

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT

UNDER THE SECURITIES ACT OF 1933

ARROWHEAD RESEARCH CORPORATION

(Exact name of Registrant as Specified in Its Charter)

Delaware
(State of Incorporation)

46-0408024
(I.R.S. Employer Identification Number)

201 South Lake Avenue, Suite 703
Pasadena, CA 91101
626-304-3400
(Address, including zip code and telephone number, including area code, of Registrant's principal executive offices)

Christopher Anzalone, Chief Executive Officer
Arrowhead Research Corporation
201 South Lake Avenue, Suite 703
Pasadena, CA 91101
626-304-3400
(Name, address, including zip code and telephone number, including area code, of agent for service)

Copies to:

Rachael S. Wexler, Esq.
Goodwin Procter LLP
10250 Constellation Boulevard
Los Angeles, CA 90067
(310) 788-5100

Approximate Date of Commencement of Proposed Sale to the Public: From time to time after this Registration Statement becomes effective, as determined by the Registrant.

- If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. ☐
- If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. ☒
- If this Form is used to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act Registration Statement number of the earlier effective registration statement for the same offering. ☐
- If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act Registration Statement number of the earlier effective registration statement for the same offering. ☐
- If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. ☐
- If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. ☐

CALCULATION OF REGISTRATION FEE

Title of Securities Being Registered(1)	Proposed Maximum Aggregate Offering Price(1)(2)	Amount of Registration Fee(3)
Common Stock, par value \$0.001 per share	(4)	(4)
Warrants to Purchase Common Stock	(4)	(4)
Total	\$50,000,000	\$1,535

- (1) There are being registered under this registration statement such indeterminate number of shares of common stock and such indeterminate number of warrants to purchase common stock, as will have an aggregate offering price not to exceed \$50,000,000 or its equivalent in any other currency, currency units, or composite currency or currencies. The securities covered by this registration statement may be sold separately, together, or as units with other securities registered under this registration statement. This registration statement also covers such an indeterminate amount of shares of common stock as may be required for delivery upon exercise of any warrants as a result of anti-dilution provisions.
- (2) The proposed maximum per unit and aggregate offering prices per class of security will be determined from time to time by the registrant in connection with the issuance by the registrant of the securities registered under this registration statement.
- (3) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended.
- (4) Not required to be included in accordance with General Instruction II. D. of Form S-3.

The registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

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The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to Completion, dated December 20, 2007

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. We will provide specific terms of the securities in supplements to this prospectus.

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

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

Our common stock is listed on the Nasdaq Global Market under the symbol “ARWR.” On December 17, 2007, the last reported sale price of our common stock on the Nasdaq Global Market was \$3.40.

Investing in our securities involves a high degree of risk. You should carefully consider the [Risk Factors](#) beginning on page 3 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 [____], 2007

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, utilizing a “shelf” registration process. Under this shelf registration process, we may offer from time to time any combination of the securities described in this prospectus up to a total dollar amount of \$50,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and any prospectus supplement together with additional information described under the heading “Where You Can Find More Information.”

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

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

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

Factors that might cause these differences include the following:

- the integration of multiple technologies and programs;
- the ability to successfully complete development and commercialization of products and the Company’s expectations regarding market growth;
- the cost, timing, scope and results of ongoing safety and efficacy trials of preclinical and clinical testing;
- the ability to successfully complete product research and further development;
- the volume and profitability of product sales of future products;
- changes in existing and potential relationships with corporate collaborators and partners;
- the availability, cost, delivery and quality of materials supplied by contract manufacturers;
- the timing, cost and uncertainty of obtaining regulatory approvals of our products;
- the ability to obtain substantial additional funding;
- the ability to develop and commercialize products before competitors that are superior to the alternatives developed by competitors;
- the ability to retain certain members of management;
- the Company’s expectations regarding research and development expenses and general and administrative expenses;
- the Company’s expectations regarding cash balances, capital requirements, anticipated revenue and expenses, including infrastructure expenses;
- our belief regarding the validity of our patents and potential litigation; and
- other factors detailed from time to time in filings with the Securities and Exchange Commission.

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In addition, the factors described under the section captioned “Risk Factors” in this prospectus, as may be updated from time to time by our future filings under the Securities Exchange Act, and elsewhere in the documents incorporated by reference in this prospectus, may result in these differences. You should carefully review all of these factors. These forward-looking statements were based on information, plans and estimates at the date of this prospectus, and we do not promise to update any forward-looking statements to reflect changes in underlying assumptions or factors, new information, future events or other changes.

ABOUT THE COMPANY

Unless otherwise noted, (1) the term “Arrowhead Research” refers to Arrowhead Research Corporation, a Delaware corporation and 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 “ARC” refers to Arrowhead Research Corporation, a privately-held California corporation with which Arrowhead Research consummated a stock exchange transaction in January 2004, and (4) the term “Common Stock” refers to Arrowhead Research’s common stock and the term “stockholder(s)” refers to the holders of Common Stock or securities exercisable for Common Stock.

Arrowhead Research Corporation is a development stage nanotechnology company commercializing new technologies in the areas of life sciences, electronics, and energy. Arrowhead’s mission is to build value through the identification, development and commercialization of nanotechnology-related products and applications. The Company works closely with universities to source early stage deals and to generate rights to intellectual property covering promising new nanotechnologies. Arrowhead takes a portfolio approach by operating multiple subsidiaries which allows the pursuit of multiple opportunities and, we believe, diversifies risk. Currently, Arrowhead has five subsidiaries: Insert Therapeutics, Inc. (“Insert”), Calando Pharmaceuticals Inc. (“Calando”), Unidym, Inc. (formerly NanoPolaris) (“Unidym”), Tego Biosciences Corporation and Aonex Technologies, Inc. (collectively the “Subsidiaries” and each a “Subsidiary”). The Subsidiaries are developing and commercializing nanotech products and applications, including anti-cancer drugs, RNAi therapeutics, fullerene anti-oxidants, carbon-based electronics and compound semiconductor materials.

Our common stock is currently quoted on the Nasdaq Global Market under the symbol “ARWR.”

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 More Information” on page 18 and “Incorporation of Certain Information by Reference” on page 18.

RISK FACTORS

We are a development-stage company and we have limited historical operations. We urge you to consider our likelihood of success and prospects in light of the risks, expenses and difficulties frequently encountered by entities at our current stage of development.

The following is a summary of certain risks we face. They are not the only risks we face. Additional risks of which we are not presently aware or that we currently believe are immaterial may also harm our business and results of operations. The trading price of our common stock could decline due to the occurrence of any of these risks, and investors could lose all or part of their investment. In assessing these risks, investors should also carefully consider the information provided elsewhere in this prospectus, the accompanying prospectus supplement and incorporated by reference from our other filings with the Securities and Exchange Commission.

CERTAIN RISK FACTORS RELATING TO THE COMPANY'S FOCUS ON NANOTECHNOLOGY

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.

The Company finances research and development of nanotechnology, which is a new and unproven field. The Company's research scientists 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, the Company's research and development projects have not produced commercially viable applications, and may never do so. During the research and development process, the Company may experience technological barriers that it 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 the Company is unable to successfully develop nanotechnology applications for commercial use, we will be unable to generate revenue or build a sustainable or profitable business.

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, the Company may not successfully develop commercial products, and even if it does, it may not be on a timely basis. If the Company's 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. The Company 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.

The Company may not be able to effectively secure first-tier research and development projects when competing against existing or new ventures.

Management believes that the Company's success to date in raising capital to finance nanotechnology research and commercialization projects can be largely attributed to the fact that the plan of operations adopted by the Company is relatively novel. If the Company continues to be successful in attracting funding for research and commercialization projects, it is possible that additional competitors could emerge and compete for such funding. Should that occur, the Company could encounter difficulty in raising funds to finance its future operations and further research and commercialization projects.

Additionally, a substantial number of companies fund early-stage, scientific research at universities, and many venture capital firms and other institutional investors invest in companies seeking to commercialize various types of emerging technologies. It is possible that these companies, which may be more established and have greater resources than we do, and venture funds and institutional investors, as well as possible additional competitors, have financed or will begin to finance nanotechnology research. Should that occur, the Company may not be able to secure the opportunity to finance first-tier research and commercialization projects. Furthermore, should any commercial undertaking by the Company prove to be successful, there can be no assurance competitors with greater financial resources will not offer competitive products and/or technologies.

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

The Company does not possess all of the resources necessary to develop and commercialize products that may result from its technologies on a mass scale. Unless the Company expands its product development capacity and enhances its internal marketing, the Company will need to make appropriate arrangements with strategic partners to develop and commercialize current and future products. If the Company does not find appropriate partners, or if its existing arrangements or future agreements are not successful, the Company's ability to develop and commercialize products could be adversely affected. Even if the Company is 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 the Company pursues its commercialization strategy through collaboration, there are a variety of attendant technical, business and legal risks, including:

- a development partner would likely gain access to Company proprietary information, potentially enabling the partner to develop products without the Company or design around the Company's intellectual property;
- the Company 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; 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.

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

There is public concern regarding the 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, silicon, silicon carbide, germanium, gallium arsenide, gallium nitride, cadmium selenide or indium phosphide, which may prove to be unsafe or harmful 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. Government authorities in the United States or individual states, and foreign government authorities could, for social or other purposes, prohibit or regulate the use of some or all nanotechnologies. 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, which will impair our ability to achieve revenue from the license of nanotechnology applications.

We have entered into technology license agreements with third parties which that require us to satisfy obligations to keep them effective, and if these agreements are 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 (“Caltech”), 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 sales of products incorporating these technologies 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 agreement with us, which would limit our ability to implement our current business plan and harm our business and financial condition.

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, including the manufacture of Calando and Insert’s product candidates. 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. Therefore, it is possible that the business plans of the Company 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 may be unable to scale up our manufacturing processes in a cost effective way.

In some cases, nanotechnology will require new technological and manufacturing processes that, at this time, are very expensive and subject to error. There is no assurance that technology and manufacturing processes will expand and improve quickly enough to enable the Company’s targeted products to be made within rigorous tolerances cost effectively. If manufacturing and mass production are not available at a favorable cost, the Company’s technology may not be adopted by the applicable industry. Under such scenario, the Company may not achieve its business plan for one or more process or product, which could adversely impact the value of our Common Stock.

The Company will need approval from governmental authorities in the United States and other countries to successfully realize commercial value from the Company’s activities.

In order to clinically test, manufacture and market products for commercial use, two of the Company’s current Subsidiaries must satisfy mandatory procedures and safety and effectiveness standards established by various regulatory bodies, including the U.S. Food and Drug Administration (FDA). Technology and product development and approval within this regulatory framework takes a number of years and involves the expenditure of substantial resources. The time and expense required to perform the necessary testing can vary and is substantial. In addition, no action can be taken to market any biologic, drug or device in the United States until the FDA approves an appropriate marketing application. Furthermore, even after initial FDA approval has been obtained, further trials may be required to obtain additional data on safety and effectiveness. Adverse events that are reported during regulatory trials or after marketing approval can result in additional limitations being placed on a product’s use and, potentially, withdrawal of the product from the market. Any adverse event, either before or after approval, can result in product liability claims against the Company, which could significantly and adversely impact the value of our Common Stock.

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

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

Our research and product development efforts pertaining to the pharmaceutical industry are subject to additional risks.

Two of our Subsidiaries, Insert and Calando, are focused on research and development projects related to new and improved pharmaceutical conjugates. 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;
- the necessary regulatory bodies, such as the FDA, did not 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 Insert and Calando are unable to cost-effectively achieve acceptance of their respective biopharmaceutical technology, or if the associated drug products do not achieve wide market acceptance, the businesses of Insert and Calando will be materially and adversely affected, and the value of the Company's interest in these Subsidiaries will diminish.

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 United States. Both private and government entities are seeking ways to reduce or contain healthcare costs. Numerous proposals that would effect changes in the United States 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 Insert and Calando to market products successfully will depend in part on the extent to which third-party payors are willing to reimburse patients for the costs of their products and related treatments. These third-party payors include government authorities, private health insurers and other organizations, such as health maintenance organizations. Third party payors 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 Insert and Calando's products. Cost containment measures instituted by healthcare providers and any general healthcare reform could affect Insert and Calando's 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. We cannot predict the effect of future legislation or regulation concerning the healthcare industry and third party coverage and reimbursement on our business.

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

The Company's operations, including its research and development and its 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 based on current best practices, we cannot assure you that the Company or its 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.

The technology licensed by the Company's 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.

The Company's ability to protect its patents and other proprietary rights is uncertain, exposing it to the possible loss of competitive advantage.

The Company's Subsidiaries have licensed rights to pending patents and have filed and will continue to file patent applications. The researchers sponsored by the Company may also file patent applications that Arrowhead chooses 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 the Company's 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 in the Company may decline.

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

Third parties may claim that our potential products or related technologies infringe their patents. Any patent infringement claims brought against us may cause us to incur significant expenses, divert the attention of our management and key personnel from other business concerns and, if successfully asserted against us, require us to pay substantial damages. In addition, as a result of a patent infringement suit, we may be forced to stop or delay developing, manufacturing or selling potential products that are claimed to infringe a patent covering a third party's intellectual property unless that party grants us rights to use its intellectual property. We may be unable to obtain these rights on terms acceptable to us, if at all. Even if we are able to obtain rights to a third party's patented intellectual property, these rights may be non-exclusive, and therefore our competitors may obtain access to the same intellectual property. Ultimately, we may be unable to commercialize our potential products or may have to cease some of our business operations as a result of patent infringement claims, which could severely harm our business.

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.

We may not be successful integrating operations of Unidym's California and Texas locations.

Our Subsidiary, Unidym, through its wholly-owned subsidiary, Unidym Acquisition LLC, merged with Texas-based Carbon Nanotechnologies, Inc. ("CNI") through a reverse triangular merger on April 20, 2007. Management may fail to successfully integrate the two companies or realize the expected benefits from the merger. Additionally, it is possible that the merger will have a negative impact on Unidym's ability to sell carbon nanotubes, commercialize electronic products incorporating carbon nanotubes, and generate revenue. Unidym may be unable to obtain access to carbon nanotubes from other suppliers that may be better suited for Unidym's electronic products. Similarly, Unidym may lose existing customers or fail to secure prospective customers if those customers believe that Unidym's plan to manufacture electronic products incorporating carbon nanotubes represents a competitive threat. It is also possible that the costs required to integrate the two companies will be greater than expected. It is anticipated that, in the immediate future, both the Houston, Texas and Menlo Park, California facilities will continue to operate. Management will be required to supervise and coordinate activities at two facilities in different states. There may be unanticipated redundancies in the capital equipment and research efforts at each facility. Researchers and product managers at different facilities may not effectively communicate, and the cultures and work environments may differ between facilities.

CERTAIN RISK FACTORS RELATING TO THE EARLY STAGE OF THE COMPANY'S BUSINESS

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

The implementation of the Company's business strategy is still in the development stage. We have acquired majority interests in five Subsidiary companies and, through Unidym, one university research project at Duke University and one university research project at the University of Florida. The Company's 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, the intended business and operations of the Company may not prove to be successful in the near future, if at all. Any future success that the Company might enjoy will depend upon many factors, several of which may be beyond the control of the Company, or which cannot be predicted at this time, and which could have a material adverse effect upon the financial condition, business prospects and operations of the Company and the value of an investment in the Company.

The Company has not generated significant revenues and its business model does not predict significant revenues in the foreseeable future.

To date, the Company has only generated a small amount of revenue as a result of its current plan of operations. Moreover, given its strategy of financing new and unproven technology research, we do not expect to realize significant revenue from operations in the foreseeable future, if at all.

Failure to effectively manage our growth could place strains on our managerial, operational and financial resources and could adversely affect our business and operating results.

Our growth has placed, and is expected to continue to place, a strain on our managerial, operational and financial resources. Further, as our Subsidiaries' businesses grow, we will be required to manage multiple relationships. Any further growth by us or our Subsidiaries, or an increase in the number of our strategic relationships will increase this strain on our managerial, operational and financial resources. This strain may inhibit our ability to achieve the rapid execution necessary to implement our business plan, and could have a material adverse effect upon the financial condition, business prospects and operations of the Company and the value of an investment in the Company.

Our future success depends on our ability to expand our organization to match the growth of our Subsidiaries.

As our Subsidiaries grow, the administrative demands upon the Company will grow, and our success will depend on our ability to meet these demands. These demands include increased accounting, management, legal services, staff support and general office services. We may need to hire additional qualified personnel to meet these demands, the cost and quality of which is dependent in part on market factors beyond our control. Further, we will need to effectively manage the training and growth of our staff to maintain an efficient and effective workforce, and our failure to do so could adversely affect our business and operating results.

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

Arrowhead's 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 the 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, which dilutes or lessens the rights of current stockholders.

The Company may need to raise additional capital in the near future, and, if we are unable to secure adequate funds on acceptable terms, the Company may be unable to support its business plan.

The Company's plan of operations is to provide substantial amounts of research project funding and financial support for majority-owned Subsidiaries over an extended period of time. Accordingly, the Company may need to raise additional capital in the near term, and may seek to do so by conducting one or more private placements of equity securities, selling additional securities in a registered public offering, or through a combination of one or more of such financing alternatives. There can be no assurance that any additional capital resources needed by the Company will be available to the Company as and when required, or on favorable terms that will be acceptable to the Company. If the Company is unable to raise the capital required on a timely basis, it may not be able to fund its research projects or the development of the businesses of its Subsidiaries. In such event, the Company may be required to delay or reduce implementation of certain aspects of its plan of operations.

Stockholder interest in the Company may be substantially diluted in additional financings by the Company.

Our Certificate of Incorporation authorizes the issuance of an aggregate of 75,000,000 shares of Common Stock, on such terms and at such prices as the Board of Directors of the Company may determine. As of December 10, 2007, 38,610,420 shares of common stock were issued and outstanding. As of December 10, 2007, 1,615,875 shares and 4,843,667 shares were reserved for issuance upon exercise of options granted under Arrowhead's 2000 Stock Option Plan and 2004 Equity Incentive Plan, respectively. As of December 10, 2007, options to purchase

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1,615,875 shares were outstanding under the 2000 Stock Option Plan and options to purchase 3,554,048 shares were outstanding under the 2004 Incentive Plan. As of December 10, 2007, the Company had warrants outstanding to purchase 2,109,862 shares of Common Stock that are callable by the Company under certain market conditions. The issuance of additional securities in financing transactions by the Company or through the exercise of options or warrants would dilute the equity interests of the Company's 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.

The Company's success depends on the attraction and retention of senior management and scientists with relevant expertise.

The Company's future success will depend to a significant extent on the continued services of its key employees. In addition, the Company relies on several key executives to manage each of our Subsidiaries. The Company does not maintain key man life insurance for any executive of the Company. The Company's ability to execute its strategy also will depend on its 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.

There may be a difference in the investment valuations used by Arrowhead when making initial and subsequent investments in the Subsidiaries and actual market values.

Arrowhead investments in its Subsidiaries 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. The Company has not generated a positive cash flow to date and does not expect to generate significant cash flow in the near future. Additionally, the Company does believe that there exist comparable public companies to provide a meaningful valuation comparison. Accordingly, Arrowhead Research has not sought independent valuation analysis in connection with its investments and may have invested in its various holdings at higher or lower valuations than an independent source would have recommended. There may be no correlation between the investment valuations used by Arrowhead over the years for its investments and the actual market values. If Arrowhead should eventually sell all or a part of any of its consolidated business or that of a Subsidiary the ultimate sale price may be for a value substantially lower or higher than previously determined by Arrowhead, which could materially and adversely impair the value of our Common Stock.

CERTAIN RISK FACTORS RELATING TO OUR STOCK

Arrowhead's Common Stock price has fluctuated significantly during fiscal 2005, 2006 and 2007 and may continue to do so in the future.

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;

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- 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 the Company's Common Stock may be very limited, and the sale of a limited number of shares could cause the price to fall sharply.

Although the Company's Common Stock is listed for trading on The NASDAQ Global Market, currently, our securities are relatively thinly traded. Accordingly, it may be difficult to sell shares of 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.

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 our 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 of more of these analysts cease to cover our industry or us or fails to publish reports about our 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 the Company's 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 Arrowhead's 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 until and unless 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 our 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, the Company’s Board of Directors, without further action by the Company’s 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. 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.

USE OF PROCEEDS

Unless we provide otherwise in a supplement to this prospectus, we intend to use the net proceeds from the sale of our securities, and, 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. Pending such uses, we intend to invest the net proceeds in short-term, investment grade, interest-bearing securities.

THE SECURITIES WE MAY OFFER

The descriptions of the securities contained in this prospectus, together with the applicable prospectus supplements, summarize the material terms and provisions of the various types of securities that we may offer. We will describe in the applicable prospectus supplement relating to any securities the particular terms of the securities offered by that prospectus supplement. If we indicate in the applicable prospectus supplement, the terms of the securities may differ from the terms we have summarized below. We will also include in the prospectus supplement information, where applicable, about material United States federal income tax considerations relating to the securities, and the securities exchange, if any, on which the securities will be listed.

We may sell from time to time, in one or more offerings:

- common stock; and
- warrants to purchase common stock.

The total dollar amount of all securities that we may issue under this prospectus will not exceed \$50,000,000.

DESCRIPTION OF COMMON STOCK

The following summary of the material provisions of our common stock is subject to and qualified in its entirety by reference to the General Corporation Law of the state of Delaware, or DGCL, and our charter and bylaws. Copies of our charter and bylaws are on file with the SEC. We recommend that you review these documents. See “Where You Can Find More Information.”

Authorized Capital Stock

As of the date of the prospectus, we are authorized to issue up to 70,000,000 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 December 10, 2007, 38,610,420 shares of common stock were outstanding and no shares of preferred stock were outstanding. Selected provisions of the organizational documents are summarized below.

Dividends

The Board of Directors may, out of funds legally available, at any regular or special meeting, declare dividends to the holders of shares of our common stock as and when they deem expedient, subject to the rights of holders of the preferred stock, if any.

Voting

Each share of common stock entitles the holders to one vote per share on all matters requiring a vote of the stockholders, including the election of directors. No holders of shares of common stock have the right to vote such shares cumulatively in any election for the Board of Directors.

Rights Upon Liquidation

In the event of our voluntary or involuntary liquidation, dissolution, or winding up, the holders of our common stock will be entitled to share equally in our assets available for distribution after payment in full of all debts and after the holders of preferred stock, if any, have received their liquidation preferences in full.

Other Rights

No holders of shares of our common stock have preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

Miscellaneous

Our common stock is listed on the Nasdaq Global Market under the symbol “ARWR.” On December 17, 2007, the last reported sale price for our common stock was \$3.40 per share. As of December 11, 2007, we had approximately 567 stockholders of record.

The transfer agent and registrar for our common stock is Computershare Investor Services, P.O. Box 43078, Providence, RI 02940-3078.

Effects of Authorized but Unissued Stock

We have shares of common stock and preferred stock available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of The Nasdaq Global Market. We may utilize these additional shares for a variety of corporate purposes, including for future public offerings to raise additional capital or facilitate corporate acquisitions or for payment as a dividend on our capital stock. The existence of unissued and unreserved common stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third-party attempt to obtain control of us by means of a merger, tender offer, proxy contest or

otherwise, thereby protecting the continuity of our management. In addition, if we issue preferred stock, the issuance could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation.

Delaware Law and Charter and Bylaw Provisions

Anti-Takeover Provisions

We are subject to the provisions of Section 203 of the DGCL. Subject to certain exceptions, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the person became an interested stockholder, unless the business combination is approved in a prescribed manner. A “business combination” includes mergers, asset sales and other transactions resulting in a financial benefit to the interested stockholder. Subject to exceptions, an “interested stockholder” is a person who, together with affiliates and associates, owns, or within the prior three years did own, 15% or more of the corporation’s voting stock.

Limitation of Liability and Indemnification of Officers and Directors

Our certificate of incorporation contains provisions permitted under the DGCL relating to the liability of directors and officers. The provisions eliminate a director’s liability for monetary damages for a breach of fiduciary duty as a director, except in some circumstances involving wrongful acts, such as the breach of a director’s duty of loyalty or acts or omissions that involve intentional misconduct or a knowing violation of law. Further, our bylaws contain provisions to indemnify our directors and officers to the fullest extent permitted by the General Corporation Law of the State of Delaware. We believe that these provisions will assist us in attracting and retaining qualified individuals to serve as directors and officers.

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of our common stock. Warrants may be issued independently or together with our common stock and may be attached to or separate from any offered securities. We will issue warrants under one or more warrant agreements between the Company and the holder(s) of the warrant(s). This summary of some provisions of the warrants is not complete and may differ from the terms of any warrants we may issue. You should refer to the applicable prospectus supplement(s) covering our issuance of any warrants, together with the applicable warrant agreement, including the forms of warrant certificate representing the warrants, relating to the specific warrants being offered for the complete terms of the warrant agreement and the warrants. Such warrant agreement, together with the terms of warrant certificate and warrants, will be filed with the SEC in connection with the offering of the specific warrants.

The prospectus supplement relating to a particular issue of warrants to issue common stock will describe the terms of the warrants, including the following:

- the title of the warrants;
- the offering price for the warrants, if any;
- the aggregate number of the warrants;
- the designation, number and terms of the common stock purchasable upon exercise of the warrants and procedures by which the number of securities purchasable may be adjusted;
- if applicable, the designation and terms of the securities that the warrants are issued with and the number of warrants issued with each security;
- if applicable, the date from and after which the warrants and any securities issued with the warrants will be separately transferable;

- the exercise price of the warrants;
- the dates on which the right to exercise the warrants commence and expire;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- if applicable, a discussion of material U. S. federal income tax considerations;
- anti-dilution provisions of the warrants, if any;
- redemption or call provisions, if any, applicable to the warrants;
- any additional terms of the warrants, including terms, procedures and limitations relating to the transferability, exchange and/or exercise of the warrants; and
- any other information we think is important about the warrants.

Each warrant will entitle the holder of the warrant to purchase the number of shares of common stock at the exercise price as shall in each case be set forth in, or be determinable as set forth in, the prospectus supplement relating to the warrants offered. Warrants may be exercised at any time up to the close of business on the expiration date set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void. Prior to the exercise of any warrants to purchase common stock, holders of the warrants will not have any of the rights of holders of common stock purchasable upon exercise of the warrants, including the right to vote on the common stock.

PLAN OF DISTRIBUTION

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

- directly to investors;
- to investors through agents;
- to dealers; and/or
- through one or more underwriters.

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

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

- at a fixed price or prices, which may be changed;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

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

Shares of common stock and warrants sold pursuant to the registration statement of which this prospectus is a part will be authorized for quotation and trading on the Nasdaq Global Market. 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.

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

- identify any such underwriter or agent;
- describe any compensation in the form of discounts, concessions, commissions or otherwise received from us by each such underwriter or agent and in the aggregate to all underwriters and agents;
- identify the amounts underwritten; and
- identify the nature of the underwriter's obligation to take the securities.

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

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

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

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

If indicated in the applicable prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by particular institutions to purchase securities from us at the public offering price set forth in such prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on the date or dates stated in such prospectus supplement. Each delayed delivery contract will be for an amount no less than, and the aggregate principal amounts of securities sold under delayed delivery contracts shall be not less nor more than, the respective amounts stated in the applicable prospectus supplement. Institutions with which such contracts, when authorized, may include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and others, but will in all cases be subject to our approval. The obligations of any purchaser under any such contract will be subject to the conditions that (a) the purchase of the securities shall not at the time of delivery be prohibited under the laws of any jurisdiction in the United States to which the purchaser is subject, and (b) if the securities are being sold to underwriters, we shall have sold to the underwriters the total principal amount of the securities less the principal amount thereof covered by the contracts. The underwriters and such other agents will not have any responsibility in respect of the validity or performance of such contracts.

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

EXPERTS

The financial statements of the Company incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K for the year ended September 30, 2007, have been audited by Rose, Snyder & Jacobs, a corporation of Certified Public Accountants, as stated in their report incorporated by reference, and given upon the authority of said firm as experts in auditing and accounting.

LEGAL MATTERS

Certain legal matters, including the validity of the securities offered pursuant to this registration statement, will be passed upon for us by Goodwin Procter LLP, Los Angeles, California. Certain legal matters may be passed upon for any agents or underwriters by counsel for such agents or underwriters identified in the applicable prospectus supplement.

WHERE YOU CAN FIND MORE INFORMATION

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

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

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

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

- The Company's Annual Report on Form 10-K for the fiscal year ended September 30, 2007, filed on December 14, 2007;
- The Company's Proxy Statement on Form DEF 14-A, filed on January 3, 2007;
- The description of the Common Stock contained in the Company's Information Statement on Schedule 14-C, filed on December 22, 2000; and
- All documents filed by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, after the date of the original Registration Statement and prior to effectiveness of the registration statement of which this prospectus is a part, provided that all documents "furnished" by the Company to the SEC and not "filed" are not deemed incorporated by reference herein.

We will furnish without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request, a copy of any document incorporated by reference. Requests should be addressed to Corporate Secretary, 201 South Lake Street, Suite 703, Pasadena, CA 91101.

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone to provide you with different information. You should not assume that the information in this prospectus or the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus or those documents.

ARROWHEAD RESEARCH CORPORATION

PROSPECTUS

[____], 2007

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution (1).

The following are the estimated expenses of the distribution of the shares registered hereunder on Form S-3:

Registration Fee—Securities and Exchange Commission	\$ 1,535.00
Accountants Fees and Expenses	\$ 1,000.00
Legal Fees and Expenses	\$10,000.00
Printing Expenses	\$ 1,000.00
Miscellaneous	\$ 5,000.00
Total	<u>\$18,535.00</u>

(1) The amounts set forth above, except for the SEC Registration Fee, are estimated.

Item 15. Indemnification of Directors and Officers.

The Company's Certificate of Incorporation provides for the elimination of personal monetary liability of directors to the fullest extent permissible under Delaware law. Delaware law does not permit the elimination or limitation of director monetary liability for: (i) breaches of the director's duty of loyalty to the corporation or its stockholders; (ii) acts or omissions not in good faith or involving intentional misconduct or knowing violations of law; (iii) the payment of unlawful dividends or unlawful stock repurchases or redemptions or (iv) transactions in which the director received an improper personal benefit.

Section 145 of the Delaware General Corporation Law permits a Delaware corporation to indemnify, on certain terms and conditions, any person who was or is a party or is threatened to be made a party to any threatened pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by him in connection with such action. The Certificate of Incorporation and Bylaws of the Company require the Company to indemnify the Company's directors and officers to the fullest extent permitted under Delaware law.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Company pursuant to the foregoing provisions, the Company has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable.

EXHIBIT INDEX.

Exhibit No.	Description
1.1	Form of Underwriting Agreement *
3.1	Certificate of Incorporation of Interactive, Inc., a Delaware corporation, dated April 8, 2001 (1)
3.1.1	Certificate of Amendment of Certificate of Incorporation of InterActive Group, Inc., dated January 12, 2004 (effecting, among other things, a change in the registrant's name to "Arrowhead Research Corporation") (2)
3.1.2	Certificate of Amendment of Certificate of Incorporation of Arrowhead Research Corporation, dated January 26, 2005 (3)
3.2	Bylaws (1)
4.1	Form of Common Stock Certificate*
4.2	Form of Warrant to Purchase Common Stock*
5.1	Opinion of Goodwin Procter LLP**
23.1	Consent of Rose, Snyder & Jacobs, the registrant's independent registered public accounting firm**
23.2	Consent of Goodwin Procter LLP (included in legal opinion filed as Exhibit 5.1)**
24.1	Power of Attorney (included on signature page)**

* To be filed by amendment or as an exhibit to a Current Report on Form 8-K and incorporated herein by reference.

** Filed herewith.

(1) Incorporated by reference from Schedule 14C filed by registrant on December 22, 2000.

(2) Incorporated by reference from Schedule 14C filed by registrant on December 22, 2003.

(3) Incorporated by reference from Form 10-QSB for the quarter ended December 31, 2004, filed by registrant on February 11, 2005.

Item 17. Undertakings.

Item 512(a) of Regulation S-K. The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement.
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

Provided, however, That:

Paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

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- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:
 - (A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in this registration statement; and
 - (B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of this Registration Statement or made in any such document immediately prior to such effective date.
- (5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities:

The undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

 - (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

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Item 512(b) of Regulation S-K. The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant’s annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as amended (and, where applicable, each filing of an employee benefit plan’s annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

Item 512(h) of Regulation S-K. Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Pasadena, state of California, on December 20, 2007.

ARROWHEAD RESEARCH CORPORATION

By: /s/ Christopher Anzalone
Christopher Anzalone
Chief Executive Officer

POWER OF ATTORNEY

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated, each of whom also constitutes and appoints R. Bruce Stewart, Christopher Anzalone and Joseph T. Kingsley, and each of them singly, his or her true and lawful attorney-in-fact and agent, for him or her, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments to this Registration Statement, and to file the same and all exhibits thereto and any other documents in connection therewith with the Securities and Exchange Commission, granting unto each attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that each attorney-in-fact and agent or his or her substitute or substitutes may lawfully do or cause to be done by virtue hereof.

Signature	Title	Date
<u>/s/ Christopher Anzalone</u> Christopher Anzalone	Chief Executive Officer and President and Director (Principal Executive Officer)	December 20, 2007
<u>/s/ R. Bruce Stewart</u> R. Bruce Stewart	Executive Chairman of the Board	December 20, 2007
<u>/s/ Joseph T. Kingsley</u> Joseph T. Kingsley	Chief Financial Officer and Secretary (Principal Financial Officer and Principal Accounting Officer)	December 20, 2007
<u>/s/ Edward W. Frykman</u> Edward W. Frykman	Director	December 20, 2007
<u>/s/ Charles P. McKenney</u> Charles P. McKenney	Director	December 20, 2007
<u>/s/ LeRoy T. Rahn</u> LeRoy T. Rahn	Director	December 20, 2007

EXHIBIT INDEX.

Exhibit No.	Description
1.1	Form of Underwriting Agreement *
3.1	Certificate of Incorporation of Interactive, Inc., a Delaware corporation, dated April 8, 2001 (1)
3.1.1	Certificate of Amendment of Certificate of Incorporation of InterActive Group, Inc., dated January 12, 2004 (effecting, among other things, a change in the registrant's name to "Arrowhead Research Corporation") (2)
3.1.2	Certificate of Amendment of Certificate of Incorporation of Arrowhead Research Corporation, dated January 26, 2005 (3)
3.2	Bylaws (1)
4.1	Form of Common Stock Certificate*
4.2	Form of Warrant to Purchase Common Stock*
5.1	Opinion of Goodwin Procter LLP**
23.1	Consent of Rose, Snyder & Jacobs, the registrant's independent registered public accounting firm**
23.2	Consent of Goodwin Procter LLP (included in legal opinion filed as Exhibit 5.1)**
24.1	Power of Attorney (included on signature page)**

* To be filed by amendment or as an exhibit to a Current Report on Form 8-K and incorporated herein by reference.

** Filed herewith.

(1) Incorporated by reference from Schedule 14C filed by registrant on December 22, 2000.

(2) Incorporated by reference from Schedule 14C filed by registrant on December 22, 2003.

(3) Incorporated by reference from Form 10-QSB for the quarter ended December 31, 2004, filed by registrant on February 11, 2005.

December 20, 2007

Arrowhead Research Corporation
201 South Lake Avenue, Suite 703
Pasadena, California 91101

Re: Securities Being Registered under Registration Statement on Form S-3

Ladies and Gentlemen:

This opinion letter is furnished to you in connection with your filing of a Registration Statement on Form S-3 (File No. 333-) (as amended or supplemented, the “**Registration Statement**”) pursuant to the Securities Act of 1933, as amended (the “**Securities Act**”), relating to the registration of the offering by Arrowhead Research Corporation, a Delaware corporation (the “**Company**”), of an indeterminate amount of (i) shares of the Company’s common stock, \$0.001 par value per share (the “**Common Stock**”) and/or (ii) warrants to purchase shares of the Company’s Common Stock (the “**Warrants**”), or any combination thereof, with an aggregate public offering price of up to \$50,000,000 (such securities being referred to collectively as the “**Securities**”). The Registration Statement provides that the Securities may be offered separately or together, in one or more series of issuances, in amounts, at prices and on terms to be set forth on one or more prospectus supplements (each, a “**Prospectus Supplement**”) to the prospectus contained in the Registration Statement.

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinions expressed below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinions set forth below, on certificates of officers of the Company.

The opinion expressed below is limited to the Delaware General Corporation Law (which includes applicable provisions of the Delaware Constitution and reported judicial decisions interpreting the Delaware General Corporation Law and the Delaware Constitution).

For purposes of the opinion expressed below, and without limiting any other exceptions or qualifications set forth herein, we have assumed that after the issuance of the Securities as set forth in each applicable Prospectus Supplement, the total number of issued shares of the Company’s Common Stock, together with the total number of shares of the Company’s Common Stock reserved for issuance upon the exercise, exchange or conversion, as the case may be, of any exercisable, exchangeable or convertible security, as the case may be, then outstanding, will not exceed the total number of authorized shares of Common Stock under the Company’s Articles of Incorporation, as amended and then in effect.

Based on the foregoing, we are of the opinion that (i) when the Securities are specifically authorized for issuance by the Company’s Board of Directors or an authorized committee thereof (the “**Authorizing Resolution**”), (ii) upon receipt by the Company of the full consideration therefor as provided in the Authorizing Resolution and (iii) upon the issuance of the Securities as described in the Registration Statement and a Prospectus Supplement that is consistent with the Authorizing Resolution, the Securities will be validly issued, fully paid and non-assessable.

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the Registration Statement and to the references to our firm under the caption “Legal Matters” in the Registration Statement. In giving our consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

/s/ Goodwin Procter LLP
GOODWIN PROCTER LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-3 of our report dated December 7, 2007 included in Arrowhead Research Corporation's Annual Report on Form 10-K for the year ended September 30, 2007. The undersigned also consents to the reference to the undersigned under the heading "Experts" in the Registration Statement.

/s/ Rose, Snyder & Jacobs

Rose, Snyder & Jacobs

A Corporation of Certified Public Accountants

Encino, California

December 18, 2007

December 20, 2007

BY ELECTRONIC SUBMISSION

U.S. Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549

Re: Arrowhead Research Corporation
Registration Statement on Form S-3

Ladies and Gentlemen:

Submitted herewith for filing on behalf of Arrowhead Research Corporation (the “Company”) is a Registration Statement on Form S-3 (the “Registration Statement”) under the Securities Act of 1933, as amended (the “Securities Act”), relating to common stock and warrants that the Company may sell from time to time in one or more offerings up to a total public offering price of \$50,000,000 on terms to be determined at the time of sale.

The filing is being effected by direct transmission to the Commission’s EDGAR System. On December 19, 2007, in anticipation of this filing, the Company caused the filing fee of \$1,535 to be wire transferred to the Securities and Exchange Commission (the “Commission”).

Please contact me at (310) 788-5136 with any questions or comments you may have regarding this filing.

Very Truly Yours,

/s/ Alex Shukhman

Alex Shukhman, Esq.

cc: Ms. Jane Davidson