

**PROSPECTUS**

**ARROWHEAD RESEARCH CORPORATION**

**19,363,502 shares of Common Stock**

This prospectus covers the sale of an aggregate of 19,363,502 shares of our Common Stock, \$0.001 par value per share (the “**Common Stock**”), by the selling security holders identified in this prospectus (collectively with any holder’s transferee, pledgee, donee or successor, the “**Selling Stockholders**”). The Common Stock covered by this prospectus consists of (i) 5,083,430 shares of Common Stock issued in a private placement that closed on December 11, 2009, (ii) 5,083,430 shares of common stock issuable upon exercise of warrants (the “**December Warrants**”) issued in the same private placement that closed on December 11, 2009 (the “**December Private Placement**”), and (iii) 9,196,642 shares issuable upon the exercise of warrants (the “**August Warrants**,” and together with the December Warrants, the “**Warrants**”) issued in a private placement with a final closing in August 2009 (the “**August Private Placement**”). The shares identified in clauses (i), (ii) and (iii) are referred to collectively as the “**Shares**.”

The Company will not receive any proceeds from the sale by the Selling Stockholders of the Shares. However, the Company may indirectly receive proceeds to the extent that any Selling Stockholders exercise Warrants to purchase our Common Stock and then resell those Shares under this prospectus. We are paying the cost of registering the Shares covered by this prospectus as well as various related expenses. The Selling Stockholders are responsible for all selling commissions, transfer taxes and other costs related to the offer and sale of their Shares. If required, the number of Shares to be sold, the public offering price of those Shares, the names of any broker-dealers and any applicable commission or discount will be included in a supplement to this prospectus, called a prospectus supplement.

The Company’s Common Stock is traded on the NASDAQ Capital Market under the symbol “ARWR”. On January 6, 2010, the closing sale price of our Common Stock on the NASDAQ Capital Market was \$0.53 per share. Our principal executive offices are located at 201 South Lake Avenue, Suite 703, Pasadena, California 91101, and our telephone number is (626) 304-3400.

**Investing in our securities involves risks. You should carefully consider the [risk factors](#) beginning on page 1 of this prospectus before you make an investment 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 January 7, 2010

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You should read this prospectus, any applicable prospectus supplement and the information incorporated by reference in this prospectus before making an investment in the securities of Arrowhead Research Corporation. See “Where You Can Find Additional Information” for more information, page 9. You should rely only on the information contained in or incorporated by reference in this prospectus or a prospectus supplement. The Company has not authorized anyone to provide you with different information. This document may be used only in jurisdictions where offers and sales of these securities are permitted. You should assume that information contained in this prospectus, or in any document incorporated by reference, is accurate only as of any date on the front cover of the applicable document. Our business, financial condition, results of operations and prospects may have changed since that date.

### NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference into it contain forward-looking statements that involve risks and uncertainties. The statements contained or incorporated by reference in this prospectus that are not purely historical are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “**Securities Act**”) and Section 21E of the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”). The Company has made these statements in reliance on the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These forward-looking statements relate to future events or our future performance and include, but are not limited to; statements concerning our business strategy, future research and development projects, potential commercial revenues, capital requirements, new potential product introductions, expansion plans and the Company’s funding requirements. Other statements contained in our filings that are not historical facts are also forward-looking statements. The Company has tried, wherever possible, to identify forward-looking statements by terminology such as “may,” “will,” “could,” “should,” “expects,” “anticipates,” “intends,” “plans,” “believes,” “seeks,” “estimates” and other comparable terminology.

Forward-looking statements are not guarantees of future performance and are subject to various risks, uncertainties and assumptions that are difficult to predict. Actual results may differ materially from those anticipated in these forward-looking statements as a result of a number of factors, including the risk factors described below in this prospectus and in our periodic filings with the SEC, incorporated by reference or included in this prospectus. All forward-looking statements contained in this prospectus are made only as of the date on the prospectus cover. We expressly disclaim any intent to update or alter our forward-looking statements, whether as a result of new information, future events or otherwise. Before deciding to buy or sell our securities, you should be aware that the occurrence of the events described in these risk factors could harm our business, operating results and financial condition, which consequences could materially diminish the trading price of our securities and/or their value.

## PROSPECTUS SUMMARY

*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.*

### Our Business

Arrowhead is a development stage nanotechnology holding company that seeks to create stockholder value through the creation and operation of nanotechnology companies. Arrowhead currently owns two majority-owned operating subsidiaries, Unidym, Inc. (“**Unidym**”) and Calando Pharmaceuticals, Inc. (“**Calando**”), three wholly-owned non-operating subsidiaries, and has minority investments in two early-stage nanotechnology companies, Nanotope, Inc. and Leonardo Biosystems, Inc. (“**LBS**”). Arrowhead’s mission is to build value through the identification, development and commercialization of nanotechnology-related products and applications. Arrowhead is active in the operation of its subsidiaries, providing key management to the subsidiaries. The Company is currently focused primarily on its two lead subsidiaries, Unidym, a leader in the use of carbon nanotubes for electronic applications and Calando, a clinical stage siRNA delivery company. Arrowhead’s business plan includes adding to its portfolio through selective acquisition and formation of new companies, as capital resources allow.

Our common stock is quoted on the NASDAQ Capital Market under the symbol “ARWR”.

### The Offering

This prospectus relates to the resale by the Selling Stockholders identified in this prospectus of up to 19,363,502 shares of Common Stock, of which 5,083,430 shares are issued and outstanding as of the date of this prospectus, and 14,280,072 are issuable upon the exercise of Warrants. All of the Shares, when sold, will be sold by the Selling Stockholders. The Selling Stockholder may sell their Shares from time to time at market prices prevailing at the time of sale, at prices related to the prevailing market price, or at negotiated prices. We will not receive any proceeds from the sale of Shares by the Selling Stockholders, other than as a result of the exercise of Warrants held by the Selling Stockholders for cash.

### Corporate Information

Our executive offices are located at 201 South Lake Avenue, Suite 703 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 Additional Information” on page 9 and “Information Incorporated by Reference” on page 9.

### RISK FACTORS

Investors should carefully consider the risks and uncertainties and all other information contained or incorporated by reference in this prospectus, including the risks and uncertainties discussed under “Risk Factors” in our Annual Report on Form 10-K for the year ended September 30, 2009. All of these “Risk Factors” are incorporated by reference herein in their entirety. These risks and uncertainties are not the only ones facing us. Additional risks of which we are not presently aware or that we currently believe are immaterial may also harm our business and results of operations. The trading price of our common stock could decline due to the occurrence of any of these risks, and investors could lose all or part of their investment. In assessing these risks, investors should also refer to the other information contained or incorporated by reference in our other filings with the Securities and Exchange Commission.

## USE OF PROCEEDS

The proceeds from the resale of the Shares under this prospectus are solely for the account of the Selling Stockholders. We may indirectly receive proceeds of up to \$7,185,787 to the extent that any Selling Stockholders exercise warrants to purchase Shares and then resell those Shares under this prospectus, however, we will not directly receive any proceeds from the sale of Shares under this prospectus.

## SELLING SECURITY HOLDERS

The Company has included in this prospectus the following shares of Common Stock:

- 9,196,642 shares issuable upon the exercise of August Warrants issued in the August Private Placement;
- 5,083,430 shares of Common Stock issued in the December Private Placement; and
- 5,083,430 shares of Common Stock issuable upon the exercise of December Warrants issued in the December Private Placement.

In July and August 2009, we sold to certain institutional and accredited investors an aggregate of 9,196,642 units, with each unit consisting of one Share of Common Stock at a per unit purchase price of \$0.30, and a warrant to purchase an additional Share of Common Stock, exercisable at \$0.50 per share, in the August Private Placement.

In December 2009, we sold to certain accredited investors an aggregate of 5,083,430 units, with each unit consisting of one Share of Common Stock at a per unit purchase price of \$0.634, and a warrant to purchase an additional Share of Common Stock, exercisable at \$0.509 per share, in the December Private Placement.

The August Warrants may be exercised beginning in January 2010 and expire in June 2014. The December Warrants may be exercised beginning on June 12, 2010 and expire on December 11, 2010. The number of shares of Common Stock issuable upon the exercise of each Warrant and the exercise price thereof are subject to adjustment from time to time in the event of stock subdivisions, stock splits and stock combinations. With respect to the August Warrants, beginning on July 17, 2010, the August Warrants can be redeemed at the option of the Company at a price of \$1.00 per August Warrant at any time that (i) a registration statement with respect to the underlying Common Stock is in effect (or it no longer required to be in effect under the registration rights agreement) and (ii) the closing price of the Common Stock is at least \$1.20 for at least 30 trading days out of 60 consecutive days prior to the Company's notice of redemption. With respect to the December Warrants, beginning on December 13, 2010 and provided at least one year and a day have elapsed since the closing of the December Private Placement, the December Warrants can be redeemed at the option of the Company at a price of \$1.00 per December Warrant at any time the closing price of the Common Stock is at least \$1.20 for at least 30 trading days out of 60 consecutive days prior to the Company's notice of redemption.

In connection with the August Private Placement and December Private Placement, we entered into registration rights agreements, pursuant to which we have agreed to register the resale of the Shares and the Common Stock underlying the Warrants. The shares issued in the August Private Placement have been registered pursuant to a previously filed registration statement. This prospectus covers the resale of the Common Stock underlying the Warrants issued in the August Private Placement.

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The following table sets forth certain information regarding the Selling Stockholders and the shares of Common Stock beneficially owned by them, which information is available to us as of December 15, 2009. Selling Stockholders may offer Shares under this prospectus from time to time and may elect to sell none, some or all of the Shares set forth next to their name. As a result, we cannot estimate the number of shares of Common Stock that a Selling Stockholder will beneficially own after termination of sales under this prospectus. However, for the purposes of the table below, we have assumed that, after completion of the offering, none of the Shares covered by this prospectus will be held by the Selling Stockholders. In addition, a Selling Stockholder may have sold, transferred or otherwise disposed of all or a portion of that holder's shares of Common Stock since the date on which they provided information for this table. We have not made independent inquiries about this. We are relying on written commitments from the Selling Stockholders to notify us of any changes in their beneficial ownership after the date they originally provided this information. See "Plan of Distribution" beginning on page 6.

<u>Selling Stockholder (1)</u>	<u># of Shares held before Offering</u>		<u>Total # of Shares covered by this Prospectus</u>	<u># of Shares Offered</u>	<u># of Shares Underlying Warrants</u>	<u># of Shares beneficially owned after Offering(2)</u>	<u>% of Shares beneficially owned after Offering</u>
Christopher Anzalone	918,791	(3)	315,458	157,729	157,729	603,333	*
Milton Aronowitz, Jr.	270,206	(4)	55,206	27,603	27,603	215,000	*
F. Berdon & Co., L.P.	166,666	(5)	83,333	—	83,333	83,333	*
Steve Boyd	1,460,765	(6)	607,570	303,785	303,785	853,195	1.35%
Brett Bullock	93,864	(7)	78,864	39,432	39,432	15,000	*
Timothy Bullock	186,296	(8)	118,296	59,148	59,148	68,000	*
Nigel Burney	888,000	(9)	788,000	394,000	394,000	100,000	*
Lauren Carajohn	1,100,000	(10)	800,000	300,000	500,000	300,000	*
Cranshire Capital, L.P. (11)	356,137	(12)	333,333	—	333,333	22,804	*
M. Robert Ching	10,281,763	(13)	4,714,442	552,051	4,162,391	5,567,321	8.25%
Brian T. Ching	1,563,381	(14)	852,652	197,161	655,491	710,729	1.13%
Bradley Ching	1,538,848	(15)	852,652	197,161	655,491	686,196	1.09%
Judith Damashek	701,472	(16)	434,805	134,069	300,736	266,667	*
Robert Drust	500,000	(17)	250,000	—	250,000	250,000	*
Fortis Busines Holdings LLC	1,577,286	(18)	1,577,286	788,643	788,643	—	—
Fuller Family Trust	360,458	(19)	315,458	157,729	157,729	45,000	*
Nick Giannopoulos	586,666	(20)	293,333	—	293,333	293,333	*
Angela Giannopoulos	389,590	(21)	389,590	194,795	194,795	—	—
Gemini Master Fund, Ltd. (22)	833,333	(23)	833,333	—	833,333	—	—
Larry Hopfenspirger	556,466	(24)	183,333	—	183,333	373,133	*
Jason & Argo Partners Holding SA	900,000	(25)	300,000	—	300,000	600,000	*
Jason & Argo Partners BVBA	400,000	(26)	400,000	200,000	200,000	—	—
Stephen & Margaret Johnson	270,000	(27)	100,000	—	100,000	170,000	*
David Lackey	499,743	(28)	210,410	55,205	155,205	289,333	*
Kevin McGrath	266,666	(29)	133,333	—	133,333	133,333	*

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Roy Newman	166,666 (30)	83,333	—	83,333	83,333	*
The Pacific Coast Investment Trust	964,247 (31)	964,247	315,457	648,790	—	—
Arthur Rabin	1,230,914 (32)	930,914	315,457	615,457	300,000	*
Selma Rabin	13,334 (33)	6,667	—	6,667	6,667	*
Jeffrey D. Rahm	514,796 (34)	297,796	59,148	238,648	217,000	*
Donald Richey	116,544 (35)	31,544	15,772	15,772	85,000	*
David Riviere	79,936 (36)	59,936	29,968	29,968	20,000	*
William Haile Riviere, Jr. & Renee Helen Riviere	389,064 (37)	232,564	56,782	175,782	156,500	*
Rockmore Investment Master Fund Ltd. (38)	166,667 (39)	166,667	—	166,667	—	—
Greg Simon	241,646 (40)	118,296	59,148	59,148	123,350	*
Russell Soloman	175,620 (41)	87,810	—	87,810	87,810	*
Ernest W. Southworth, Jr.	333,334 (42)	166,667	—	166,667	166,667	*
Robert B. Stewart, Jr.	337,458 (43)	315,458	157,729	157,729	22,000	*
Thomas C. Stewart	501,748 (44)	315,458	157,729	157,729	186,290	*
Donald Stone	333,334 (45)	166,667	—	166,667	166,667	*
Richard Taylor	340,458 (46)	315,458	157,729	157,729	25,000	*
John Williams	166,666 (47)	83,333	—	83,333	83,333	*
Total	32,738,829	19,363,502	5,083,430	14,280,072	13,375,327	20.65%

\* Less than 1%.

- (1) If required, information about other selling security holders, except for any future transferees, pledgees, donees or successors of Selling Stockholders named in the table above, will be set forth in a prospectus supplement or amendment to the registration statement of which this prospectus is a part. Additionally, post-effective amendments to the registration statement will be filed to disclose any material changes to the plan of distribution from the description contained in the final prospectus.
- (2) This number (i) excludes warrants issued in the December Private Placement which are not exercisable for six months and one day after their issuance and are therefore not included in the calculation of beneficial ownership, and (ii) assumes the sale of all Shares being offered by this prospectus.
- (3) Includes 321,729 shares issuable upon the exercise of a common stock purchase warrant.
- (4) Includes 27,603 shares issuable upon the exercise of a common stock purchase warrant.
- (5) Includes 83,333 shares issuable upon the exercise of a common stock purchase warrant.
- (6) Includes 579,653 shares issuable upon the exercise of common stock purchase warrants.
- (7) Includes 39,432 shares issuable upon the exercise of a common stock purchase warrant.
- (8) Includes 59,148 shares issuable upon the exercise of a common stock purchase warrant.
- (9) Includes 394,000 shares issuable upon the exercise of a common stock purchase warrant.
- (10) Includes 600,000 shares issuable upon the exercise of common stock purchase warrants.
- (11) Downsview Capital, Inc. is the general partner of Cranshire Capital, L.P. ("Cranshire") and consequently has voting control and investment discretion over securities held by Cranshire. Mitchell P. Kopin ("Mr. Kopin"), President of Downsview, has voting control over Downsview. As a result of the foregoing, each of Mr. Kopin and Downsview may be deemed to have beneficial ownership (as determined under Section 13(d) of the Securities Exchange Act of 1934, as amended) of the shares of Common Stock beneficially owned by Cranshire.
- (12) Includes 333,333 shares issuable upon the exercise of a common stock purchase warrant.
- (13) Includes 4,355,108 shares and 3,905,352 shares issuable upon the exercise of a common stock purchase warrant held by The Ching Revocable Trust, 845,174 shares and 537,729 shares issuable upon the exercise of common stock purchase agreements held by the M. Robert Ching 401K Plan, and 456,000 shares and 182,400 shares issuable upon the exercise of common stock purchase warrants held by BBB Assets of which M. Robert Ching holds investment and voting control. Certain of the warrants held by The Ching Revocable Trust are subject to a warrant blocker agreement whereby the right to exercise such warrant is limited such that M. Robert Ching will not have greater than 9.99% beneficial ownership of the Company.
- (14) Includes 661,691 shares issuable upon the exercise of common stock purchase warrants.
- (15) Includes 658,691 shares issuable upon the exercise of common stock purchase warrants.
- (16) Includes 400,736 shares issuable upon the exercise of common stock purchase warrants.
- (17) Includes 500,000 shares issuable upon the exercise of common stock purchase warrants.
- (18) Includes 788,643 shares issuable upon the exercise of a common stock purchase warrant.
- (19) Includes 157,729 shares issuable upon the exercise of a common stock purchase warrant.
- (20) Includes 293,333 shares issuable upon the exercise of a common stock purchase warrant.
- (21) Includes 194,795 shares issuable upon the exercise of a common stock purchase warrant.

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- (22) The Investment Manager of Gemini Master Fund, Ltd. Is Gemini Strategies, LLC. The Managing Member of Gemini Strategies is Mr. Steven W. Winters. As such, Mr. Winters may be deemed beneficial owner of the shares, however Mr. Winters disclaims beneficial ownership of such shares.
- (23) Includes 833,333 shares issuable upon the exercise of a common stock purchase warrant.
- (24) Includes 252,778 shares issuable upon the exercise of common stock purchase warrants.
- (25) Includes 800,000 shares issuable upon the exercise of common stock purchase warrants.
- (26) Includes 200,000 shares issuable upon the exercise of a common stock purchase warrant.
- (27) Includes 100,000 shares issuable upon the exercise of a common stock purchase warrant.
- (28) Includes 263,205 shares issuable upon the exercise of a common stock purchase warrant and 20,833 issuable upon the exercise of an option to purchase Common Stock.
- (29) Includes 133,333 shares issuable upon the exercise of a common stock purchase warrant.
- (30) Includes 83,333 shares issuable upon the exercise of a common stock purchase warrant.
- (31) Includes 648,790 shares issuable upon the exercise of common stock purchase warrants.
- (32) Includes 615,457 shares issuable upon the exercise of a common stock purchase warrant.
- (33) Includes 6,667 shares issuable upon the exercise of a common stock purchase warrant.
- (34) Includes 209,148 in the name of Jeffrey Rahm and 67,000 Shares in the name of Stifel Nicolas Custodian for the Jeffrey Rahm IRA issuable upon issuance of common stock purchase warrants.
- (35) Includes 15,772 shares issuable upon the exercise of a common stock purchase warrant.
- (36) Includes 29,968 shares issuable upon the exercise of a common stock purchase warrant.
- (37) Includes 213,282 shares issuable upon the exercise of common stock purchase warrants.
- (38) Rockmore Capital, LLC (“Rockmore Capital”) and Rockmore Partners, LLC (“Rockmore Partners”), each a limited liability company formed under the laws of the State of Delaware, serve as the investment manager and general partner, respectively, to Rockmore Investments (US) LP, a Delaware limited partnership, which invests all of its assets through Rockmore Investment Master Fund Ltd., an exempted company formed under the laws of Bermuda (“Rockmore Master Fund”). By reason of such relationships, Rockmore Capital and Rockmore Partners may be deemed to share dispositive power over the shares of our common stock owned by Rockmore Master Fund. Rockmore Capital and Rockmore Partners disclaim beneficial ownership of such shares of our common stock. Rockmore Partners has delegated authority to Rockmore Capital regarding the portfolio management decisions with respect to the shares of common stock owned by Rockmore Master Fund and, as of August 12, 2009, Mr. Bruce T. Bernstein and Mr. Brian Daly, as officers of Rockmore Capital, are responsible for the portfolio management decisions of the shares of common stock owned by Rockmore Master Fund. By reason of such authority, Messrs. Bernstein and Daly may be deemed to share dispositive power over the shares of our common stock owned by Rockmore Master Fund. Messrs. Bernstein and Daly disclaim beneficial ownership of such shares of our common stock and neither of such persons has any legal right to maintain such authority. No other person has sole or shared voting or dispositive power with respect to the shares of our common stock as those terms are used for purposes under Regulation 13D-G of the Securities Exchange Act of 1934, as amended. No person or “group” (as that term is used in Section 13(d) of the Securities Exchange Act of 1934, as amended, or the SEC’s Regulation 13D-G) controls Rockmore Master Fund.
- (39) Includes 166,667 shares issuable upon the exercise of a common stock purchase warrant.
- (40) Includes 89,148 shares issuable upon the exercise of common stock purchase warrants.
- (41) Includes 89,410 shares issuable upon the exercise of a common stock purchase warrant.
- (42) Includes 166,667 shares issuable upon the exercise of a common stock purchase warrant.
- (43) Includes 157,729 shares issuable upon the exercise of a common stock purchase warrant.
- (44) Includes 157,729 shares issuable upon the exercise of a common stock purchase warrant.
- (45) Includes 166,667 shares issuable upon the exercise of a common stock purchase warrant.
- (46) Includes 157,729 shares issuable upon the exercise of a common stock purchase warrant.
- (47) Includes 83,333 shares issuable upon the exercise of a common stock purchase warrant.

## PLAN OF DISTRIBUTION

The Shares offered by this prospectus may be sold by the Selling Stockholders. Such sales may be made at fixed prices that may be changed, at market prices prevailing at the time of sale, at prices related to such prevailing market prices, or at negotiated prices, and may be made in the over-the-counter market or any exchange on which our Common Stock may then be listed, or otherwise. In addition, the Selling Stockholders may sell some or all of their Shares through:

- a block trade in which a broker-dealer may resell a portion of the block, as principal, in order to facilitate the transaction;
- purchases by a broker-dealer, as principal, and resale by the broker-dealer for its account;
- Ordinary brokerage transactions and transactions in which a broker solicits purchasers;
- in negotiated transactions;
- in a combination of any of the above methods of sale; or
- any other method permitted under applicable law.

The Selling Stockholders may also engage in short sales against the box, puts and calls and other hedging transactions in the Shares or derivatives of the Shares and may sell or deliver the Shares in connection with these trades. For example, the Selling Stockholders may:

- enter into transactions involving short sales of our Common Stock by broker-dealers;
- sell our Common Stock short themselves and redeliver such Shares to close out their short positions;
- enter into option or other types of transactions that require the Selling Stockholder to deliver shares of Common Stock to a broker-dealer, who will then resell or transfer the Common Stock under this prospectus; or
- loan or pledge shares of Common Stock to a broker-dealer, who may sell the loaned shares or, in the event of default, sell the pledged shares.
- There is no assurance that any of the Selling Stockholders will sell any or all of the Shares offered by them.

The Selling Stockholders may negotiate and pay broker-dealers commissions, discounts or concessions for their services. Broker-dealers engaged by the Selling Stockholders may allow other broker-dealers to participate in resales. However, the Selling Stockholders and any broker-dealers involved in the sale or resale of our common stock may qualify as “underwriters” within the meaning of the Section 2(a)(11) of the Securities Act. In addition, the broker-dealers’ commissions, discounts or concessions may qualify as underwriters’ compensation under the Securities Act. If the Selling Stockholders qualify as “underwriters,” they will be subject to the prospectus delivery requirements of the Securities Act.

In addition to selling their shares of Common Stock under this prospectus, the Selling Stockholders may:

- transfer their Common Stock in other ways not involving market makers or established trading markets, including, but not limited to, directly by gift, distribution, privately negotiated transactions in compliance with applicable law or other transfer; or



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- sell their Common Stock under Rule 144 of the Securities Act rather than under this prospectus, if the transaction meets the requirements of Rule 144. Each Selling Stockholder will bear all expenses with respect to the offering of Common Stock by such Selling Stockholder.

Each Selling Stockholder will be subject to the applicable provisions of the Exchange Act and the associated rules and regulations under the Exchange Act, including Regulation M, which provisions may limit the timing of purchases and sales of shares of our Common Stock by the Selling Stockholders.

The Selling Stockholders may from time to time pledge or grant a security interest in some or all of the Shares owned by them and, if they default in the performance of their secured obligations, the pledges or secured parties may offer and sell the Shares from time to time under this prospectus after an amendment has been filed under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of Selling Stockholders to include the pledge, transferee or other successors in interest as “Selling Stockholders” under this prospectus.

The Selling Stockholders also may transfer the Shares in other circumstances, in which case the respective pledgees, donees, transferees or other successors in interest will be the selling beneficial owners for purposes of this prospectus and may sell the Shares from time to time under this prospectus after an amendment has been filed under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of Selling Stockholders to include the pledge, transferee or other successors in interest as “Selling Stockholders” under this prospectus.

We will make copies of this prospectus available to the Selling Stockholders and have informed them of the need to deliver copies of this prospectus to purchasers at or prior to the time of any sale of the Shares.

We will bear all costs, expenses and fees in connection with the registration of the Shares. The Selling Stockholders will bear all commissions and discounts, if any, attributable to the resale of the Shares. The Selling Stockholders may agree to indemnify any broker-dealer or agent that participates in transactions involving sales of the Shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the Selling Stockholders against liabilities, including liabilities under the Securities Act, the Exchange Act and state securities laws, relating to the registration of the Shares offered by this prospectus.

### **DESCRIPTION OF SECURITIES TO BE REGISTERED**

Our authorized capital stock consists of 145,000,000 shares of Common Stock, \$0.001 par value per share, and 5,000,000 shares of preferred stock, \$0.001 par value per share.

#### **Common Stock**

Holders of Common Stock are entitled to receive ratably dividends out of funds legally available, if and when declared from time to time by our Board of Directors. The Company has never paid any cash dividends on its Common Stock and the Company’s Board of Directors does not anticipate that it will pay cash dividends in the foreseeable future. The future payment of dividends, if any, on the Company’s Common Stock is within the discretion of the Board of Directors and will depend upon earnings, capital requirements, financial condition and other relevant factors. Holders of Common Stock are entitled to one vote for each share held on each matter to be voted on by stockholders. There is no cumulative voting in the election of directors. In the event of liquidation, dissolution or winding up of the affairs of the Company, holders of Common Stock are to share in all assets remaining after the payment of liabilities and any preferential distributions payable to preferred stockholders, if any. The holders of Common Stock have no preemptive or conversion rights and are not subject to further calls or assessments. There are no redemption or sinking fund provisions applicable to the Common Stock. The rights of the holders of the Common Stock are subject to any rights that may be fixed for holders of preferred stock, if any. All of the outstanding shares of Common Stock are fully paid and non-assessable.

## **Certificate of Incorporation**

Under our Certificate of Incorporation, as amended, our Board of Directors, without further action by our stockholders, currently has the authority to issue up to 5,000,000 shares of preferred stock and to fix the rights (including voting rights), preferences and privileges of these “blank check” preferred shares. Such preferred stock may have rights, including economic rights, senior to our Common Stock. As a result, the issuance of the preferred stock could have a material adverse effect on the price of our Common Stock and could make it more difficult for a third party to acquire a majority of our outstanding Common Stock.

## **Delaware Anti-Takeover Law**

We are subject to Section 203 of the General Corporation Law of the State of Delaware, or DGCL. Section 203 generally prohibits a public 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:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- on or subsequent to the date of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- 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; and
- 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.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

## **Transfer Agent and Registrar**

We have appointed ComputerShare, Inc. as the Company’s transfer agent and registrar.

## **Listing**

Our Common Stock is quoted on the NASDAQ Capital Market under the symbol “ARWR”.

## **LEGAL MATTERS**

Certain legal matters relating to the validity of the Common Stock offered by this prospectus will be passed upon for us by Goodwin Procter LLP, San Francisco, California.

## **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, 2009, have been so incorporated in reliance on the report dated December 21, 2009 of Rose, Snyder & Jacobs, a corporation of Certified Public Accountants, given on the authority of said firms as experts in auditing and accounting.

## **INFORMATION WITH RESPECT TO THE REGISTRANT**

A substantial portion of the information required to be disclosed in the registration statement of which this prospectus is a part is incorporated by reference to our latest report on Form 10-K or definitive proxy statement on Schedule 14A. See "Incorporation of Certain Documents by Reference," "Prospectus Summary," and "Risk Factors." As of December 15, 2009, we had approximately 444 registered holders of our Common Stock.

## **MATERIAL CHANGES**

There have been no material changes since September 30, 2009 that have not been described in our Annual Report on Form 10-K, this prospectus and our Current Reports on Form 8-K.

## **WHERE YOU CAN FIND ADDITIONAL INFORMATION**

The Company files annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document filed by the Company 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 public reference room. The Company's filings with the SEC are also available to the public at the SEC's Internet web site at <http://www.sec.gov>. You may also read and copy this information at the National Association of Securities Dealers, Inc., 1735 K Street, N.W., Washington, D.C. 20006.

The Company has filed a registration statement, of which this prospectus is a part, covering the securities offered hereby. As allowed by Commission rules, this prospectus does not include all of the information contained in the registration statement and the included exhibits, financial statements and schedules. You are referred to the registration statement, the included exhibits, financial statements and schedules for further information. This prospectus is qualified in its entirety by such other information.

## **INFORMATION INCORPORATED BY REFERENCE**

The SEC allows the Company to "incorporate by reference" the information that is filed by the Company with the SEC, which means that the Company can disclose important information to you by referring you to those documents. The documents incorporated by reference are:

1. The Company's Annual Report on Form 10-K for the fiscal year ended September 30, 2009, filed with the SEC on December 22, 2009; and
2. The Company's Current Reports on Form 8-K, filed with the SEC on October 6, 2009, December 17, 2009, and December 28, 2009.

The Company will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, upon such person's written or oral request, a copy of any and all of the information incorporated by reference in this prospectus, other than exhibits to such documents, unless such exhibits are specifically incorporated by reference into the information that this prospectus incorporates. Requests should be directed to the Secretary at Arrowhead Research Corporation, 201 South Lake Avenue, Suite 703, Pasadena, California 91101; telephone: (626) 304-3400.

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**UP TO 19,363,502 SHARES OF COMMON STOCK  
ARROWHEAD RESEARCH CORPORATION**

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**PROSPECTUS**

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January 7, 2010