

PROSPECTUS

ARROWHEAD RESEARCH CORPORATION

5,220,987 shares of Common Stock

This prospectus covers the sale of an aggregate of 5,220,987 shares of our Common Stock, \$.001 par value, by the selling security holders identified in this prospectus (collectively with any holder's transferee, pledgee, donee or successor, the "**Selling Stockholders**"). The Common Stock covered by this prospectus consists of (i) 2,849,446 shares of Common Stock issued in a private placement that closed on May 29, 2007 (the "**Private Placement**"), (ii) 712,363 shares of Common Stock issuable upon exercise of warrants (the "**Warrants**") issued in connection with the Private Placement, (iii) 1,431,222 shares of Common Stock issued pursuant to a Stock Purchase Agreement dated April 20, 2007 (the "**Private Exchange**"); and (iv) 227,956 shares of Common Stock issuable upon exercise of Warrants issued to the placement agent in connection with the Private Placement. The shares identified in clauses (i), (ii), (iii) and (iv) are referred to collectively in this prospectus as the "**Shares**."

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

The Company's Common Stock is traded on The NASDAQ Capital Market under the symbol "ARWR." On September 14, 2007, the closing sale price of our Common Stock on The NASDAQ Capital Market was \$4.85 per share. Our principal executive offices are located at 201 South Lake Avenue, Suite 703, Pasadena, California 91101, and our telephone number is (626) 304-3400.

Investing in our securities involves risks. You should carefully consider the risk factors beginning on page 1 of this prospectus before you make an investment in our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved 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 September 20, 2007

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You should read this prospectus, any applicable prospectus supplement and the information incorporated by reference in this prospectus before making an investment in the securities of Arrowhead Research Corporation. See “Where You Can Find Additional Information” for more information, page 12. You should rely only on the information contained in or incorporated by reference in this prospectus or a prospectus supplement. The Company has not authorized anyone to provide you with different information. This document may be used only in jurisdictions where offers and sales of these securities are permitted. You should assume that information contained in this prospectus, or in any document incorporated by reference, is accurate only as of any date on the front cover of the applicable document. Our business, financial condition, results of operations and prospects may have changed since that date.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

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

Forward-looking statements are not guarantees of future performance and are subject to various risks, uncertainties and assumptions that are difficult to predict. Actual results may differ materially from those anticipated in these forward-looking statements as a result of a number of factors, including the risk factors described below in this prospectus and in our periodic filings with the SEC, incorporated by reference or included in this prospectus. All forward-looking statements contained in this prospectus are made only as of the date on the prospectus cover. We are under no obligation—and we expressly disclaim any such obligation to update or alter our forward-looking statements, whether as a result of new information, future events or otherwise. Before deciding to buy or sell our securities, you should be aware that the occurrence of the events described in these risk factors could harm our business, operating results and financial condition, which consequences could materially diminish the trading price of our securities and/or their value.

SUMMARY

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

Arrowhead Research Corporation is a development stage nanotechnology company commercializing new technologies in the areas of life sciences, electronics and energy. Arrowhead is building value for shareholders through the progress of majority owned subsidiaries (each a “**Subsidiary**” and collectively, the “**Subsidiaries**”) founded on nanotechnologies originally developed at universities. The company works closely with universities to source early stage deals and to generate rights to intellectual property covering promising new nanotechnologies. Currently, Arrowhead has five subsidiaries commercializing nanotech products and applications, including anti-cancer drugs, RNAi therapeutics, carbon-based electronics, fullerene-based antioxidants and compound semiconductor materials.

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

Our executive offices are located at 201 South Lake Avenue, Suite 703 and our telephone number is 626-304-3400. Additional information regarding our company, including our audited financial statements and descriptions of our business, is contained in the documents incorporated by reference in this prospectus. See “Where You Can Find Additional Information” on page 12 and “Information Incorporated by Reference” on page 13.

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.

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 obtain revenue 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

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may change, which will diminish or extinguish the commercial uses for our applications. To date, the commercial markets have generally not adopted nanotechnology-enabled products. The Company cannot predict when 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 derive revenue 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 OEM acceptance of our technology, 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, there are some companies that already fund early-stage, scientific research at universities, and some venture capital funds invest in companies seeking to commercialize technology. It is possible that these established companies and venture funds, 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. This would mean that 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. 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. In addition, in the event the Company pursues its commercialization strategy through collaboration, there are a variety of attendant technical, business and legal risks. For instance, 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.

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

There is an increase in public concern regarding the environmental and ethical implications of nanotechnology that could impede market acceptance of products developed through these means. Potentially, 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. In addition, nanotechnology-enabled products have no historical safety record. Because of the size, shape, or composition of the nanostructures and because they may contain harmful elements, nanotechnology-enabled products could pose a safety risk to human health or the environment. Furthermore, some countries have adopted regulations prohibiting or limiting the use of materials that contain certain chemicals, which may limit the market for nanotechnology-enabled products. U.S. government authorities could, for social or other purposes, prohibit or regulate the use of nanotechnology. 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 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.

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

We rely on outside sources for various components and processes for our products. While we try to have at least two sources for each component and process, we may not be able to achieve multiple sourcing because there may be no acceptable second source, other companies may choose not to work with us, or the component or process sought may be so new that a second source does not exist, or does not exist on acceptable terms. 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 process 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 is 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;

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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 Company's interest in each Subsidiary will diminish.

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.

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

Unidym Acquisition LLC, a wholly-owned subsidiary of Unidym, and Texas-based Carbon Nanotechnologies, Inc. ("CNI") completed 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.

We may be liable for damages, or events giving rise to damages, that took place prior to the merger of Unidym and CNI.

Unidym and CNI combined in a reverse triangular merger, after which time Unidym operated CNI's business through a wholly owned subsidiary. Although some courts have reasoned that a parent company is not subject to liabilities resulting from activities of a subsidiary prior to a reverse triangular merger, plaintiffs may succeed in holding Unidym liable for damages, or events giving rise to damages, that took place prior to the merger. This risk will be heightened if, and to the extent that, Unidym continues to operate CNI's business in the same manner as that business was operated by CNI prior to the merger. If plaintiffs are successful in holding Unidym liable for damages relating to pre-merger operations of CNI's business or other events giving rise to claims for damages, Arrowhead's and Unidym's business could be adversely and materially affected.

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.

As a consequence of the change in the control of the Company on January 12, 2004, the Company changed management, and all efforts that were previously initiated by prior management were abandoned. At that time, the Company's new management adopted a new plan of operations based on the strategy that was formulated by the California corporation following its formation in May 2003 and not previously proven successful. To date, implementation of this strategy is still in the development stage. We have acquired majority interests in five Subsidiary companies and are sponsoring two university research project at Caltech, one university research project at Duke University, one university research project at Stanford 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 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 revenue 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.

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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.

Neither the Company nor any of its Subsidiaries have confirmed the value of their assets or business by an independent valuation.

The Company is a development stage company and our assets consist mainly of intellectual property, rights and contracts. The Company's Common Stock is traded on the NASDAQ Capital Market and the trading price of our Common Stock has served as a baseline valuation for Arrowhead Research. However, neither the Company, on a consolidated basis, nor any Subsidiary has sought an independent valuation for their businesses or assets. Traditional methods of valuation 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. Arrowhead Research's Subsidiary investments were the result of negotiation with Subsidiary management and equityholders, but the investment valuations were not independently verified. Accordingly, Arrowhead Research may have invested in its various holding at higher or lower valuations than an independent source would have dictated. Therefore, there may be no correlation between the investment valuations used by Arrowhead Research 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.

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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 September 18, 2007, 38,610,420 shares of common stock were issued and outstanding. As of September 18, 2007, 1,632,500 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 September 18, 2007, options to purchase 1,632,500 shares were outstanding under the 2000 Stock Option Plan and options to purchase 3,329,048 shares were outstanding under the 2004 Incentive Plan. As of September 18, 2007, the Company had warrants outstanding to purchase 2,109,863 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, particularly Mr. R. Bruce Stewart, Chief Executive Officer, who conceived of the Company's business and overall operating strategy and has been most instrumental in assisting the Company raise capital. On September 7, 2004, Mr. Joseph T. Kingsley joined the Company as its Chief Financial Officer and on June 2, 2006 was appointed Interim President. Mr. Kingsley also remains the Company's Chief Financial Officer. Mr. Kingsley is a key member of the Company's management team. The Company does not maintain key man life insurance for Mr. Stewart, Mr. Kingsley, or any other executive. 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.

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;

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- announcements regarding the status of any or all of our collaborations or products;
- market perception and/or investor sentiment regarding nanotechnology as the next technological wave;
- announcements regarding developments in the nanotechnology field in general;
- the issuance of competitive patents or disallowance or loss of our patent rights; and
- quarterly variations in our operating results.

We will not have control over many of these factors but expect that they may influence our stock price. As a result, our stock price may be volatile and you may lose 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 Capital 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. 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 or 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

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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

The proceeds from the resale of the Shares under this prospectus are solely for the account of the Selling Stockholders. We may indirectly receive proceeds of up to \$6,638,652 to the extent that any Selling Stockholders exercise warrants to purchase Shares and then resell those Shares under this prospectus, however, we will not directly receive any proceeds from the sale of Shares under this prospectus.

SELLING SECURITY HOLDERS

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

- 2,849,446 shares of Common Stock issued upon the closing of the Private Placement,
- 712,363 shares of Common Stock issuable upon exercise the Warrants issued in connection with the Private Placement,
- 1,431,222 shares of Common Stock issued in the Private Exchange, and
- 227,956 shares of Common Stock issuable upon exercise the Warrants issued to Global Crown Capital, the placement agent in the Private Placement.

On May 29, 2007, we sold to certain institutional and accredited investors an aggregate of 2,849,446 shares of common stock (the "**Private Placement Shares**") at a per share purchase price of \$5.78, and Warrants to purchase up to an additional 712,363 shares of common stock (the "**Warrant Shares**"), exercisable at \$7.06 per share, in the Private Placement. Two investment vehicles of York Capital Management, a stockholder holding greater than 10% of the Company's Common Stock, participated in the offering.

The Warrants may be exercised beginning on November 21, 2007 and expire on May 21, 2017. The number of Warrant Shares issuable upon exercise of each Warrant and the exercise price thereof are subject to adjustment from time to time in the event of stock subdivisions, stock splits and stock combinations. At any time on or after the first anniversary of the closing of the Private Placement, the Warrants can be redeemed at our option, in whole but not in part, at a redemption price equal to \$0.001 per Warrant Share in the event that the closing bid price of a share of our common stock as traded on the NASDAQ Capital Market equals or exceeds \$8.47 for 20 consecutive trading days ending not more than 15 days prior to the date of the redemption notice.

In connection with the Private Placement, we entered into a registration rights agreement, pursuant to which we have agreed to file a registration statement with the Securities and Exchange Commission covering the resale of the Private Placement Shares and the Warrant Shares.

On April 20, 2007, we consummated the Private Exchange by entering into a Stock Purchase Agreement with William A. McMinn, Robert Gower, Mary H. Cain and The Mary H. Cain Marital Trust, pursuant to which we issued and sold an aggregate of 1,431,222 shares of Common Stock (the "**Exchange Shares**") in exchange for 1,080,000 shares of Series E Preferred Stock of Carbon Nanotechnologies, Inc., a Delaware corporation. In connection with the Private Exchange, we entered into a registration rights agreement, pursuant to which we have agreed to register the Exchange Shares for resale.

The following table sets forth certain information regarding the Selling Stockholders and the shares of Common Stock beneficially owned by them, which information is available to us as of September 18, 2007. Selling Stockholders may offer shares under this prospectus from time to time and may elect to sell none, some or all of the shares set forth next to their name. As a result, we cannot estimate the number of shares of Common Stock that a

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Selling Stockholder will beneficially own after termination of sales under this prospectus. In addition, a Selling Stockholder may have sold, transferred or otherwise disposed of all or a portion of that holder's shares of Common Stock since the date on which they provided information for this table. We have not made independent inquiries about this. We are relying on written commitments from the Selling Stockholders to notify us of any changes in their beneficial ownership after the date they originally provided this information. See "Plan of Distribution" beginning on page 11.

Selling Security Holder(1)	# of Shares held before Offering	# Shares Being Offered	# of Shares Underlying Warrants	# of Shares held after Offering	Percentage of Shares After Offering
William A. McMinn (2)	413,464	413,464	0	0	0
Bob G. Gower (2)(3)	439,968	439,968	0	0	0
Cain Investments Limited (2)	288,895(4)	288,895	0	0	0
The Mary H. Cain Marital Trust (2)	288,895(4)	288,895	0	0	0
Clarion Capital Corporation	70,000(5)	62,500(6)	12,500	20,000	*
Clarion World Offshore Fund, Ltd.	70,000(5)	25,000(7)	5,000	50,000	*
Shahab Mohamed Gargash	648,789	648,789(8)	129,758	0	0
Fidelity Advisors Electronics Funds Int'l Sub Portfolio	4,240,931(9)	324,395(10)	64,879	3,981,415	10.34%
Fidelity Select Electronics Funds Int'l Sub Portfolio	4,240,931(9)	1,427,336(11)	285,468	3,099,063	8.05%
York Select, L.P.	4,629,459(12)	302,768(13)	60,554	4,387,245	11.39%
York Select Unit Trust	4,629,459(12)	346,020(14)	69,204	4,352,643	11.30%
Capital Ventures International (15)	425,000	425,000(16)	85,000	0	0
Global Crown Capital (17)	0	227,956(18)	227,956	0	0

* Less than 1%.

- (1) If required, information about other selling security holders, except for any future transferees, pledgees, donees or successors of selling security holders named in the table above, will be set forth in a prospectus supplement or amendment to the registration statement of which this prospectus is a part. Additionally, post-effective amendments to the registration statement will be filed to disclose any material changes to the plan of distribution from the description contained in the final prospectus.
- (2) Each of the selling security holders that acquired shares in the Private Exchange have entered into a lock-up agreement that restricts the holder from selling any of the Company's securities until October 18, 2007.
- (3) Bob G. Gower is a member of the Board of Directors of Unidym Inc., a majority-owned subsidiary of the Company.
- (4) Cain Investments Limited ("CIL") beneficially owns 288,895 shares of Common Stock, acquired from Mary H. Cain, an individual and original purchaser in the Private Exchange. Ms. Cain is a limited partner of CIL and does not have the power to vote or dispose of the shares held by CIL. The Mary H. Cain Marital Trust ("**Cain Trust**") holds an additional 288,895 shares of Common Stock purchased in the Private Exchange. Ms. Cain is the sole trustee of the Cain Trust and has sole voting and dispositive power with respect to the shares held by the Cain Trust. Because different parties have voting and dispositive power over the shares held by CIL and the Cain Trust, respectively, the shares held by CIL and the Cain Trust have not been aggregated in the above table.
- (5) Clarion Capital Corporation ("**Clarion Capital**") holds 50,000 shares of Common Stock and Warrants to purchase 12,500 shares of Common Stock. Clarion World Offshore Fund, Ltd. ("**Clarion Offshore Fund**") holds 20,000 shares of Common Stock and Warrants to purchase 5,000 shares of Common Stock. Morton A. Cohen, who is the Chairman of Clarion Capital and the investment manager of Clarion Offshore Fund, has voting and dispositive power with respect to the shares held by both Clarion Capital and Clarion Offshore Fund. Accordingly, the number of shares of Common Stock held by Clarion Capital and Clarion Offshore Fund have been aggregated and reported as beneficially owned by both Selling Stockholders in the above table.
- (6) Includes 12,500 shares of Common Stock issuable upon exercise of ten-year warrants, first exercisable on November 21, 2007.
- (7) Includes 5,000 shares of Common Stock issuable upon exercise of ten-year warrants, first exercisable on November 21, 2007.
- (8) Includes 129,758 shares of Common Stock issuable upon exercise of ten-year warrants, first exercisable on November 21, 2007.

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- (9) Fidelity Advisors Electronics Funds Int'l Sub Portfolio ("**Fidelity Advisors**") holds 324,395 shares of Common Stock and Warrants to purchase 64,879 shares of Common Stock. Fidelity Select Electronics Funds Int'l Sub Portfolio ("**Fidelity Select**") holds 1,427,336 shares of Common Stock and Warrants to purchase 285,468 shares of Common Stock. Fidelity Advisors and Fidelity Select are registered investment funds advised by Fidelity Management & Research Company ("**FMR Co.**"), a registered investment adviser under the Investment Advisers Act of 1940, as amended. FMR Co. is a wholly-owned subsidiary of FMR Corp. Accordingly, FMR Corp., through its control of FMR Co., may be deemed to have beneficial ownership over the shares of Common Stock reported as held by Fidelity Advisors and Fidelity Select, and, therefore, the table includes 2,839,546 shares of Common Stock beneficially owned by FMR Corp., as reported in a Schedule 13G filed on June 11, 2007. In addition, as a result of this relationship, the Common Stock held by Fidelity Advisors and Fidelity Select are aggregated and reported as beneficially owned by both Selling Stockholders in the above table. Edward C. Johnson 3d., the Chairman of FMR Corp., together with Fidelity Advisors or Fidelity Select, as the case may be, has dispositive power over the respective shares reported as held by Fidelity Advisors and Fidelity Select. The respective Boards of Trustees of Fidelity Select and Fidelity Advisors have voting power over the shares reported as held by each of these funds. Fidelity Advisors and Fidelity Select are affiliates of a registered broker-dealer, purchased the shares in the ordinary course of business and, at the time of such purchase, did not have any agreements or understandings, directly or indirectly, with any person to distribute the shares.
- (10) Includes 64,879 shares of Common Stock issuable upon exercise of ten-year warrants, first exercisable on November 21, 2007.
- (11) Includes 285,468 shares of Common Stock issuable upon exercise of ten-year warrants, first exercisable on November 21, 2007.
- (12) York Select, L.P. ("**York L.P.**") and York Select Unit Trust ("**York Trust**") are advisory clients of affiliates of JGD Management Corp. ("**JGD**"). The general partner of York L.P. and the investment manager of York Trust have delegated certain management and administrative duties of such funds to JGD. Accordingly, JGD may be deemed to have beneficial ownership over the shares of Common Stock reported as held by York L.P. and York Trust, and, therefore, the table includes 4,110,429 shares of Common Stock beneficially owned by JGD (through this and other affiliated relationships), as reported in a Form 13F filed by JGD on May 15, 2007.
- (13) Includes 60,554 shares of Common Stock issuable upon exercise of ten-year warrants, first exercisable on November 21, 2007.
- (14) Includes 69,204 shares of Common Stock issuable upon exercise of ten-year warrants, first exercisable on November 21, 2007.
- (15) Heights Capital Management, Inc., the authorized agent of Capital Ventures International ("**CVI**"), has discretionary authority to vote and dispose of the shares held by CVI and may be deemed to be the beneficial owner of these shares. CVI is affiliated with one or more registered broker-dealers. CVI purchased the shares being registered in the ordinary course of business and at the time of purchase, had no agreements or understandings, directly or indirectly, with any other person to distribute the shares.
- (16) Includes 85,000 shares of Common Stock issuable upon exercise of ten-year warrants, first exercisable on November 21, 2007.
- (17) Global Crown Capital ("**GCC**") acted as the Company's placement agent in the Private Placement. In partial consideration for GCC's services as placement agent, the Company issued a warrant to purchase 227,956 shares of Common Stock to GCC.
- (18) Includes 227,956 shares of Common Stock issuable upon exercise of ten-year warrants, first exercisable on November 21, 2007.

PLAN OF DISTRIBUTION

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

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

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

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

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

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

- transfer their common stock in other ways not involving market makers or established trading markets, including, but not limited to, directly by gift, distribution, privately negotiated transactions in compliance with applicable law or other transfer; or
- sell their common stock under Rule 144 of the Securities Act rather than under this prospectus, if the transaction meets the requirements of Rule 144. Each Selling Stockholder will bear all expenses with respect to the offering of common stock by such Selling Stockholder.

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Under the applicable rules and regulations of the Exchange Act, any person engaged in the distribution of the Shares may not simultaneously engage in market making activities with respect to our common stock for a period of two business days prior to the commencement of such distribution. In addition, each Selling Stockholder will be subject to the applicable provisions of the Exchange Act and the associated rules and regulations under the Exchange Act, including Regulation M, which provisions may limit the timing of purchases and sales of shares of our common stock by the Selling Stockholders.

The Selling Stockholders may from time to time pledge or grant a security interest in some or all of the Shares owned by them and, if they default in the performance of their secured obligations, the pledges or secured parties may offer and sell the Shares from time to time under this prospectus after an amendment has been filed under Rule 424(b)(3) or other applicable provision of the Securities Act of 1933 amending the list of Selling Stockholders to include the pledge, transferee or other successors in interest as selling stockholders under this prospectus.

The Selling Stockholders also may transfer the Shares in other circumstances, in which case the respective pledgees, donees, transferees or other successors in interest will be the selling beneficial owners for purposes of this prospectus and may sell the Shares from time to time under this prospectus after an amendment has been filed under Rule 424(b)(3) or other applicable provision of the Securities Act of 1933 amending the list of Selling Stockholders to include the pledge, transferee or other successors in interest as selling stockholders under this prospectus.

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

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

LEGAL OPINION

Certain legal matters relating to the validity of the Common Stock offered by this prospectus have been passed upon for us by Goodwin Procter LLP, Los Angeles, California.

EXPERTS

The financial statements of the Company incorporated in this prospectus by reference to the Company's Annual Reports on Form 10-K for the year ended September 30, 2006 and the financial statements of Carbon Nanotechnologies, Inc. incorporated by reference to the Company's current report on Form 8-K/A dated June 28, 2007, have been so incorporated in reliance on the reports dated December 6, 2006 and June 26, 2007 of Rose, Snyder & Jacobs, a corporation of Certified Public Accountants, given on the authority of said firms as experts in auditing and accounting.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

The Company files annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document filed by the Company at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room. The Company's filings with the SEC are also available to the public at the SEC's Internet web site at <http://www.sec.gov>. You may also read and copy this information at the National Association of Securities Dealers, Inc., 1735 K Street, N.W., Washington, D.C. 20006.

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

INFORMATION INC ORPORATED BY REFERENCE

The SEC allows the Company to “incorporate by reference” the information that is filed by the Company with the SEC, which means that the Company can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus, and later information that the Company files with the SEC will automatically update and supersede this information. This prospectus incorporates by reference the documents listed below, and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, (the “Exchange Act”), until the Selling Stockholders sell all of the Common Stock offered herein. The documents incorporated by reference are:

1. The Company’s Annual Report on Form 10-K for the fiscal year ended September 30, 2006, filed on December 14, 2006;
2. The Company’s Quarterly Reports on Form 10-Q for the quarter ended December 31, 2006 (filed on February 9, 2007, as amended on February 12, 2007 and May 10, 2007), for the quarter ended March 31, 2007 (filed on May 10, 2007), and for the quarter ended June 30, 2007 (filed on August 9, 2007);
3. The Company’s Current Reports on Form 8-K, filed on January 5, 2007, January 19, 2007, March 26, 2007, April 11, 2007, April 25, 2007, May 18, 2007, May 30, 2007, June 1, 2007, June 18, 2007, June 28, 2007, and September 13, 2007;
4. The Company’s Proxy Statement on Form DEF 14-A, filed on January 3, 2007;
5. The description of the Common Stock contained in the Company’s Information Statement on Schedule 14-C, filed on December 22, 2000; and
6. 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 this Amendment No. 1 to the 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.

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

UP TO 5,220,987 SHARES OF COMMON STOCK

ARROWHEAD RESEARCH CORPORATION

PROSPECTUS

September 20, 2007