upon the authority of said firm as experts in auditing and accounting.

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Prospectus

\$50,000,000

Arrowhead Research Corporation

Common Stock

Warrants

This prospectus will allow us to issue, from time to time in one or more offerings,

shares of our common stock, and

warrants to purchase shares of our common stock.

The common stock and warrants may be offered and sold separately or together in one or more series of issuances, for an aggregate dollar amount not to exceed \$50,000,000. We will provide specific terms of the securities in supplements to this prospectus.

In this prospectus, we refer to the common stock and the warrants collectively as the securities.

This prospectus provides a general description of the securities we may offer. We may sell the securities to or through underwriters, directly to investors or through agents, or through a combination of these methods. Each time we sell securities we will provide a prospectus supplement that will contain specific information about the terms of that sale, including the names of any underwriters or agents, and may add, update or change the information contained in this prospectus. You should read this prospectus and any prospectus supplement, and the information incorporated by reference herein and therein, carefully before you invest in our securities. This prospectus may not be used to consummate a sale of securities unless accompanied by a prospectus supplement for those securities.

Our common stock is listed on the Nasdaq Capital Market under the symbol ARWR. On August 5, 2011, the last reported sale price of our common stock on the Nasdaq Capital Market was \$0.51.

*Investing in our securities involves a high degree of risk. You should carefully consider the **Risk Factors** beginning on page 2 before you invest in our securities.*

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 August 17, 2011

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, utilizing a shelf registration process. Under this shelf registration process, we may offer from time to time any combination of the securities described in this prospectus for a total dollar amount not to exceed \$50,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with additional information described under the heading **Where You Can Find More Information**.

We have not authorized any dealer, salesperson or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus and any accompanying prospectus supplement. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or any accompanying prospectus supplement as if we had authorized it. This prospectus and any accompanying prospectus supplement do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor does this prospectus and any accompanying prospectus supplement constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus and any accompanying prospectus supplement is correct on any date after their respective dates, even though this prospectus or any prospectus supplement is delivered or securities are sold on a later date.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements within the meaning of the federal securities laws. You can identify forward-looking statements by the use of the words believe, expect, anticipate, intend, estimate, project, will, should, may, plan, intend, as expressions which predict or indicate future events and trends and which do not relate to historical matters. You should not rely on forward-looking statements, because they involve known and unknown risks, uncertainties and other factors, some of which are beyond the control of the Company. These risks, uncertainties and other factors may cause the actual results, performance or achievements of the Company to be materially different from the anticipated future results, performance or achievements expressed or implied by the forward-looking statements.

Factors that might cause these differences include the following:

the integration of multiple technologies and programs;

the ability to successfully complete development and commercialization of products and the Company's expectations regarding market growth;

the cost, timing, scope and results of ongoing safety and efficacy trials of preclinical and clinical testing;

the ability to successfully complete product research and further development;

the volume and profitability of product sales of future products;

changes in existing and potential relationships with corporate collaborators and partners;

the availability, cost, delivery and quality of materials supplied by contract manufacturers;

the timing, cost and uncertainty of obtaining regulatory approvals of our products;

the ability to obtain substantial additional funding;

the ability to develop and commercialize products before competitors that are superior to the alternatives developed by competitors;

the ability to retain certain members of management;

the Company's expectations regarding research and development expenses and general and administrative expenses;

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the Company's expectations regarding cash balances, capital requirements, anticipated revenue and expenses, including infrastructure expenses;

our belief regarding the validity of our patents and potential litigation; and

other factors detailed from time to time in filings with the Securities and Exchange Commission.

In addition, the factors described under the section captioned "Risk Factors" in this prospectus, as may be updated from time to time by our future filings under the Securities Exchange Act, and elsewhere in the documents incorporated by reference in this prospectus, may result in these differences. You should carefully review all of these factors. These forward-looking statements were based on information, plans and estimates at the date of this prospectus, and we assume no obligation to update any forward-looking statements to reflect changes in underlying assumptions or factors, new information, future events or other changes.

ABOUT THE COMPANY

Unless otherwise noted, (1) the term "Arrowhead Research" refers to Arrowhead Research Corporation, a Delaware corporation, formerly known as InterActive Group, Inc., (2) the terms "Arrowhead," "the Company," "we," "us," and "our," refer to the ongoing business operations of Arrowhead and its subsidiaries, whether conducted through Arrowhead Research or a subsidiary of the company, and (3) the term "Common Stock" refers to shares of Arrowhead Research's Common Stock and the term "stockholder(s)" refers to the holders of Common Stock or securities exercisable for Common Stock.

Arrowhead Research Corporation is a nanomedicine company developing innovative therapeutic products at the interface of biology and nanoengineering to cure disease and improve human health. Arrowhead addresses its target markets through ownership in subsidiaries that are selected based on synergies in their technology, and clinical and business strategies. By focusing on specific related applications of nanomedicine, Arrowhead and its subsidiaries leverage shared expertise and resources to develop pioneering therapeutic platforms for large unmet medical needs. Arrowhead is currently focused on the preclinical and clinical development of therapeutics for the treatment of cancer and obesity, as well as the regeneration of wounded or diseased tissue.

Arrowhead's portfolio includes two majority owned subsidiaries, Calando Pharmaceuticals, Inc. ("Calando"), a leader in delivering small RNAs for gene silencing, and Ablaris Therapeutics, Inc. ("Ablaris"), an anti-obesity therapeutics company, and minority investments in Nanotope, Inc. ("Nanotope"), a regenerative medicine company and Leonardo Biosystems, Inc. ("Leonardo"), a multistage drug delivery company.

Our common stock is currently listed on the Nasdaq Capital Market under the symbol "ARWR."

Our executive offices are located at 225 South Lake Avenue, Suite 300, Pasadena CA 91101 and our telephone number is (626) 304-3400. Additional information regarding our company, including our audited financial statements and descriptions of our business, is contained in the documents incorporated by reference in this prospectus. See "Where You Can Find More Information" on page 5 and "Incorporation of Certain Information by Reference" on page 5.

RISK FACTORS

We are a development-stage company and we have limited historical operations. Before making an investment decision, you should carefully consider the risks described under "Risk Factors" in the applicable prospectus supplement, together with all of the other information appearing in this prospectus or incorporated by reference into this prospectus and any applicable prospectus supplement, in light of your particular investment objectives and financial circumstances. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The trading price of our securities could decline due to any of these risks, and you may lose all or part of your investment. This prospectus and the incorporated documents also contain forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks mentioned elsewhere in this prospectus.

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USE OF PROCEEDS

Unless we provide otherwise in a supplement to this prospectus, we intend to use the net proceeds from the sale of our securities and from the exercise of the warrants issued pursuant hereto, if any, for general corporate purposes, which may include one or more of the following:

working capital;

research and clinical development activities;

potential future acquisitions of companies and/or technologies; and

capital expenditures.

Our management will have broad discretion in the allocation of the net proceeds of any offering. Pending such uses, we intend to invest the net proceeds in short-term, investment grade, interest-bearing securities.

THE SECURITIES WE MAY OFFER

We may offer shares of our common stock and/or warrants to purchase common stock with a total value of up to \$50,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of offering. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities.

PLAN OF DISTRIBUTION

We may sell our securities from time to time in any manner permitted by the Securities Act, including any one or more of the following ways:

directly to investors;

to investors through agents;

to dealers; and/or

through one or more underwriters.

Any underwritten offering may be on a best efforts or a firm commitment basis. We may also make direct sales through subscription rights distributed to our stockholders on a pro rata basis, which may or may not be transferable. In any distribution of subscription rights to stockholders, if all of the underlying securities are not subscribed for, we may then sell the unsubscribed securities directly to third parties or may engage the services of one or more underwriters, dealers or agents, including standby underwriters, to sell the unsubscribed securities to third parties. Under agreements into which we may enter, underwriters, dealers and agents who participate in the distribution of the securities may be entitled to indemnification by us against some liabilities, including liabilities under the Securities Act, or contribution from us for payments which the underwriters, dealers or agents may be required to make. Underwriters, dealers and agents may engage in transactions with us or perform services for us from time to time in the ordinary course of business.

The distribution of the securities may be effected from time to time in one or more transactions:

at a fixed price or prices, which may be changed;

at market prices prevailing at the time of sale;

at prices related to such prevailing market prices; or

at negotiated prices.

Any of the prices may represent a discount from prevailing market prices.

We will seek authorization for listing and trading on the Nasdaq Capital Market for the shares of common stock sold pursuant to the registration statement of which this prospectus is a part and may seek to have any warrants

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we sell pursuant to this prospectus listed for trading on the Nasdaq Capital Market or another exchange. In any sale of the securities, underwriters or agents may receive compensation from us or from purchasers of the securities, for whom they may act as agents, in the form of discounts, concessions or commissions. Underwriters may sell the securities to or through dealers, and such dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for whom they may act as agents. Underwriters, dealers and agents that participate in the distribution of the securities may be deemed to be underwriters under the Securities Act of 1933, and any discounts or commissions they receive from us and any profit on the resale of securities they realize may be deemed to be underwriting discounts and commissions under the Securities Act.

Each time we sell securities, we will describe the method of distribution of the securities in the prospectus supplement relating to such transaction. The applicable prospectus supplement will, where applicable:

identify any such underwriter or agent;

describe any compensation in the form of discounts, concessions, commissions or otherwise received from us by each such underwriter or agent and in the aggregate to all underwriters and agents;

identify the amounts underwritten or to be sold through the agent; and

identify the nature of the underwriter's or agent's obligation to take the securities.

If underwriters are utilized in the sale of the securities, the securities may be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions, including negotiated transactions, at fixed public offering prices or at varying prices determined by the underwriters at the time of the sale. We may offer the securities to the public either through underwriting syndicates represented by managing underwriters or directly by the managing underwriters. If any underwriters are utilized in the sale of the securities, unless otherwise stated in the applicable prospectus supplement, the underwriting agreement will provide that the obligations of the underwriters are subject to specified conditions precedent and that the underwriters with respect to a sale of the securities will be obligated to purchase all of the securities offered if any are purchased.

Until the distribution of the securities is completed, rules of the Securities and Exchange Commission may limit the ability of any underwriters and selling group members to bid for and purchase the securities. As an exception to these rules, underwriters are permitted to engage in some transactions that stabilize the price of the securities, such as over allotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Securities Exchange Act of 1934, as amended. Over allotment involves sales in excess of the offering size which create a short position for the underwriter. Stabilizing transactions consist of bids or purchases for the purpose of pegging, fixing or maintaining the price of the securities. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. The underwriters may also impose a penalty bid, under which selling concessions allowed to syndicate members or other broker-dealers for securities sold in the offering for their account may be reclaimed by the syndicate if the securities are repurchased by the syndicate in stabilizing or covering transactions. In general, purchases of a security for the purpose of stabilization or to reduce a short position could cause the price of the security to be higher than it might be in the absence of such purchases. The imposition of a penalty bid might also have an effect on the price of a security to the extent that it were to discourage resales of the security before the distribution is completed.

We do not make any representation or prediction as to the direction or magnitude of any effect that the transactions described above might have on the price of the securities. In addition, we do not make any representation that underwriters will engage in such transactions or that such transactions, once commenced, will not be discontinued without notice.

Underwriters, dealers and agents may engage in transactions with us or perform services for us in the ordinary course of business.

If indicated in the applicable prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by particular institutions to purchase securities from us at the public offering price set forth in such prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on the date or dates stated in such prospectus supplement. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the applicable prospectus supplement.

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To comply with applicable state securities laws, the securities offered by this prospectus will be sold, if necessary, in such jurisdictions only through registered or licensed brokers or dealers. In addition, securities may not be sold in some states unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

EXPERTS

The financial statements of the Company incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K for the year ended September 30, 2010, have been audited by Rose, Snyder & Jacobs, a corporation of Certified Public Accountants, as stated in their report incorporated by reference, and given upon the authority of said firm as experts in auditing and accounting.

LEGAL MATTERS

Certain legal matters, including the validity of the securities offered pursuant to this registration statement, will be passed upon for us by Ropes & Gray LLP, San Francisco, California.

WHERE YOU CAN FIND MORE INFORMATION

We must comply with the informational requirements of the Securities Exchange Act of 1934, as amended, and we are required to file reports and proxy statements and other information with the Securities and Exchange Commission. You may read and copy these reports, proxy statements and other information at the Public Reference Room maintained by the Securities and Exchange Commission at 100 F Street, N.E., Washington, D.C. 20549. You may also obtain copies at the prescribed rates from the Public Reference Section of the Securities and Exchange Commission at its principal office in Washington, D.C. You may call the Securities and Exchange Commission at 1-800-SEC-0330 for further information about the public reference room. The Securities and Exchange Commission also maintains a website that contains reports, proxy and information statements and other information regarding issuers like us that file electronically with the Securities and Exchange Commission. You may access the Securities and Exchange Commission's web site at <http://www.sec.gov>.

Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete, and in each instance we refer you to the copy of the contract or document filed as an exhibit to the registration statement, each such statement being qualified in all respects by such reference.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The Securities and Exchange Commission allows us to incorporate by reference in this prospectus the information that we file with them. Incorporation by reference means that we can disclose important information to you by referring you to other documents that are legally considered to be part of this prospectus. Later information that we file with the Securities and Exchange Commission will automatically update and supersede the information in this prospectus, any supplement and the documents listed below. Our SEC file number is 0-15006. We incorporate by reference the specific documents listed below and any future filings made with the Securities and Exchange Commission under Section 13(a), 13(c), 14, or 15(d) of the Securities Exchange Act of 1934, as amended, until all of the shares of common stock and warrant shares covered by this prospectus are sold:

The Company's Annual Report on Form 10-K for the fiscal year ended September 30, 2010, filed on December 22, 2010;

The Company's Quarterly Reports on Form 10-Q for the fiscal quarter ended December 31, 2010, filed on February 10, 2011, for the fiscal quarter ended March 31, 2011, filed on May 12, 2011 and for the fiscal quarter ended June 20, 2011, filed on August 8, 2011;

The Company's Definitive Proxy Statement on Schedule 14-A, filed on June 27, 2011;

The Company's Current Reports on Form 8-K filed on November 30, 2010, December 9, 2010, December 14, 2010, December 20, 2010, January 14, 2011, January 21, 2011, January 24, 2011, February 3, 2011, April 5, 2011, May 12, 2011 and June 9, 2011;

The description of the Company's common stock contained in its registration statement on Form 8-A/A

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(Registration No. 000-21898), filed on November 1, 2010, including any amendments or reports filed for the purpose of updating such description; and

All documents filed by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, after the date of the original Registration Statement and prior to effectiveness of the registration statement of which this prospectus is a part, provided that all documents furnished by the Company to the SEC and not filed are not deemed incorporated by reference herein.

We will furnish without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request, a copy of any document incorporated by reference. Requests should be addressed to Corporate Secretary, 225 South Lake Street, Suite 300, Pasadena, CA 91101 or may be made telephonically at (626) 304-3400.

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. We have not authorized anyone to provide you with different information. You should not assume that the information contained in this prospectus or the accompanying prospectus supplement is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus and any accompanying prospectus supplement is delivered or securities are sold on a later date.

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Arrowhead Research Corporation
2,260,869 Units Consisting of
One Share of Common Stock and
One Warrant to Purchase .75 of a
Share of Common Stock

PROSPECTUS SUPPLEMENT

August 10, 2012