

ARROWHEAD RESEARCH CORP

Form 424B5

June 21, 2010

Table of Contents

Filed Pursuant to Rule 424(b)(5)

Registration No. 333-148218

PROSPECTUS SUPPLEMENT

To Prospectus dated June 11, 2010

6,592,989 UNITS

CONSISTING OF COMMON STOCK AND WARRANTS

\$1.312 PER UNIT

We are offering 6,592,989 units, with each unit consisting of one share of our common stock, \$0.001 par value per share (the "Common Stock"), and a warrant to purchase 0.5 shares of Common Stock, for an aggregate of 6,592,989 shares of Common Stock and warrants to purchase 3,296,497 shares of Common Stock, directly to investors pursuant to this prospectus supplement and the accompanying prospectus. Each unit will be sold at a price of \$1.312 per unit. Each warrant has an exercise price of \$1.65 per share, has a term of five years and is exercisable beginning six months from the date of issue.

Our Common Stock is traded on the NASDAQ Capital Market under the symbol "ARWR". On June 16, 2010, the closing sale price of our Common Stock on the NASDAQ Capital Market was \$1.64 per share.

The warrants are not and will not be listed for trading on the NASDAQ Capital Market or any other exchange.

Investing in our securities involves a high degree of risk.

See Risk Factors beginning on page S-3 of this prospectus supplement and page 2 of the prospectus and the documents incorporated by reference herein.

	Per Unit	Total
Public offering price	\$ 1.312	\$ 8,650,000
Placement agent's fees	\$ 0.078	\$ 517,250
Proceeds, before expenses, to us	\$ 1.234	\$ 8,132,750

We have engaged Oppenheimer & Co. Inc. as placement agent in this offering to use its best efforts to solicit offers to purchase the units in this offering. The placement agent is not purchasing or selling any units pursuant to this prospectus supplement or the accompanying prospectus, nor are we requiring any minimum purchase or sale of any specific number of units. We expect that delivery of the units being offered pursuant to this prospectus supplement will be made to investors on or about June 22, 2010.

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

Oppenheimer & Co. Inc.

The date of this prospectus supplement is June 17, 2010.

Table of Contents

TABLE OF CONTENTS

Prospectus Supplement

	Page
<u>The Offering</u>	S-1
<u>Corporate Information</u>	S-1
<u>Note Regarding Forward-Looking Statements</u>	S-2
<u>Risk Factors</u>	S-3
<u>Use of Proceeds</u>	S-15
<u>Dilution</u>	S-15
<u>Plan of Distribution</u>	S-16
<u>Description of Securities</u>	S-18

Prospectus

	Page
<u>About this Prospectus</u>	(i)
<u>Note Regarding Forward-Looking Statements</u>	(ii)
<u>Prospectus Summary</u>	1
<u>Risk Factors</u>	2
<u>Use of Proceeds</u>	2
<u>Plan of Distribution</u>	2
<u>Description of Securities to be Registered</u>	4
<u>Legal Matters</u>	4
<u>Experts</u>	5
<u>Where You Can Find Additional Information</u>	5
<u>Information Incorporated by Reference</u>	5

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, (3) the term "Common Stock" refers to shares of Arrowhead Research's Common Stock and (4) the term "stockholder(s)" refers to the holders of Common Stock or securities exercisable for Common Stock.

This prospectus supplement and the accompanying prospectus are part of a shelf registration statement on Form S-3 (File No. 333-148218) that we filed with the Securities and Exchange Commission on December 20, 2007, was amended on June 1, 2010 and was declared effective on June 11, 2010.

This document is in two parts. The first part is this prospectus supplement, which describes the specific details of this offering of our units and also adds to and updates information contained in or incorporated by reference into the accompanying prospectus. The second part is the accompanying prospectus, which gives more information about us and the securities we may offer from time to time under our shelf registration statement. To the extent there is a conflict between the information contained, or referred to, in this prospectus supplement, on the one hand, and the information contained, or referred to, in the accompanying prospectus or any document incorporated by reference therein, on the other hand, the information in this prospectus supplement shall control.

We have not authorized any broker, 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 supplement and the accompanying prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus supplement or the accompanying prospectus. This prospectus supplement and the accompanying prospectus do not constitute an offer to sell or the solicitation of an offer to buy units, nor do this prospectus supplement and the accompanying prospectus constitute an offer to sell or the solicitation of an offer to buy units 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 supplement and the accompanying prospectus 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 supplement and any accompanying prospectus is delivered or units are sold on a later date.

Table of Contents

It is important for you to read and consider all information contained in this prospectus supplement and the accompanying prospectus, including the documents we have referenced in the section entitled Information Incorporated by Reference in the accompanying prospectus.

We are offering to sell and seeking offers to buy, shares of our Common Stock and warrants only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of the Common Stock and warrants in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and/or the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of the Common Stock and warrants and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. The prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

Table of Contents

THE OFFERING

Securities offered by us	6,592,989 units, for an aggregate of 6,592,989 shares of Common Stock and warrants to purchase 3,296,497 shares of Common Stock. Each unit consists of one share of Common Stock and a warrant to purchase 0.5 shares of Common Stock.
Issue Price	\$1.312 per unit
Warrants	The exercise price of the warrants shall be \$1.65 per share. The warrants are exercisable beginning six months from the date of issue and expiring on the fifth anniversary of the date of issue. Please refer to the Description of Warrants as set forth under Description of Securities.
Common Stock to be outstanding after the offering	70,773,409 shares of Common Stock, or 74,069,906 shares of Common Stock if all the warrants are exercised for cash.
Use of Proceeds	We intend to use the net proceeds from this offering for general corporate purposes.
Risk Factors	This investment involves a high degree of risk. See Risk Factors beginning on page S-3 of this prospectus supplement.
Nasdaq Capital Market Symbol	ARWR
The number of shares of Common Stock to be outstanding after this offering is based on 64,180,420 shares outstanding as of June 16, 2010 and excludes:	

options outstanding as of that date representing the right to purchase a total of 6,605,838 shares of Common Stock at a weighted average exercise price of \$1.06 per share;

warrants outstanding as of that date representing the right to purchase a total of 19,397,701 shares of Common Stock at a weighted average exercise price of \$1.41 per share; and

approximately 4,658,000 shares of Common Stock reserved for future grant under our stock option plan.

CORPORATE INFORMATION

Our executive offices are located at 201 South Lake Avenue, Suite 703, 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 Additional Information on page 5 of the accompanying prospectus and Information Incorporated by Reference on page 5 of the accompanying prospectus. Our website address is <http://www.arrowheadresearch.com>. Information contained in, or accessible through, our website does not constitute a part of this prospectus supplement or the accompanying prospectus.

Table of Contents

NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference contain forward-looking statements that involve risks and uncertainties. The statements contained or incorporated by reference in this prospectus supplement and the accompanying 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 supplement and the accompanying prospectus and in our periodic filings with the SEC, incorporated by reference or otherwise included in this prospectus supplement and the accompanying prospectus. All forward-looking statements contained are made only as of the date of the document containing the applicable statement. 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.

S-2

Table of Contents

RISK FACTORS

Investing in our securities involves a high degree of risk. Before deciding to purchase any securities offered herein, you should carefully consider the risks described below, together with all of the other information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus, including from our most recent annual report on Form 10-K and subsequent quarterly reports on Form 10-Q. 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 part or all of your investment. This prospectus supplement, the accompanying 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 below.

Risks Related to Our Financial Condition

We do not have sufficient cash reserves to fund our activities at their current pace beyond this year.

Our plan of operations is to provide substantial amounts of development funding and financial support for our majority-owned subsidiaries over an extended period of time. Our Board of Directors adopted a cash conservation strategy that scaled back our financial support for our majority-owned subsidiaries, Unidym and Calando. This has influenced Unidym's decision to engage partners for its capital-intensive bulk carbon nanotube (CNT) manufacturing and concentrate its resources on its CNT inks and CNT-based film products and Calando's decision to curtail internal research and development efforts for its drug delivery platforms and clinical candidates and seek partners for future development of its drug candidates. Management has developed a plan based upon recent financings and other transactions. The plan shows that the Company has enough cash to fund operations through September 30, 2010. Should a shortfall occur in expected cash receipts, the plan has contingencies to reduce costs in order to operate through September 30, 2010 without additional financing.

We may need to obtain additional capital to support our projects, and we may plan to do so by out-licensing technology, selling one or more of our subsidiaries, securing funded partnerships, conducting one or more private placements of equity securities of the Company or our subsidiaries, selling additional securities in a registered public offering, or through a combination of one or more of such financing alternatives. However, there can be no assurance that we will be successful in any of these endeavors or, if we are successful, that such transactions will be accomplished on favorable terms. If we are unable to obtain additional capital, we will be required to implement additional cash saving measures by limiting further activities at Unidym, or at the Company, which could materially harm our business and our ability to achieve cash flow in the future, including delaying or reducing implementation of certain aspects of our plan of operations. Even if we are successful in obtaining additional capital, because we and each subsidiary are separate entities, it could be difficult or impossible to allocate funds in a way that meets the needs of all entities.

A substantial portion of Unidym's intellectual property is licensed from Rice University and the Rice University license includes an insolvency provision.

Through its merger with Carbon Nanotechnologies, Inc. (CNI), Unidym acquired a license to certain intellectual property from Rice University. Under the license, Unidym must meet a solvency test in order to retain the rights to the licensed technology. Although Unidym is not insolvent at this time, if Unidym does not obtain additional capital, it is likely that it would become insolvent and the Rice University license would be subject to potential termination. If the Rice University license terminates, Unidym would lose exclusivity in the fields of use covered by the Rice University license and its business would be materially and irrevocably harmed. In this case, the likelihood that the Company would realize any return on its investment in Unidym would be substantially diminished, if not eliminated entirely. This would likely materially and irrevocably harm the value of the Company and your investment.

The current financial market conditions may exacerbate certain risks affecting our business.

Neither the Company nor our subsidiaries generate substantial revenue, and, to date, our operations, research and development activities have been primarily funded through the sale of Company securities and securities of our subsidiaries. Current market conditions are likely to impair our ability to raise the capital we need. If we are unable to secure additional cash resources from the sale of securities or other sources, it could become necessary to further slow, interrupt or close down development efforts at Unidym. In addition, we may have to make additional cuts in expenses at the Company, which could impair our ability to manage our business and our subsidiaries. Even if investment capital is available to us, the terms may be onerous in light of the state of the current market. If investment capital is needed and available to Unidym and/or Calando and the Company does not have the funds to make a pro rata investment in such subsidiaries, our ownership interest could be significantly diluted. The sale of additional Company stock to fund operations could result in significant dilution to stockholders.

S-3

Table of Contents

The strategy for eventual monetization of our subsidiaries will likely depend on our ability to exit our ownership position in each subsidiary in an orderly manner. Exit opportunities could include an initial public offering (IPO) for the subsidiary or acquisition of the subsidiary by another company. Due to the current economic climate, companies are adopting conservative acquisition strategies and, even if there is interest, they may not be able to acquire our subsidiaries on terms that are attractive to us, if at all. These factors could reduce the realizable return on our investment if we are able to sell a subsidiary. Additionally, the market for IPOs is severely limited, which limits public exit opportunities for our subsidiaries.

We may not be able to maintain our listing on the NASDAQ Capital Market.

Our Common Stock trades on the NASDAQ Capital Market, which has certain compliance requirements for continued listing of common stock. We have in the past been subject to delisting procedures due to a drop in the price of our Common Stock. If our minimum closing bid price per share falls below \$1.00 for a period of 30 consecutive trading days in the future, we may again be subject to delisting procedures. As of the close of business on June 16, 2010, our Common Stock had a closing bid price of \$1.64 per share. We must also meet additional continued listing requirements contained in NASDAQ Marketplace Rule 5550(b), which requires that we have either (1) a minimum of \$2,500,000 in stockholders' equity, (2) \$35,000,000 market value of listed securities held by non-affiliates or (3) \$500,000 of net income from continuing operations for the most recently completed fiscal year (or two of the three most recently completed fiscal years). As of June 16, 2010 based on our closing price as of that day, the market value of our securities held by non-affiliates exceeded \$100,000,000 and we were in compliance with NASDAQ Marketplace Rule 5550(b). However, there can be no assurance that we will continue to meet the continued listing requirements.

The delisting of our Common Stock could reduce the ability of our stockholders to purchase or sell shares as quickly and as easily as they have done historically. For instance, failure to obtain listing on another market or exchange may make it more difficult for traders to sell our securities. Broker-dealers may be less willing or able to sell or make a market in our Common Stock. Not maintaining our NASDAQ Capital Market listing may (among other effects):

result in a decrease in the trading price of our Common Stock;

result in a decrease in interest by institutions and individuals in investing in our Common Stock;

make it more difficult for us to obtain analyst coverage; and

make it more difficult for us to raise capital in the future.

We have debt on our consolidated balance sheet, which could have consequences if we were unable to repay the principal or interest due thereunder.

Unidym. We have debt on our consolidated balance sheet, including a capital lease obligation acquired in connection with Unidym's acquisition of Nanoconduction, Inc. As of March 31, 2010, the capital lease obligation requires us to pay a total of \$296,419 in four monthly payments of approximately \$75,000 each for capital equipment at Unidym's Sunnyvale, California location and the equipment itself serves as collateral for the debt. Unidym's ability to make payments on its indebtedness will depend on its ability to conserve the cash that it has on hand and to generate cash in the future. Neither Unidym nor the Company currently generates significant revenue. Because Unidym does not currently have a substantial amount of cash on hand, Unidym might be required to divert cash from development activities or to generate cash via debt or equity financing to be able to meet the monthly payment requirements under the capital lease obligation. This, to some extent, is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control. Also, given the current economic climate, financing options might be limited going forward, which could prevent Unidym from obtaining the necessary funds to pay its indebtedness when due. Because the equipment serves as collateral for the debt, if Unidym is unable to make the monthly payments when due, the lessor of the equipment, at its discretion, may seize the equipment and Unidym would not be able to use the equipment in its development activities.

Table of Contents

Calando. Calando has a \$500,000 unsecured convertible promissory note outstanding. The note bears 10% interest accrued annually and matures in November 2010. The note is also payable prior to maturity at two times face value upon certain events, including, among other things, the license of Calando's siRNA delivery system. Following maturity, the note becomes payable on demand. If Calando is unable to meet its obligations to the bearer of the note after maturity, we may also not be in a position to lend Calando sufficient cash to pay such demand note. Unless other sources of financing become available, this could result in Calando's insolvency and have a material adverse effect on our financial condition.

Our subsidiaries have entered into technology license agreements with third parties that require us to satisfy certain obligations to keep them effective and, if these agreements were terminated, our technology and our business would be seriously and adversely affected.

Through our subsidiaries, we have entered into exclusive, long-term license agreements with Rice University, California Institute of Technology, Alnylam Pharmaceuticals, Inc. and other entities to incorporate their proprietary technologies into our proposed products. These license agreements require us to pay royalties and satisfy other conditions, including conditions related to the commercialization of the licensed technology. We cannot give any assurance that we will successfully incorporate these technologies into marketable products or, if we do, whether sales will be sufficient to recover the amounts that we are obligated to pay to the licensors. Failure by us to satisfy our obligations under these agreements may result in the modification of the terms of the licenses, such as by rendering them non-exclusive, or may give our licensors the right to terminate their respective agreements with us, which could limit our ability to implement our current business plan and harm our business and financial condition.

Risks Related to Our Business

We are a development stage company and our success is subject to the substantial risks inherent in the establishment of a new business venture.

The implementation of our business strategy is still in the development stage. We currently own majority interests in two subsidiary companies, investments in two early stage biotech companies and, through Unidym, one university research project at Duke University. Our business and operations should be considered to be in the development stage and subject to all of the risks inherent in the establishment of a new business venture. Accordingly, our intended business and operations may not prove to be successful in the near future, if at all. Any future success that we might enjoy will depend upon many factors, several of which may be beyond our control, or which cannot be predicted at this time, and which could have a material adverse effect upon our financial condition, business prospects and operations and the value of an investment in our Company.

The costs to fund the operations of Unidym is difficult to predict, and our anticipated expenditures in support of Unidym may increase or decrease for a variety of reasons.

The development, manufacturing and sale of cost-effective electronic products incorporating carbon nanotubes could continue to require significant ongoing investment and take a long time. It is possible that the development and scale up of Unidym's carbon nanotube manufacturing effort and its development and scale up of its transparent conductive film products could be delayed for a number of reasons, including unforeseen difficulties with the technology development and delays in adoption of the technology by customers. Any delay would result in additional unforeseen costs, which would harm our results of operations. Due to these uncertainties, we cannot reasonably estimate or assure you as to the size, nature or timing of the costs required to complete the development of Unidym's products or net cash inflows from Unidym's current activities.

Calando may be unable to find additional partners to license its technologies.

As part of our cash conservation strategy that scales back our financial support for Calando at this time, Calando has closed its laboratory facilities, eliminated its technical employees and shifted its focus to licensing its technologies to partners. Currently, Calando has one licensing partner, but there can be no assurance that Calando will be able to find additional partners to license its technologies upon terms favorable to Calando.

If Calando licenses its technologies, it will lose a considerable amount of control over its intellectual property and may not receive adequate licensing revenues in exchange.

The business model of our subsidiaries has historically been to develop new nanotechnologies and to exploit the intellectual property created through the research and development process to develop commercially successful products. Calando has licensed a portion of its technology to Cerulean Pharma, Inc. and intends to pursue further licensing arrangements with other companies. As Calando continues to license its

Edgar Filing: ARROWHEAD RESEARCH CORP - Form 424B5

technology to other companies, it will lose control over certain of the technologies it licenses and will be unable to significantly direct the commercialization of its technologies. In addition, Calando's licensees may not be successful in the further commercialization of Calando's technologies and anticipated revenues from such license agreements may be less than expected or may not be paid at all.

S-5

Table of Contents

There are substantial inherent risks in attempting to commercialize new technological applications, and, as a result, we may not be able to successfully develop nanotechnology for commercial use.

We finance research and development of nanotechnology, which is a new and unproven field. Our scientists and engineers are working on developing technology in various stages. However, such technology's commercial feasibility and acceptance is unknown. Scientific research and development requires significant amounts of capital and takes an extremely long time to reach commercial viability, if at all. To date, our research and development projects have not produced commercially viable applications, and may never do so. During the research and development process, we may experience technological barriers that we may be unable to overcome. For example, our scientists must determine how to design and develop nanotechnology applications for potential products designed by third parties for use in cost-effective manufacturing processes. Because of these uncertainties, it is possible that none of our potential applications will be successfully developed. If we are unable to successfully develop nanotechnology applications for commercial use, we will be unable to generate revenue or build a sustainable or profitable business.

Because we have not generated significant revenues to cover our operating expenses, we are dependent on raising additional capital from investors or lenders.

To date, we have only generated a small amount of revenue as a result of our current plan of operations. Given our strategy of financing new and unproven technology research, there is no assurance we would ever generate significant revenues. Our revenue-producing opportunities depend on liquidity events within our subsidiaries, such as a sale of the subsidiary, licensing transaction or initial public offering. We cannot be certain that we will be able to create a liquidity event for any of our subsidiaries and, even if we are able to, we cannot be certain of the timing or the potential proceeds to Arrowhead as a stockholder. Accordingly, our revenue prospects are uncertain and we plan to continue to finance our operations through the sales of equity securities or debt financing. If we are unable to continue raising operating capital from these sources, we may be forced to curtail or cease our operations.

We will need to achieve commercial acceptance of our applications to generate revenues and achieve profitability.

Even if our research and development yields technologically feasible applications, we may not successfully develop commercial products, and even if we do, we may not do so on a timely basis. If our research efforts are successful on the technology side, it could take at least several years before this technology will be commercially viable. During this period, superior competitive technologies may be introduced or customer needs may change, which will diminish or extinguish the commercial uses for our applications. Because nanotechnology is an emerging field, the degree to which potential consumers will adopt nanotechnology-enabled products is uncertain. We cannot predict when significant commercial market acceptance for nanotechnology-enabled products will develop, if at all, and we cannot reliably estimate the projected size of any such potential market. If markets fail to accept nanotechnology-enabled products, we may not be able to generate revenues from the commercial application of our technologies. Our revenue growth and achievement of profitability will depend substantially on our ability to introduce new technological applications to manufacturers for products accepted by customers. If we are unable to cost-effectively achieve acceptance of our technology among original equipment manufacturers and customers, or if the associated products do not achieve wide market acceptance, our business will be materially and adversely affected.

We will need to establish additional relationships with strategic and development partners to fully develop and market our products.

We do not possess all of the resources necessary to develop and commercialize products that may result from our technologies on a mass scale. Unless we expand our product development capacity and enhance our internal marketing, we will need to make appropriate arrangements with strategic partners to develop and commercialize current and future products. If we do not find appropriate partners, or if our existing arrangements or future agreements are not successful, our ability to develop and commercialize products could be adversely affected. Even if we are able to find collaborative partners, the overall success of the development and commercialization of product candidates in those programs will depend largely on the efforts of other parties and is beyond our control. In addition, in the event that we pursue our commercialization strategy through collaboration, there are a variety of attendant technical, business and legal risks, including:

a development partner would likely gain access to our proprietary information, potentially enabling the partner to develop products without us or design around our intellectual property;

Table of Contents

we may not be able to control the amount and timing of resources that our collaborators may be willing or able to devote to the development or commercialization of our product candidates or to their marketing and distribution;

our strategic objectives may not be aligned with those of our partners and could contribute to delays in the development and commercialization of our products or the management of resources; and

disputes may arise between us and our collaborators that result in the delay or termination of the research, development or commercialization of our product candidates or that result in costly litigation or arbitration that diverts our management's resources. The occurrence of any of the above risks could impair our ability to generate revenues and harm our business and financial condition.

In addition, should our strategic and development partners invest in our subsidiaries, our ownership interest in our subsidiaries could be diluted.

We need to retain a controlling interest, by ownership, contract or otherwise, in Unidym and Calando in order to avoid potentially being deemed an investment company under the Investment Company Act of 1940.

Companies that have more than 100 U.S. stockholders or are publicly traded in the U.S. or are, or hold themselves out as being, engaged primarily in the business of investing, reinvesting or trading in securities are subject to regulation under the Investment Company Act of 1940. Unless a substantial part of our assets consists of, and a substantial part of our income is derived from, interests in majority-owned subsidiaries and companies that we primarily control, whether by contract or otherwise, we may be required to register and become subject to regulation under the Investment Company Act. Because Investment Company Act regulation is, for the most part, inconsistent with our strategy of actively managing and operating our portfolio companies, a requirement to operate our business as a registered investment company would restrict our operations and require additional resources for compliance.

If we are deemed to be, and are required to register as, an investment company, we will be forced to comply with substantive requirements under the Investment Company Act, including:

limitations on our ability to borrow;

limitations on our capital structure;

restrictions on acquisitions of interests in associated companies;

prohibitions on transactions with our affiliates;

restrictions on specific investments; and

compliance with reporting, record keeping, voting, proxy disclosure and other rules and regulations.

In order to avoid regulation under the Investment Company Act, we may choose to make additional pro rata investments in Unidym and Calando to maintain a controlling interest.

Nanotechnology-enabled products are new and may be viewed as being harmful to human health or the environment.

There is public concern regarding the human health, environmental and ethical implications of nanotechnology that could impede market acceptance of products developed through these means. Nanotechnology-enabled products could be composed of materials such as carbon,

Edgar Filing: ARROWHEAD RESEARCH CORP - Form 424B5

silicon, silicon carbide, germanium, gallium arsenide, gallium nitride, cadmium selenide or indium phosphide, which may prove to be unsafe or harmful to human health or to the environment because of the size, shape or composition of the nanostructures. For this reason, these nanostructures may prove to present risks to human health or the environment that are different from and greater than the better understood risks that may be presented by the constituent materials in non-nanoscale forms. Because of the potential, but at this point unknown, risks associated with certain nanomaterials, government authorities in the U.S. or individual states, and foreign government authorities could, for social or other purposes, prohibit or regulate the use of some or all nanotechnologies. The U.S. Environmental Protection Agency has in that regard recently taken steps towards regulation of the manufacture and use of certain nanotechnology-enabled materials, including those containing carbon nanotubes or nanosilver. Further, the U.S. National Academy of Sciences/National Research Council concluded that the U.S. government needs to develop a more robust and coordinated plan for addressing the potential environmental, health, and safety risks of nanomaterials. The regulation and limitation of the kinds of materials used in or used to develop nanotechnology-enabled products, or the regulation of the products themselves, could halt or delay the commercialization of nanotechnology-enabled products or substantially increase the cost of such commercialization, which will impair our ability to achieve revenue from the license of nanotechnology applications.

S-7

Table of Contents

We may not be able to effectively secure first-tier research and development projects when competing against other ventures.

We compete with a substantial number of other companies that fund early-stage, scientific research at universities to secure rights to promising technologies. In addition, many venture capital firms and other institutional investors invest in companies seeking to commercialize various types of emerging technologies. Many of these companies have greater resources than we do. Therefore, we may not be able to secure the opportunity to finance first-tier research and commercialization projects. Furthermore, should any commercial undertaking by us prove to be successful, there can be no assurance competitors with greater financial resources will not offer competitive products and/or technologies.

We rely on outside sources for various components and processes for our products.

We rely on third parties for various components and processes for our products. While we try to have at least two sources for each component and process, we may not be able to achieve multiple sourcing because there may be no acceptable second source, other companies may choose not to work with us, or the component or process sought may be so new that a second source does not exist, or does not exist on acceptable terms. In addition, due to the recent tightening of global credit and the disruption in the financial markets, there may be a disruption or delay in the performance of our third-party contractors, suppliers or collaborators. If such third parties are unable to satisfy their commitments to us, our business would be adversely affected. Therefore, it is possible that our business plans will have to be slowed down or stopped completely at times due to our inability to obtain required raw materials, components and outsourced processes at an acceptable cost, if at all, or to get a timely response from vendors.

We must overcome the many obstacles associated with integrating and operating varying business ventures to succeed.

Our model to integrate and oversee the strategic direction of various subsidiaries and research and development projects presents many risks, including the difficulty of integrating operations and personnel and the diversion of our management's attention as a result of evaluating, negotiating and integrating acquisitions or new business ventures.

If we are unable to timely and efficiently design and integrate administrative and operational support for our subsidiaries, we may be unable to manage projects effectively, which could adversely affect our ability to meet our business objectives and the value of an investment in our Company could decline.

In addition, consummating acquisitions and taking advantage of strategic relationships could adversely impact our cash position, and dilute stockholder interests for many reasons, including:

changes to our income to reflect the amortization of acquired intangible assets, including goodwill;

interest costs and debt service requirements for any debt incurred to fund our growth strategy; and

any issuance of securities to fund our operations or growth could dilute and decrease the rights of current stockholders.

Table of Contents

Our success depends on the attraction and retention of senior management and scientists with relevant expertise.

Our future success will depend to a significant extent on the continued services of our key employees. In addition, we rely on several key executives to manage each of our subsidiaries. We do not maintain key man life insurance for any of our executives. Our ability to execute our strategy also will depend on our ability to continue to attract and retain qualified scientists, sales, marketing and additional managerial personnel. If we are unable to find, hire and retain qualified individuals, we could have difficulty implementing our business plan in a timely manner, or at all. Given the Company's current financial constraints, we may need to terminate certain employees, including senior management and technical employees, or such employees may seek other employment. With these and past reductions, it is possible that valuable know-how will be lost and that development efforts could be negatively affected.

Members of our senior management team and Board may have a conflict of interest in also serving as officers and/or directors of our subsidiaries.

While we expect that our officers and directors who also serve as officers and/or directors of our subsidiaries will comply with their fiduciary duties owed to our stockholders, they may have conflicting fiduciary obligations to our stockholders and the minority stockholders of our subsidiaries. Specifically, Dr. Anzalone, our CEO and President, is the founder, CEO and a board member of each of Nanotope, a regenerative medicine company that is separately financed in which the Company owns a 23% interest, and Leonardo, a drug delivery company in which the Company owns a 6% interest. Dr. Anzalone owns a noncontrolling interest in the stock of each of Nanotope and Leonardo. To the extent that any of our directors choose to recuse themselves from particular Board actions to avoid a conflict of interest, the other members of our Board of Directors will have a greater influence on such decisions.

Our efforts pertaining to the pharmaceutical industry are subject to additional risks.

Our subsidiary, Calando, as well as minority investments Nanotope and Leonardo, are focused on technology related to new and improved pharmaceutical candidates. Drug development is time consuming, expensive and risky. Even product candidates that appear promising in the early phases of development, such as in early animal and human clinical trials, often fail to reach the market for a number of reasons, such as:

clinical trial results are not acceptable, even though preclinical trial results were promising;

inefficacy and/or harmful side effects in humans or animals;

failure of the necessary regulatory bodies, such as the U.S. Food and Drug Administration to approve our potential product for the intended use; and

manufacturing and distribution is uneconomical.

Clinical trial results are frequently susceptible to varying interpretations by scientists, medical personnel, regulatory personnel, statisticians and others, which often delays, limits, or prevents further clinical development or regulatory approvals of potential products. If the subsidiaries technology is not cost effective or if the associated drug products do not achieve wide market acceptance, the value of a subsidiary would be materially and adversely affected.

Any drugs developed by our subsidiaries may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives, thereby harming our business.

Increasing expenditures for healthcare have been the subject of considerable public attention in the U.S. Both private and government entities are seeking ways to reduce or contain healthcare costs. Numerous proposals that would affect changes in the U.S. healthcare system have been introduced or proposed in Congress and in some state legislatures, including reductions in the cost of prescription products and changes in the levels at which consumers and healthcare providers are reimbursed for purchases of pharmaceutical products.

The ability of Calando and our minority investments, Nanotope and Leonardo, to market products successfully (either on their own or in partnership with other companies) will depend in part on the extent to which third-party payers are willing to reimburse patients for the costs of

Edgar Filing: ARROWHEAD RESEARCH CORP - Form 424B5

their products and related treatments. These third-party payers include government authorities, private health insurers and other organizations, such as health maintenance organizations. Third party payers are increasingly challenging the prices charged for medical products and services. In addition, the trend toward managed healthcare and government insurance programs could result in lower prices and reduced demand for the products of these companies. Cost containment measures instituted by healthcare providers and any general healthcare reform could affect their ability to sell products and may have a material adverse effect on them, thereby diminishing the value of the Company's interest in these subsidiaries or any anticipated milestone or royalty payments. We cannot predict the effect of future legislation or regulation concerning the healthcare industry and third party coverage and reimbursement on our business.

S-9

Table of Contents

There may be a difference in the investment valuations that we used when making initial and subsequent investments in our subsidiaries and minority investments and actual market values.

Our investments in our subsidiaries and noncontrolling interests were the result of negotiation with subsidiary management and equity holders, and the investment valuations were not independently verified. Traditional methods used by independent valuation analysts include a discounted cash flow analysis and a comparable company analysis. We have not generated a positive cash flow to date and do not expect to generate significant cash flow in the near future. Additionally, we believe that there exist few comparable public companies to provide a meaningful valuation comparison. Accordingly, we have not sought independent valuation analysis in connection with our investments and may have invested in our various holdings at higher or lower valuations than an independent source would have recommended. There may be no correlation between the investment valuations that we used over the years for our investments and the actual market values. If we should eventually sell all or a part of any of our consolidated business or that of a subsidiary, the ultimate sale price may be for a value substantially different than previously determined by us, which could materially and adversely impair the value of our Common Stock.

Risks Related to Our Intellectual Property

If Unidym is unable to raise additional cash or pay its debts, Unidym may lose rights to critical intellectual property.

Unidym is required to meet certain financial covenants pursuant to the Rice University license agreement acquired by Unidym upon its acquisition of CNI. The Rice University license includes financial covenants tested quarterly for compliance. If Unidym fails to meet the financial covenants, the Rice University license automatically terminates. If this should happen, the value of Unidym's intellectual property portfolio would be significantly and adversely affected and Unidym would likely lose patent protection for its products and licensing opportunities for the majority of its CNT intellectual portfolio.

Our ability to protect, enforce, and extract value from our patents and other proprietary rights is uncertain, exposing us to the possible loss of competitive advantage.

Our subsidiaries have licensed rights to pending patents and have filed and will continue to file patent applications. The researchers sponsored by us may also file patent applications that we choose to license. If a particular patent is not granted, the value of the invention described in the patent would be diminished. Further, even if these patents are granted, they may be difficult to enforce. Even if successful, efforts to enforce our patent rights could be expensive, distracting for management, cause our patents to be invalidated, and frustrate commercialization of products. Additionally, even if patents are issued and are enforceable, others may independently develop similar, superior or parallel technologies to any technology developed by us, or our technology may prove to infringe upon patents or rights owned by others. Thus, the patents held by or licensed to us may not afford us any meaningful competitive advantage. If we are unable to derive value from our licensed or owned intellectual property, the value of your investment may decline.

Our subsidiaries may also enter into agreements with certain partners and customers regarding their intellectual property rights, including the license and sale of such rights. These agreements could affect a subsidiary's ability to leverage its intellectual property to manage its market position or product pricing. Additionally, such agreements could limit a subsidiary's upside potential in enforcing its intellectual property rights against third parties.

Our ability to develop and commercialize products will depend on our ability to enforce our intellectual property rights and operate without infringing the proprietary rights of third parties.

Our ability and the ability of our subsidiaries to develop and commercialize products based on their respective patent portfolios, will depend, in part, on our ability and the ability of our subsidiaries to enforce those patents and operate without infringing the proprietary rights of third parties. There can be no assurance that any patents that may issue from patent applications owned or licensed by us or any of our subsidiaries will provide sufficient protection to conduct our respective businesses as presently conducted or as proposed to be conducted, or that we or our subsidiaries will remain free from infringement claims by third parties.

Table of Contents

We may be subject to patent infringement claims, which could result in substantial costs and liability and prevent us from commercializing our potential products.

Because the nanotechnology intellectual property landscape is rapidly evolving and interdisciplinary, it is difficult to conclusively assess our freedom to operate without infringing on third party rights. However, we are currently aware of certain patent rights held by third parties that, if found to be valid and enforceable, could be alleged to render one or more of our business lines infringing. If a claim should be brought and is successful, we may be required to pay substantial damages, be forced to abandon any affected business lines and/or seek a license from the patent holder. In addition, any patent infringement claims brought against us or our subsidiaries, whether or not successful, may cause us to incur significant expenses and divert the attention of our management and key personnel from other business concerns. These could negatively affect our results of operations and prospects. There can also be no assurance that patents owned or licensed by us or our subsidiaries will not be challenged by others.

In addition, if our potential products infringe the intellectual property rights of third parties, these third parties may assert infringement claims against our customers, and we may be required to indemnify our customers for any damages they suffer as a result of these claims. The claims may require us to initiate or defend protracted and costly litigation on behalf of customers, regardless of the merits of these claims. If any of these claims succeed, we may be forced to pay damages on behalf of our customers or may be required to obtain licenses for the products they use. If we cannot obtain all necessary licenses on commercially reasonable terms, we may be unable to continue selling such products.

The technology licensed by our subsidiaries from various third parties may be subject to government rights and retained rights of the originating research institutions.

We license technology from Caltech, Rice University, and other universities and companies. Our licensors may have obligations to government agencies or universities. Under their agreements, a government agency or university may obtain certain rights over the technology that we have developed and licensed, including the right to require that a compulsory license be granted to one or more third parties selected by the government agency.

In addition, our collaborators often retain certain rights under their agreements with us, including the right to use the underlying technology for noncommercial academic and research use, to publish general scientific findings from research related to the technology, and to make customary scientific and scholarly disclosures of information relating to the technology. It is difficult to monitor whether our collaborators limit their use of the technology to these uses, and we could incur substantial expenses to enforce our rights to our licensed technology in the event of misuse.

Risks Related to Regulation of Our Products

Our corporate compliance program cannot guarantee that we are in compliance with all applicable federal and state regulations.

Our operations, including our research and development and our commercialization efforts, such as clinical trials, manufacturing and distribution, are subject to extensive federal and state regulation. While we have developed and instituted a corporate compliance program, we cannot assure you that the Company or our employees are or will be in compliance with all potentially applicable federal and state regulations or laws. If we fail to comply with any of these regulations or laws, a range of actions could result, including, but not limited to, the termination of clinical trials, the failure to approve a commercialized product, significant fines, sanctions, or litigation, any of which could harm our business and financial condition.

If export controls affecting our products are expanded, our business will be adversely affected.

The federal government regulates the sale and shipment of numerous technologies by U.S. companies to foreign countries. Our subsidiaries may develop products that might be useful for military and antiterrorism activities. Accordingly, federal government export regulations could restrict sales of these products in other countries. If the federal government places burdensome export controls on our technology or products, our business would be materially and adversely affected. If the federal government determines that we have not complied with the applicable export regulations, we may face penalties in the form of fines or other punishment.

Table of Contents

Risks Related to our Stock

We may issue additional shares of our capital stock that could dilute the value of your shares of Common Stock.

Our certificate of incorporation authorizes the issuance of 145,000,000 shares of Common Stock and 5,000,000 shares of Preferred Stock, on such terms and at such prices as our Board of Directors may determine. As of June 11, 2010, 64,180,420 shares of Common Stock and no shares of Preferred Stock were issued and outstanding. As of June 16, 2010, 1,532,000 shares and 5,073,838 shares were reserved for issuance upon exercise of options granted under our 2000 Stock Option Plan and 2004 Equity Incentive Plan, respectively. As of June 11, 2010, there were warrants outstanding to purchase 19,397,701 shares of Common Stock. All of the warrants are callable by us under certain market conditions. The issuance of additional securities in financing transactions by us or through the exercise of options or warrants will dilute the equity interests of our existing stockholders, perhaps substantially, and might result in dilution in the tangible net book value of a share of our Common Stock, depending upon the price and other terms on which the additional shares are issued. For example, we may issue additional shares of Common Stock at below current market prices or additional convertible securities that could dilute the earnings per share and net tangible book value of your shares of our Common Stock.

Our Common Stock price has fluctuated significantly over the last several years and may continue to do so in the future, without regard to our results of operations and prospects.

Because we are a development stage company, there are few objective metrics by which our progress may be measured. Consequently, we expect that the market price of our Common Stock will likely continue to fluctuate significantly. We do not expect to generate substantial revenue from the license or sale of our nanotechnology for several years, if at all. In the absence of product revenue as a measure of our operating performance, we anticipate that investors and market analysts will assess our performance by considering factors such as:

announcements of developments related to our business;

developments in our strategic relationships with scientists within the nanotechnology field;

our ability to enter into or extend investigation phase, development phase, commercialization phase and other agreements with new and/or existing partners;

announcements regarding the status of any or all of our collaborations or products;

market perception and/or investor sentiment regarding nanotechnology as the next technological wave;

announcements regarding developments in the nanotechnology field in general;

the issuance of competitive patents or disallowance or loss of our patent rights; and

quarterly variations in our operating results.

We will not have control over many of these factors but expect that they may influence our stock price. As a result, our stock price may be volatile and any extreme fluctuations in the market price of our Common Stock could result in the loss of all or part of your investment.

The market for purchases and sales of our Common Stock may be very limited, and the sale of a limited number of shares could cause the price to fall sharply.

Edgar Filing: ARROWHEAD RESEARCH CORP - Form 424B5

Although our Common Stock is listed for trading on the NASDAQ Capital Market, our securities historically have been relatively thinly traded. Our current solvency concerns could serve to exacerbate the thin trading of our securities. For example, mandatory sales of our Common Stock by institutional holders could be triggered if an investment in our Common Stock no longer satisfies their investment standards and guidelines as a result of the solvency concerns. Accordingly, it may be difficult to sell shares of our Common Stock quickly without significantly depressing the value of the stock. Unless we are successful in developing continued investor interest in our stock, sales of our stock could continue to result in major fluctuations in the price of the stock.

S-12

Table of Contents

If securities or industry analysts do not publish research reports about our business or if they make adverse recommendations regarding an investment in our stock, our stock price and trading volume may decline.

The trading market for our Common Stock will be influenced by the research and reports that industry or securities analysts publish about our business. We do not currently have and may never obtain research coverage by industry or securities analysts. Investors have many investment opportunities and may limit their investments to companies that receive coverage from analysts. If no industry or securities analysts commence coverage of the Company, the trading price of our stock could be negatively impacted. In the event we obtain industry or security analyst coverage, if one or more of the analysts downgrade our stock or comment negatively on our prospects, our stock price would likely decline. If one or more of these analysts cease to cover our industry or us or fails to publish reports about the Company regularly, our Common Stock could lose visibility in the financial markets, which could also cause our stock price or trading volume to decline.

The market price of our Common Stock may be adversely affected by the sale of shares by our management or founding stockholders.

Sales of our Common Stock by our officers, directors and founding stockholders could adversely and unpredictably affect the price of those securities. Additionally, the price of our Common Stock could be affected even by the potential for sales by these persons. We cannot predict the effect that any future sales of our Common Stock, or the potential for those sales, will have on our share price. Furthermore, due to relatively low trading volume of our stock, should one or more large stockholders seek to sell a significant portion of its stock in a short period of time, the price of our stock may decline.

We may be the target of securities class action litigation due to future stock price volatility.

In the past, when the market price of a stock has been volatile, holders of that stock have often initiated securities class action litigation against the company that issued the stock. If any of our stockholders brought a lawsuit against us, we could incur substantial costs defending the lawsuit. The lawsuit could also divert the time and attention of our management.

We do not intend to declare cash dividends on our Common Stock.

We will not distribute cash to our stockholders unless and until we can develop sufficient funds from operations to meet our ongoing needs and implement our business plan. The time frame for that is inherently unpredictable, and you should not plan on it occurring in the near future, if at all.

Our Board of Directors has the authority to issue shares of blank check preferred stock, which may make an acquisition of the Company by another company more difficult.

We have adopted and may in the future adopt certain measures that may have the effect of delaying, deferring or preventing a takeover or other change in control of the Company that a holder of our Common Stock might consider in its best interest. Specifically, 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 shares (blank check preferred). Such preferred stock may have rights, including economic rights, senior to our Common Stock.

Risks Relating to the Offering

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

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

No market will exist for the sale of warrants.

There is no established trading market for the warrants to be issued in this offering and no market is expected to exist for the warrants in the future. The warrants will not be listed for trading on any stock exchange. The holders of warrants are not likely to be able to trade the warrants and may be forced to exercise the warrants in order to sell or transfer their interest in the warrant.

Table of Contents

You will experience immediate dilution in the book value per share of the Common Stock you purchase.

Because the price per share of our Common Stock being offered is substantially higher than the book value per share of our Common Stock, you will suffer substantial dilution in the net tangible book value of the Common Stock you purchase in this offering. Based on the public offering price of \$1.312 per share, if you purchase shares of Common Stock in this offering, you will suffer immediate and substantial dilution of \$1.154 per share in the net tangible book value of the Common Stock. To the extent you ultimately exercise the warrants being offered, you will incur further dilution. See "Dilution" on page S-15 for a more detailed discussion of the dilution you will incur in this offering.

S-14

Table of Contents

USE OF PROCEEDS

We intend to use the net proceeds from the sale of our securities, and, upon exercise of the warrants issued pursuant hereto, for general corporate purposes, which may include one or more of the following:

additional investments in existing Subsidiaries;

potential future investments in companies and/or technologies; and

operating expenses.

Pending such uses, we intend to invest the net proceeds in short-term, investment grade, interest-bearing securities.

DILUTION

Our net tangible book value as of March 31, 2010 was approximately \$3.3 million, or \$0.051 per share of Common Stock. Net tangible book value per share is calculated by subtracting our total liabilities from our total tangible assets, which is total assets less intangible assets, and dividing this amount by the number of shares of Common Stock outstanding. Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers of units in this offering and the net tangible book value per share of our Common Stock immediately after this offering. After giving effect to the sale by us of shares of Common Stock underlying the units offered by this prospectus supplement at a price of \$1.312 per unit, and after deducting estimated offering expenses and sales commissions payable by us, our as-adjusted net tangible book value as of March 31, 2010 would have been approximately \$11.1 million, or \$0.158 per share of Common Stock. This represents an immediate increase in the net tangible book value of \$0.107 per share to our existing stockholders and an immediate and substantial dilution in net tangible book value of approximately \$1.154 per share to new investors. The following table illustrates this per share dilution:

Offering price per unit	\$ 1.312
Net tangible book value per share as of March 31, 2010	\$ 0.051
Increase per share attributable to this offering	\$ 0.107
Net tangible book value per share after this offering	\$ 0.158
Dilution per share to new investors	\$ 1.154

The number of shares of Common Stock to be outstanding after this offering is based on 63,913,753 shares outstanding as of March 31, 2010 and excludes the following potentially dilutive securities as of such date:

6,535,838 shares of Common Stock issuable upon the exercise of stock options outstanding at a weighted average exercise price of \$1.06 per share;

19,664,368 shares of Common Stock issuable upon the exercise of warrants outstanding at a weighted average exercise price of \$1.40 per share; and

approximately 730,000 shares of Common Stock reserved for future grant under our stock option plan.

The foregoing dilution information does not give effect to the exercise of the warrants that are being offered with the units.

Table of Contents

PLAN OF DISTRIBUTION

We have entered into a placement agent agreement, dated as of June 17, 2010, with Oppenheimer & Co. Inc. Subject to the terms and conditions contained in the placement agent agreement, Oppenheimer & Co. Inc. has agreed to act as the placement agent in connection with the sale of up to 6,592,989 units, with each unit consisting of one share of Common Stock and a warrant to purchase 0.5 shares of Common Stock. The placement agent is not purchasing or selling any securities by this prospectus supplement or the accompanying prospectus, nor is it required to arrange the purchase or sale of any specific number or dollar amount of the securities, but it has agreed to use its best efforts to solicit purchasers for the securities in this offering. There is no required minimum number of securities that must be sold as a condition to completion of the offering.

We will enter into subscription agreements directly with investors in connection with this offering, and we will only sell to investors who have entered into subscription agreements. Our obligation to issue and sell units to investors is subject to the conditions set forth in the subscription agreements, which may be waived by us in our discretion. An investor's obligation to purchase units is subject to conditions set forth in the subscription agreements, which may be waived by the investor.

Unless investors instruct us otherwise, we will deliver the shares of Common Stock being issued to the investors electronically upon receipt of investor funds for the purchase of the units offered pursuant to this prospectus supplement, and we will issue the warrants to investors. We expect to deliver the shares of our Common Stock and the warrants being offered pursuant to this prospectus supplement on or about June 22, 2010.

We have agreed to pay the placement agent commissions and fees in an amount equal to 6.5% of the aggregate proceeds of this offering, with such resulting amount reduced by \$45,000. The following table shows the estimated per unit and total cash fees we will pay to the placement agent in connection with the sale of the securities offered pursuant to this prospectus supplement and the accompanying prospectus.

Per unit placement agent fees	\$ 0.078(1)
Maximum offering total	\$ 517,250

(1) Does not include fee and expense reimbursements of up to \$100,000.

However, because there is no minimum offering amount required as a condition to closing of this offering, the actual total offering commissions, if any, may be substantially less than the total offering amounts set forth above. We estimate the total expenses of this offering, excluding the placement agency fees, will be approximately \$275,000.

The placement agent has informed us that it will not engage in over-allotment, stabilizing transactions or syndicate covering transactions in connection with this offering.

The placement agent agreement provides that the obligations of the placement agent are subject to certain conditions precedent, including the absence of any material adverse changes in our business and the receipt of certain certificates, opinions and letters from us, our counsel and our auditors.

We have agreed to indemnify the placement agent and specified other persons against some civil liabilities, including liabilities under the Securities Act or the Exchange Act, and to contribute to payments that the placement agent may be required to make in respect of those liabilities.

Our Chief Executive Officer has signed a lock-up agreement, pursuant to which he has agreed to not, directly or indirectly, offer, sell, agree to sell or otherwise transfer or dispose of any shares of our Common Stock or any securities convertible into or exchangeable for shares of our Common Stock, without the prior written consent of Oppenheimer & Co. Inc. for a period of 90 days after the completion of this offering.

Our Common Stock is traded on the NASDAQ Capital Market under the symbol ARWR.

Table of Contents

The placement agent may distribute this prospectus supplement and the accompanying prospectus electronically.

The placement agent agreement will be included as an exhibit to a Current Report on Form 8-K that we will file with the SEC and that will be incorporated by reference into the registration statement of which this prospectus supplement forms a part.

The placement agent or its affiliates may in the future provide investment banking, commercial banking and/or other services to us from time to time, for which they may in the future receive customary fees and expenses.

S-17

Table of Contents

DESCRIPTION OF SECURITIES

The material terms of the securities being offered pursuant to this prospectus supplement and the accompanying prospectuses are summarized below.

Our authorized capital stock currently 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. As of June 16, 2010, there were 64,180,420 shares of our Common Stock outstanding and no shares of preferred stock outstanding. The following description of our capital stock summarizes the general terms and provisions that apply to our capital stock.

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 under our Certificate of Incorporation 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;

S-18

Table of Contents

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.

Description of Warrants

Each unit offered by this prospectus supplement will include a warrant to purchase 0.5 shares of our Common Stock. The warrants will be exercisable by the holders at any time starting six months from the date of issuance through the fifth anniversary of the date of issue.

The exercise price per share of Common Stock issuable upon exercise of the warrant is \$1.65 per share. The warrants will, among other things, include provisions for the adjustment in exercise price of the warrants and number of shares of Common Stock to be issued upon exercise of the warrants upon the occurrence of certain events, including any subdivision, recapitalization or combination of our Common Stock. In the event we issue or sell or are deemed to issue or sell shares of Common Stock, other than certain excluded securities, for a consideration per share less than the price equal to the exercise price immediately prior to such issue or sale or deemed issue or sale, the exercise price of the warrants will be adjusted to the lowest price per share received or receivable by us with respect to one share of Common Stock. In the event we make a dividend or other distribution of our assets (or right to acquire our assets) to holders of Common Stock, the holders of warrants shall be entitled to receive the dividend or distribution that would have been payable to such holders had they exercised the warrants in full immediately prior to such dividend or distribution. Similarly, in the event we grant, issue or sell any right, warrant or option to subscribe for or purchase shares or Common Stock or securities convertible into, exercisable or exchangeable for shares of Common Stock or rights to purchase stock, warrants, securities or other property pro rata to all record holders of Common Stock, then the holders of warrants shall be entitled to acquire such rights as such holders would have acquired had they exercised the warrants in full immediately prior to the record date for such grant, issue or sale.

The shares of Common Stock underlying the warrants, when issued upon exercise of a warrant, will be fully paid and non-assessable, and we will pay any transfer tax, transfer agent fee or other incidental tax or expense incurred as a result of the issuance of such shares to the holder upon its exercise.

We are not required to issue fractional shares upon the exercise of a warrant, but rather the number of shares to be issued shall be rounded up to the nearest whole number. The holder of a warrant will not possess any rights as a stockholder of our Company until such holder exercises the warrant.

At any time in which the registration statement of which this prospectus is a part is effective, a warrant may be exercised upon delivery to us, prior to the expiration date of the warrant, of the exercise form found on the back of the warrant completed and executed as indicated, accompanied by payment of the exercise price in immediately available funds for the number of shares of Common Stock with respect to which the warrant is being exercised. At any time during which the registration statement of which this prospectus is a part is not effective and prior to the warrant expiration date, by proper election on the exercise form a warrant may only be exercised through a cashless exercise, in which event we will issue to the holder of the warrant a number of shares determined by a formula set forth in the warrant, which will result in fewer shares of Common Stock being issued to the holder.

Table of Contents

The number of shares of our Common Stock that may be acquired by a holder upon exercise of a warrant is limited to the extent that, following the exercise, the total number of shares of Common Stock beneficially owned by the holder and its affiliates whose beneficial ownership is aggregated with the holder does not exceed 9.99% of the total number of issued and outstanding shares of our Common Stock.

The foregoing discussion of material terms and provisions of the warrants is qualified in its entirety by reference to the detailed provisions of the warrant, which will be provided to each investor in this offering and will be filed on a Current Report on Form 8-K in connection with this offering.

S-20

Table of Contents

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 of up to \$50,000,000. In this prospectus, we refer to the Common Stock and the warrants collectively as the securities.

We will provide the specific terms of these offerings and securities in one or more supplements to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference, before buying any of the securities being offered.

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

The Company's Common Stock is traded on the NASDAQ Capital Market under the symbol "ARWR". On June 10, 2010, the closing sale price of our Common Stock on the NASDAQ Capital Market was \$1.66 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 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 June 11, 2010

Table of Contents

Table of Contents

<u>ABOUT THIS PROSPECTUS</u>	(i)
<u>NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	(ii)
<u>PROSPECTUS SUMMARY</u>	1
<u>RISK FACTORS</u>	2
<u>USE OF PROCEEDS</u>	2
<u>PLAN OF DISTRIBUTION</u>	2
<u>DESCRIPTION OF SECURITIES TO BE REGISTERED</u>	4
<u>LEGAL MATTERS</u>	4
<u>EXPERTS</u>	5
<u>WHERE YOU CAN FIND ADDITIONAL INFORMATION</u>	5
<u>INFORMATION INCORPORATED BY REFERENCE</u>	5

Table of Contents

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 up to a total dollar amount of \$50,000,000. This prospectus provides you with a general description of the securities we may offer. We also may authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. This prospectus, together with applicable prospectus supplements and any related free writing prospectuses, includes all the material information relating to these offerings. We also may add, update or change, in the prospectus supplement and in any related free writing prospectus that we may authorize to be provided to you, any of the information contained in this prospectus or in the documents that we have incorporated by reference into this prospectus. We urge you to read carefully this prospectus, any applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the section entitled "Where You Can Find Additional Information," in this prospectus before buying any of the securities being offered.

THIS PROSPECTUS MAY NOT BE USED TO CONSUMMATE A SALE OF SECURITIES UNLESS IT IS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.

You should rely only on the information that we have provided or incorporated by reference in this prospectus, any applicable prospectus supplement and any related free writing prospectus that we may authorize to be provided to you. We have not authorized any other person to provide you with different information. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus that we may authorize to be provided to you. You must not rely on any unauthorized information or representation. This prospectus, any applicable supplement to this prospectus or any related free writing prospectus does 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, any applicable supplement to this prospectus or any related free writing prospectus 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 assume that the information appearing in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the front of the document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus, any applicable prospectus supplement or any related free writing prospectus, or any sale of a security. Our business, financial condition, results of operations and prospectus may have changed since those dates.

This prospectus, any applicable prospectus supplement or any related free writing prospectus contains and incorporates by reference market data, industry statistics and other data that have been obtained from, or compiled from, information made available by third parties. We have not independently verified their data. This prospectus, any applicable prospectus supplement or any related free writing prospectus and the information incorporated herein by reference includes trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included or incorporated by reference into this prospectus, any applicable prospectus supplement or any related free writing prospectus are the property of their respective owners.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the section entitled "Where You Can Find Additional Information."

(i)

Table of Contents

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 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.

(ii)

Table of Contents

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**) and has minority investments in two early-stage nanotechnology companies, Nanotope, Inc. and Leonardo Biosystems, Inc. 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 Securities We May Offer

This prospectus relates to the sale and issuance of an indeterminate number of 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 of up to \$50,000,000. We may sell these securities directly to investors, through agents designated from time to time or to or through underwriters or dealers. Each time we offer securities under this prospectus, we will provide, in one or more supplements to this prospectus, the specific terms of these offerings and securities, including, to the extent applicable, designation or classification; aggregate offering price; voting or other rights, if any; exercise prices, if any; and important United States federal income tax considerations. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings.

We, and our agents or underwriters, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities to or through agents or underwriters, we will include in the applicable prospectus supplement: the names of those agents or underwriters; applicable fees, discounts and commissions to be paid to them; details regarding over-allotment options, if any; and the net proceeds to us.

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 5 and **Information Incorporated by Reference** on page 5.

Table of Contents

RISK FACTORS

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 above.

USE OF PROCEEDS

Unless we provide otherwise in a supplement to this prospectus or in any related free-writing prospectus, we intend to use the net proceeds from the sale of our securities, and, upon exercise of the warrants issued pursuant hereto, 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. Although currently we have no specific agreements, commitments or understandings with respect to any acquisition, we evaluate acquisition opportunities and engage in related discussions with other companies from time to time.

Pending such uses, we intend to invest the net proceeds in short-term, investment grade, interest-bearing securities.

PLAN OF DISTRIBUTION

We may sell the securities covered by this prospectus from time to time in one or more offerings. Registration of the securities covered by this prospectus does not mean, however, that those securities will necessarily be offered or sold.

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; and/or

through one or more underwriters, dealers, or agents in a public offering and sale by them.

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

Edgar Filing: ARROWHEAD RESEARCH CORP - Form 424B5

may engage the services of one or more underwriters, dealers or agents, including standby underwriters, to sell the unsubscribed securities to third parties.

Table of Contents

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.

A prospectus supplement or supplements will describe the terms of the offering of the securities, including:

the name or names of the underwriters, if any;

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

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

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

any public offering price;

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

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

Only underwriters named in the prospectus supplement will be underwriters of the securities offered by the prospectus supplement.

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting or other agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of the securities offered by the prospectus supplement, other than securities covered by any over-allotment option. Any public offering price and any discounts or concessions allowed or reallocated or paid to underwriters, dealers or agents may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship.

We may sell securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states

otherwise, our agent will act on a best-efforts basis for the period of its appointment.

We may authorize agents or underwriters to solicit offers by certain types of institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

In the 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.

We may provide agents, dealers and underwriters with indemnification against civil liabilities related to this offering, including liabilities under the Securities Act, or contribution with respect to payments that the agents or underwriters may make with respect to these liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

Table of Contents

All securities we may offer, other than common stock, will be new issues of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities.

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Overallotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum. Short covering transactions involve purchases of the securities in the open market after the distribution is completed to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a stabilizing or covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

Any underwriters who are qualified market makers on The NASDAQ Capital Market may engage in passive market making transactions in the securities on The NASDAQ Capital Market in accordance with Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

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

DESCRIPTION OF SECURITIES TO BE REGISTERED

We may offer shares of our common stock and 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. Below is a brief summary of the types of securities that we may offer hereunder from time to time. 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.

Common Stock. We may issue shares of our common stock from time to time. Holders of our common stock are entitled to one vote per share for the election of directors and on all other matters that require stockholder approval. Subject to any preferential rights of any outstanding preferred stock, in the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in the assets remaining after payment of liabilities and the liquidation preferences of any outstanding preferred stock. Our common stock does not carry any redemption rights or any preemptive rights enabling a holder to subscribe for, or receive shares of, any class of our common stock or any other securities convertible into shares of any class of our common stock.

Warrants. We may issue warrants for the purchase of common stock in one or more series, from time to time. We may issue warrants independently or together with common stock and the warrants may be attached to or separate from those securities. If we issue warrants, they will be evidenced by warrant agreements or warrant certificates issued under one or more warrant agreements, which are contracts between us and an agent for the holders of the warrants. We urge you to read the prospectus supplement related to any series of warrants we may offer, as well as the complete warrant agreement and warrant certificate that contain the terms of the warrants. If we issue warrants, forms of warrant agreements and warrant certificates relating to warrants for the purchase of common stock will be incorporated by reference into the registration statement of which this prospectus is a part from reports we would subsequently file with the SEC.

LEGAL MATTERS

Unless otherwise indicated in the applicable prospectus supplement, certain legal matters relating to the validity of the securities offered by this prospectus will be passed upon for us by Goodwin Procter LLP.

Table of Contents

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.

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 Commission allows us to incorporate by reference information in documents we file with them, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is considered to be part of this prospectus and information that we file later with the Commission automatically will update and supersede such information. We hereby incorporate by reference the documents listed below and any future filings we make with the Securities and Exchange Commission under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, prior to the termination of the offering of the securities covered by this prospectus:

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.
2. The Company's Current Reports on Form 8-K, filed with the SEC on October 6, 2009, December 17, 2009, December 28, 2009, February 4, 2010, March 19, 2010, March 23, 2010, April 19, 2010, April 27, 2010 and May 28, 2010.
3. The Company's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2010, filed with the SEC on May 13, 2010 and the Company's Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2009, filed with the SEC on February 11, 2010.
4. The description of the Common Stock contained in the Company's Information Statement on Schedule 14-C, filed on December 22, 2000.

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.

Table of Contents

ARROWHEAD RESEARCH CORPORATION

PROSPECTUS

June 11, 2010