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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**  
Washington, DC 20549

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**FORM 10-K**

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(Mark One)

ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended September 30, 2009.

TRANSITION REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 000-21898

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**ARROWHEAD RESEARCH CORPORATION**

(Exact name of registrant as specified in its charter)

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Delaware  
(State of incorporation)

46-0408024  
(I.R.S. Employer Identification No.)

201 S. Lake Avenue, Suite 703  
Pasadena, California 91101  
(626) 304-3400  
(Address and telephone number of principal executive offices)

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**Securities registered under Section 12(b) of the Exchange Act:**

Title of each class	Name of each exchange on which registered
Common Stock, \$0.001 par value	The NASDAQ Capital Market

**Securities registered pursuant to Section 12(g) of the Exchange Act:**

None

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Indicate by a check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes  No

Indicate by a check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes  No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes  No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of "accelerated filer and large accelerated filer" in Rule 12b-2 of the Exchange Act.

Large accelerated filer  Accelerated filer  Non-accelerated filer  Smaller Reporting Company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes  No

Issuer's revenue for its most recent fiscal year: \$3,773,147.

The aggregate market value of issuer's outstanding Common Stock held by non-affiliates was approximately \$24 million based upon the bid price of issuer's Common Stock on March 31, 2009.

As of December 15, 2009, 62,788,380 shares of the issuer's Common Stock were outstanding.

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TABLE OF CONTENTS

**[PART I](#)**

ITEM 1.	<a href="#">BUSINESS</a>	1
ITEM 1A.	<a href="#">RISK FACTORS</a>	10
ITEM 1B.	<a href="#">UNRESOLVED STAFF COMMENTS</a>	19
ITEM 2.	<a href="#">PROPERTIES</a>	20
ITEM 3.	<a href="#">LEGAL PROCEEDINGS</a>	20
ITEM 4.	<a href="#">SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS</a>	20

**[PART II](#)**

ITEM 5.	<a href="#">MARKET FOR THE REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES</a>	21
ITEM 6.	<a href="#">SELECTED FINANCIAL DATA</a>	22
ITEM 7.	<a href="#">MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS</a>	22
ITEM 7A.	<a href="#">QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK</a>	33
ITEM 8.	<a href="#">FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA</a>	33
ITEM 9.	<a href="#">CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE</a>	33
ITEM 9A.	<a href="#">CONTROLS AND PROCEDURES</a>	33
ITEM 9B.	<a href="#">OTHER INFORMATION</a>	34

**[PART III](#)**

ITEM 10.	<a href="#">DIRECTORS, EXECUTIVE OFFICERS, AND CORPORATE GOVERNANCE</a>	34
ITEM 11.	<a href="#">EXECUTIVE COMPENSATION</a>	36
ITEM 12.	<a href="#">SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS</a>	38
ITEM 13.	<a href="#">CERTAIN RELATIONSHIPS, RELATED TRANSACTIONS AND DIRECTORS INDEPENDENCE</a>	38
ITEM 14.	<a href="#">PRINCIPAL ACCOUNTANT FEES AND SERVICES</a>	39

**[PART IV](#)**

ITEM 15.	<a href="#">EXHIBITS AND FINANCIAL STATEMENT SCHEDULES</a>	39
----------	--	----

	<a href="#">SIGNATURES</a>	43
--	----------------------------	----

	<a href="#">INDEX TO FINANCIAL STATEMENTS AND SCHEDULES</a>	F-1
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## **SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS**

*This Annual Report on Form 10-K contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934, and we intend that such forward-looking statements be subject to the safe harbors created thereby. For this purpose, any statements contained in this Annual Report on Form 10-K except for historical information may be deemed to be forward-looking statements. Without limiting the generality of the foregoing, words such as “may,” “will,” “expect,” “believe,” “anticipate,” “intend,” “could,” “estimate,” or “continue” or the negative or other variations thereof or comparable terminology are intended to identify forward-looking statements. In addition, any statements that refer to projections of our future financial performance, trends in our businesses, or other characterizations of future events or circumstances are forward-looking statements.*

*The forward-looking statements included herein are based on current expectations of our management based on available information and involve a number of risks and uncertainties, all of which are difficult or impossible to predict accurately and many of which are beyond our control. As such, our actual results may differ significantly from those expressed in any forward-looking statements. Factors that may cause or contribute to such differences include, but are not limited to, those discussed in more detail in Item 1 (Business) and Item 1A (Risk Factors) of Part I and Item 7 (Management’s Discussion and Analysis of Financial Condition and Results of Operations) of Part II of this Annual Report on Form 10-K. Readers should carefully review these risks, as well as the additional risks described in other documents we file from time to time with the Securities and Exchange Commission. In light of the significant risks and uncertainties inherent in the forward-looking information included herein, the inclusion of such information should not be regarded as a representation by us or any other person that such results will be achieved, and readers are cautioned not to place undue reliance on such forward-looking information. Except as may be required by law, we undertake no obligation to revise the forward-looking statements contained herein to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.*

## **WHERE YOU CAN FIND MORE INFORMATION**

As a public company, we are required to file annual, quarterly, and current reports, proxy statements and other information with the SEC. You may read and copy any of our materials on file with the SEC at the SEC’s Public Reference Room at 100 F Street, N.E., Washington, DC 20549, as well as at the SEC’s regional office at 5757 Wilshire Boulevard, Suite 500, Los Angeles, California 90036. Our filings are available to the public at the SEC’s website at [www.sec.gov](http://www.sec.gov). Please call the SEC at 1-800-732-0330 for further information on the Public Reference Room. We also provide copies of our Forms 8-K, 10-K, 10-Q, Proxy Statements and Annual Reports at no charge to investors upon request and make electronic copies of our most recently filed reports available through our website at [www.arrowheadresearch.com](http://www.arrowheadresearch.com) as soon as reasonably practicable after filing such material with the SEC.

**PART I**

**ITEM 1. BUSINESS**

**Description of Business**

Unless otherwise noted, (1) the term “Arrowhead” refers to Arrowhead Research Corporation, a Delaware corporation formerly known as InterActive Group, Inc., (2) the terms the “Company,” “we,” “us,” and “our,” refer to the ongoing business operations of Arrowhead and its Subsidiaries, whether conducted through Arrowhead or a subsidiary of Arrowhead, (3) the term “ARC” refers to Arrowhead Research Corporation, a privately-held California corporation with which Arrowhead consummated a stock exchange transaction in January 2004, (4) the term “Subsidiaries” refers collectively to Calando Pharmaceuticals, Inc. (“Calando”), Unidym, Inc. (“Unidym”), Agonn Systems, Inc. (“Agonn”) and Tego Biosciences Corporation (“Tego”) and Masa Energy LLC (“Masa”) (5) the term “Common Stock” refers to Arrowhead’s Common Stock and the term “stockholder(s)” refers to the holders of Common Stock or securities exercisable for Common Stock.

**Overview**

Arrowhead Research Corporation is a development stage nanotechnology holding company that forms, acquires, and operates subsidiaries commercializing innovative nanotechnologies. By working closely with leading scientists and universities, Arrowhead identifies advances in nanotechnology and matches them with product development opportunities in high-growth markets. The Company is currently focused on the electronics and biotech industries.

Providing strategic management, financing, and operational services to its subsidiaries, Arrowhead takes an active role in their development, keeping the business and technical development teams at the subsidiary companies focused on near term revenue opportunities and capital efficiency.

Arrowhead’s ultimate goal is to realize the value of its subsidiaries by:

- A public offering of subsidiary stock;
- A sale of subsidiary to another company; or
- Building Arrowhead’s ownership position to 100% with revenue from subsidiary flowing to Arrowhead’s bottom line.

Arrowhead owns two majority-owned operating subsidiaries, Unidym and Calando, three wholly-owned, non-operating subsidiaries, Tego, Agonn, and Masa Energy LLC, and has minority investments in two early-stage nanotechnology companies, Nanotope, Inc. (“Nanotope”) and Leonardo Biosystems, Inc. (“Leonardo”). Arrowhead’s business plan includes adding to its portfolio through selective acquisition and formation of new companies, as capital resources allow.

Arrowhead is incorporated in Delaware and its principal executive offices are located in Pasadena, California.

The implementation of our business strategy is still in the development stage. Arrowhead and its subsidiaries fund research and operations from cash on hand, government grants, license royalties and carbon nanotube (“CNT”) sales, as well as equity and debt financing. Neither Arrowhead, nor its subsidiaries, has derived enough revenue from product sales or exit events to self fund their operations.

The Company was originally incorporated in South Dakota in 1989, and was reincorporated in Delaware in 2000. The Company’s principal executive offices are located at 201 South Lake Avenue, Suite 703, Pasadena, California 91101, and its telephone number is (626) 304-3400. As of September 30, 2009, Arrowhead Research Corporation had 10 full-time employees at the corporate office and 10 full-time employees at its Subsidiaries.

**Subsidiaries and Investments**

The Company’s two majority-owned Subsidiaries, three wholly-owned Subsidiaries and two minority investments are focused on developing commercializing and licensing a variety of nanotechnology products and applications, including anti-cancer drugs, RNAi therapeutics, regenerative therapeutics, advanced drug delivery technology, energy storage technology, carbon-based electronics, and fullerene anti-oxidants. Arrowhead anticipates expanding its portfolio through selective acquisition and the formation of new companies, as capital resources allow.

## Table of Contents

As of September 30, 2009, Arrowhead held a majority of the outstanding voting stock of the following two operating Subsidiaries.

<u>Subsidiary</u>	<u>% Ownership*</u>	<u>Technology/Product Focus</u>
Calando Pharmaceuticals, Inc.	67.8%	Clinical stage nano-engineered delivery of RNAi therapeutics and small molecule drugs for the treatment of cancer with first anti-cancer compound
Unidym, Inc.	79.9%	Commercialization of carbon nanotube products for the electronics industry

\* As of September 30, 2009, on a fully-diluted basis, Arrowhead owns approximately 63.6% of Calando and 65.0% of Unidym.

As of September 30, 2009, Arrowhead had three wholly-owned Subsidiaries, none of which has any employees. The three wholly-owned subsidiaries are as follows:

<u>Subsidiary</u>	<u>% Ownership**</u>	<u>Technology/Product Focus</u>
Tego Biosciences Corporation	100%	Modification of fullerenes for therapeutic and diagnostic applications
Agonn Systems, Inc.	100%	Exploring nanotechnology-based energy storage devices for hybrid electric vehicles and other large format applications
Masa Energy LLC	100%	Holding company with sole assets consisting of 22% ownership position in Nanotope and 6% in Leonardo (see below)

\*\* As of September 30, 2009, on a fully-diluted basis, Arrowhead owns approximately 85% of Tego.

Arrowhead owns a minority position in each of two early stage nanotechnology companies:

<u>Minority Investment</u>	<u>% Ownership***</u>	<u>Technology/Product Focus</u>
Nanotope, Inc.	22%	Developing nano-engineered, self-assembling, bioactive scaffolding for the treatment of spinal cord injury and peripheral artery disease
Leonardo Biosystems, Inc.	6%	Developing an advanced set of nanotechnology tools to deliver anti-cancer therapeutics

\*\*\* In April 2008, Arrowhead acquired Masa Energy LLC, a limited liability company whose sole assets were an approximate 6% ownership interest in each of Nanotope and Leonardo Biosystems. Since the acquisition of Masa in April 2008, Arrowhead increased its position in Nanotope to 22% through a \$2 million investment (\$1 million was invested in July 2008 and the remaining \$1 million was invested in September 2008).

## Cash Resources

As a development stage company, Arrowhead has historically financed its operations through the sale of securities of Arrowhead and its Subsidiaries. Development of products at our Subsidiaries, in particular Calando and Unidym, has required significant capital investment since the Company's inception in 2003 and is expected to continue to require significant cash investment in fiscal 2010 to continue development. At September 30, 2009, Arrowhead had cash on hand of approximately \$2 million on a consolidated basis.

On December 11, 2009, Arrowhead Research Corporation (the "Company") executed definitive agreements for a private placement offering (the "Offering") with a selected group of accredited investors. Pursuant to the Offering, the Company sold an aggregate of approximately 5.1 million units (the "Units") consisting of one share of the Company's common stock, \$0.001 par value per share ("Common Stock") and a warrant to purchase an additional share of Common Stock, exercisable at \$0.509 per share. The

## Table of Contents

Unit price was \$0.634 per unit. The unit price is based on the closing bid price on the Company's common stock on December 11, 2009 which was \$0.509 plus a premium of \$0.125 added for the purchase of the warrant, per NASDAQ rules. The Warrants become exercisable on June 12, 2010 and remain exercisable until December 11, 2014, unless redeemed earlier as permitted. The warrants may be redeemed for nominal consideration if the Company's common stock trades above \$1.20 for at least 30 trading days in any 60-trading day period. The Offering is expected to close on or before December 28, 2009 with gross proceeds totaling approximately \$3.2 million before estimated expenses of \$25,000. The Shares and Warrants were offered and sold only to accredited investors in reliance on Section 4(2) of the Securities Act of 1933, as amended (the "Securities Act"), and Rule 506 promulgated thereunder. The Shares and Warrants sold in the private placement have not been registered under the Securities Act or state securities laws and may not be offered or sold in the United States absent registration with the Securities and Exchange Commission or an applicable exemption from the registration requirements. The Company has agreed to file a registration statement with the Securities and Exchange Commission covering the resale of the Shares and the shares of Common Stock issuable upon exercise of the Warrants.

Management has developed a plan based upon the latest financing and other transactions which are expected to close in the near term. The plan shows that the Company has enough cash to fund operations through September 30, 2010. Should a shortfall occur in expected cash receipts, the plan has contingencies to reduce expenditures in order to operate through September 30, 2010.

In fiscal 2009, the Company obtained \$7.3 in cash through equity and debt financing and \$4.4 million from the sales of assets, products and license fees. The Company is pursuing a strategy to continue operations while conserving cash and seeking new sources of capital. The Company is seeking to accomplish one or more of the following on favorable terms:

- out-license of technology;
- sale of a subsidiary;
- sale of non-core assets;
- funded joint development or partnership arrangements; and
- sale of securities.

The Company is actively involved in discussions with third parties regarding several of these alternatives. However, until such time as one or more of these goals can be accomplished, the Company will continue to implement streamlining and cash conservation measures that began in fiscal 2008 and continued throughout fiscal 2009. See Risk Factors described in Item 1A.

## Subsidiaries

### *Unidym, Inc.*

#### **Overview**

Unidym is a leader in carbon nanotube-based transparent, conductive films (TCFs) for the electronics industry. TCFs are a critical component in devices such as touch panels, displays, and thin-film solar cells. For example, both touch panels and LCDs typically employ two TCF layers per device. Unidym's TCFs offer substantial advantages over the incumbent technology, indium-based metal oxides, including: improved durability, lower processing costs, and lower overall cost structure.

Unidym's products are based on electronics-grade carbon nanotubes (CNTs), a class of molecules with multiple unique properties. For instance, some varieties conduct electricity better than copper, they are stronger than steel, and they may be synthesized in bulk quantities. In 2005, the CNT field was highly fragmented, and Arrowhead sought to consolidate the intellectual property for the technology in an effort to create a dominant position in high value CNTs. As a result of licensing from twelve universities and acquisitions of three CNT-related companies, Unidym owns or has exclusive license to a large portfolio of approximately 150 key CNT-related patents and patent applications. The Company believes Unidym holds foundational intellectual property surrounding high value electronics grade CNT manufacturing and processing. With this strong patent portfolio and significant experience applying this technology to electronics markets, Unidym is beginning to make modest sales of its TCF film to device manufacturers and believes that it is well-positioned to increase sales in 2010. Unidym's management team is focused on customer interaction to optimize its products to meet customer specifications with a goal of generating product sales for touch screens in the near term.

Unidym requires additional capital to fund its operations and obligations through fiscal 2010.

#### **Collaborations and Partnerships**

Unidym has several ongoing joint development agreements with various partners to incorporate its transparent conductive films into touch panels and displays. In 2008, several prototypes were demonstrated at industry conferences. Unidym and Samsung Electronics Co., Ltd. extended their collaboration to integrate carbon nanotube materials as the transparent conductive layer in display devices. The world's first carbon nanotube-based color active matrix electrophoretic display (EPD) e-paper was demonstrated at the Society for Information Display in May 2008 and at the International Meeting on Information Display (iMiD) at KINTEX, Ilsan, Korea in October 2008. The new color e-paper device is a 14.3" format display that uses a carbon nanotube (CNT) transparent electrode developed by Unidym. The display was one product of the ongoing joint development agreement between Unidym and Samsung. In addition, Unidym displayed a carbon nanotube based active matrix LCD made in collaboration with Silicon Display Technology, a company based in Seoul, Korea. Another collaborative effort is testing the use of Unidym's TCF's in solar cells.

## [Table of Contents](#)

In addition to these efforts in Unidym's core focus of electronics, Unidym is seeking to leverage its broad intellectual property portfolio in other areas through its licensing and other collaborative programs.

In March 2008, Unidym sub-licensed certain of its intellectual property to Ensysce BioSciences Inc. ("Ensysce") whose focus is research into the medical therapeutic applications of carbon nanotubes. From March 2008 to November 2008, Ensysce was both funded and effectively controlled by a related party to Unidym who also serves as a director of Unidym. In November 2008, Unidym sold its 50 percent interest in Ensysce to the controlling shareholder and recognized a gain of \$700,000 on the sale during the first quarter of fiscal 2009.

Unidym entered into a strategic alliance with the Battelle Memorial Institute in July 2007 to explore opportunities to leverage their respective capabilities to commercialize products incorporating carbon nanotubes. Battelle is the world's largest non-profit independent research and development organization, with 20,000 employees in more than 120 locations worldwide. In 2008, Unidym expanded this relationship to include an alliance focused on multi-functional nano-composites for aerospace and transportation applications.

Unidym's carbon nanotubes have been used to increase strength and flexibility in the engine cowling of an aerobatic airplane, while reducing stress failures due to flight loads, showing potential for similar uses in other aerospace applications.

### **Production**

#### *Production of Carbon Nanotube Based Transparent Conductive Films*

Unidym's film production model involves in-house pilot production and outsourced supply of larger volumes of a proprietary grade of CNTs under an exclusive supply agreement, formulation of those CNTs into a coating ink, and then shipment of that ink to an outsourced coating partner or customer for deposition. To conserve cash and pursue a strategy designed to yield revenues in the short term, Unidym is exploring partnerships or outsourcing within this supply chain.

Unidym has in-house deposition or coating equipment which is used for the deposition of CNTs onto plastic or glass substrates in sample quantities. Unidym has also tested production samples from several coating subcontractors. The use of outsourced coating partners for its touch panel films would take advantage of the substantial excess capacity left in the coating industry by the decrease in demand for photographic film. Unidym expects that, given the abundance of these subcontractors and the availability of cost effective subcontract capacity, there will be no need to bring production capacity in-house in the near term. However, longer term, Unidym could decide to bring such production in-house.

#### *Production of Carbon Nanotubes*

Unidym has historically produced carbon nanotubes in-house. In line with its strategy to work with manufacturing partners, in May 2009, Unidym transferred a portion of its assets for CNT production to CCNI, a manufacturer of CNTs and carbon black, and is in the process of negotiating a license and supply agreement with CCNI for the production of Unidym's CNT supply needs. The consideration for the assets to be transferred and licenses to be granted in the second agreement is still being negotiated, but is expected to consist of upfront payments and royalties. Unidym anticipates retaining some limited in-house CNT production capability for product improvements and as a second source of supply. Unidym plans to manufacture CNT inks and is negotiating with potential partners to manufacture and sell films to customers.

### **Marketing and Sales**

Unidym expects to generate revenue from sales of thin films, sale of CNTs and sale of CNT based ink in fiscal 2010. Revenue is expected to be generated through direct product sales and license deals into relatively consolidated industries. In addition, Unidym plans to take advantage of its extensive metrology equipment and excess space to create a small incubator for start-ups that will defray costs for its Sunnyvale facility. In the near term, Unidym does not expect to generate enough revenue to self fund its operations and growth. Unidym has terminated its distribution relationship with the large Japanese trading firm, Sumitomo, but Unidym expects to continue to generate revenues through direct sales of its HIPCO grade CNTs.

### **Competition**

Unidym faces competition from a number of start-ups and established companies in the industries it enters. In the electronics industry, there are a number of start-up or private companies that are focused on the application or production of nanotubes including Automate, C-Nano, Eikos, Nantero and Southwest Nanotechnologies. More established companies with announced CNT programs include Brewer Sciences, DuPont, Honeywell, Samsung, Sumitomo and Toray. There are also potential competitors who are pursuing alternative nanotech-based approaches to the markets served by Unidym, including the start-up Cambrios and large Japanese companies such as Fujitsu.

## **Intellectual Property**

Unidym controls an intellectual property portfolio containing over 100 foreign and domestic patents and patent applications. The portfolio contains patent claims directed to fundamental carbon nanotube compositions of matter, as well as carbon nanotube synthesis, purification, dispersion and functionalization. Furthermore, the portfolio contains claims to the use of carbon nanotubes in many different application areas including fibers, electronics, composite materials, energy storage/generation, medical devices and drug delivery. Some patents and patent applications are owned by Unidym (or co-owned with partners such as Continental Carbon and Tokyo Electron), but most are exclusively licensed from institutions such as Rice University, Georgia Tech, Clemson, University of Florida, SUNY, and Caltech. Under its agreement with Clemson, Unidym has an exclusive license to U.S. Patent 7,265,174, which we believe has the earliest priority date of any patent claiming transparent, conductive films comprised of carbon nanotubes. Under its agreement with Caltech, Unidym has the right to sublicense U.S. Patent 5,424,054, which is the basic patent claiming small diameter nanotube composition of matter. Unidym also has the right to license an IP portfolio related to modified fullerene for non-therapeutic fields of use. Unidym has licensed its intellectual property to DuPont, Ensysce Biosciences, Nexeon MedSystems, Nano C, and other third parties. Unidym is currently executing a plan to encourage third parties and competitors to enter non-exclusive licenses of its intellectual property outside of its core product areas. A material portion of Unidym's intellectual property portfolio is exclusively licensed from Rice University. If the sum of Unidym's debts, liabilities and other obligations is greater than all of Unidym's assets at fair valuation or if Unidym is generally not paying its debts, liabilities and other obligations as they come due; the Rice license will terminate and Unidym may lose rights to critical intellectual property.

## **Key Personnel**

Mark Tilley, Ph.D is the CEO of Unidym. Dr. Tilley joined the Company after a nine year tenure at DSM N.V., a \$12 billion Netherlands based specialty performance materials and life science company. During his tenure, he worked in DSM's venturing arm, led marketing and technical teams, and built a nano-enabled flat panel displays materials business that was acquired by Japan Synthetic Rubber in 2005. Dr. Tilley also co-founded Kriya Materials B.V., a venture capital backed nano-materials and coatings company based in the Netherlands. Dr. Tilley has held marketing and R&D positions at SDC Coatings, a joint venture founded by Dow Corning and Pilkington Glass, Valspar and GE Plastics where he started his career at their Corporate R&D center as a Senior Scientist. He holds a BS in Chemistry from the University of Manchester Institute of Science and Technology in Manchester, UK, a Ph.D. from North Dakota State University in Fargo, and a M.B.A from Pepperdine University.

Unidym's Board of Directors is comprised of R. Bruce Stewart, Executive Chairman of Arrowhead, Christopher Anzalone, CEO and director of each Arrowhead, Calando, Tego, Nanotope and Leonardo, Edward W. Frykman and Charles McKenney, both Arrowhead Directors, Dr. Bob Gower, former CEO of TNI, and Ray McLaughlin, former CFO of TNI.

At September 30, 2009, Unidym had 10 full-time employees. During fiscal 2009, Unidym reduced its management and technical staff.

## ***Calando Pharmaceuticals, Inc.***

### **Overview**

Calando is a clinical stage nano-biotechnology company at the forefront of RNAi therapeutics. Calando has developed a nanoparticle-based drug delivery system for siRNA. Calando's platform technology is being used in a Phase I clinical trial to systemically deliver—for what is believed to be for the first time—a siRNA drug candidate targeting cancer. Although the trial is not complete, no significant drug-related toxicities have been observed and the trial appears to be yielding promising results.

Calando is based on pioneering technology invented in the Chemical Engineering division of the California Institute of Technology. Developed to reduce the debilitating effects of cancer treatment, Calando's proprietary molecules are designed to improve the safety and efficacy of cancer therapeutics. Currently focused on siRNA and oncology applications, Calando's platform technology has the potential to be applied to a wide range of diseases beyond cancer as well as to therapeutic classes beyond siRNA therapeutics. In 2009, Calando successfully completed a Phase 1 clinical study with its first therapeutic candidate, IT-101, comprised of Calando's system coupled with a small molecule chemotherapeutic drug.

Calando is focused on the clinical development of RONDEL™, its siRNA delivery technology, and CALAA-01™, the associated drug candidate. The further development of the small molecule delivery platform and IT-101, the associated drug candidate, has been partnered to another company. Calando requires additional capital to fund its operations and obligations through fiscal 2010.

### **Platform Technology**

Based on a novel polymeric sugar (linear cyclodextrin) molecule, Calando's drug delivery system has been applied thus far to the delivery of two classes of therapeutics: siRNA and other oligonucleotides and small molecule drugs. The polymer is combined with the drug molecule to form drug containing nanoparticles sized larger than 10 nanometers and smaller than 100 nanometers. This size is important; drug molecules are typically sized below 10 nanometers and are quickly cleared from the body in the urine.

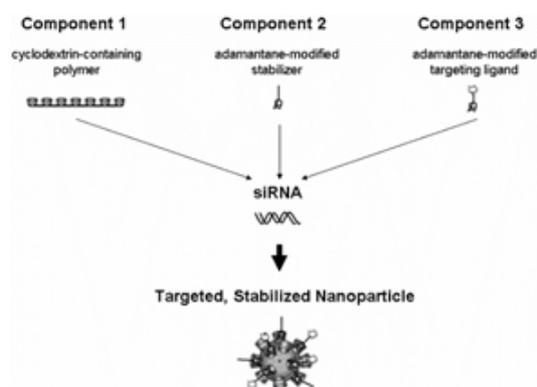
## Table of Contents

Nanoparticles sized larger than 10 nanometers circulate longer and thus can allow administration of lower doses to patients. Nanoparticles sized smaller than 100 nanometers can escape the circulatory system through the abnormally leaky blood vessels that feed tumors and are retained in the tumor tissue due to a lack of effective tumor lymphatic drainage. Preferential accumulation in tumor tissue, where the drug can take effect, leaves other tissues relatively unaffected. Patients from Calando's first clinical trial reported fewer and less serious side effects with several cases of stable disease over many months of treatment, including one case of pancreatic cancer that was stabilized for seventeen months. The drug delivery system has the added benefits of increasing solubility, allowing targeting of the nanoparticles, and being non-immunogenic.

### Calando's RONDEL Technology

RNA interference or "RNAi" is a naturally occurring mechanism for the regulation of gene expression that selectively inhibits the activity of, or "silences," target genes. Discovered by scientists in 2002 who were subsequently awarded the Nobel Prize in Physiology or Medicine in 2006, RNAi has been hailed as a tremendous breakthrough. Because many diseases are caused by the inappropriate activity of genes, RNAi has potential application to many serious or fatal diseases including cancer, AIDS, hepatitis C, Huntington's disease and others. The mechanism is mediated by "small interfering RNA" known as siRNA.

One of the key challenges to using RNAi therapy has been the inability to systemically deliver siRNA in humans. "Naked" siRNA is degraded and destroyed by nucleases in the bloodstream and is not taken up by cells. Calando's RONDEL system is providing new hope that effective siRNA delivery can be achieved safely and economically. Calando's polymers form the foundation for its three-part RNAi/Oligonucleotide Nanoparticle Delivery (RONDEL) technology. The first component is the positively charged polymer that, when mixed with siRNA, binds to the negatively charged "backbone" of the siRNA. The polymer and siRNA self-assemble into nanoparticles less than 100 nm diameter that fully protect the siRNA from nuclease degradation in serum. The cyclodextrin in the polymer enables the surface of the particles to be decorated by stabilizing agents and targeting ligands. These surface modifications are formed by proprietary methods involving the cyclodextrins.



The surface-modifying agents have terminal adamantane groups that form inclusion complexes with the cyclodextrin and contain poly (ethylene glycol) (PEG) to endow the particles with properties that prevent aggregation, enhance stability and enable systemic administration. Targeting molecules can be covalently attached to the adamantane-PEG modifier, enabling the siRNA-containing particles to be targeted to tissues of interest.

RONDEL technology offers the following advantages:

- Generalized delivery system – Binds to and self-assembles with the siRNA to form uniform colloidal-sized particles. Analysis has shown that these particles are spherical and less than 100 nm in diameter.
- Ease of Administration – The RONDEL system has been designed for use as part of a two-vial system: one vial contains the delivery components, and the second vial contains the therapeutic siRNA payload. When mixed pursuant to a simple protocol, the particles self-assemble into siRNA containing nanoparticles.
- Any siRNA sequence can be easily substituted – Because RONDEL binds to the siRNA backbone, theoretically, any siRNA therapeutic could be in the second vial.
- Stealthy delivery to the immune system – The sugar-based delivery vehicle allows for repeat dosing without the risk of immune reactions. Unlike lipid delivery vehicles, the cyclodextrin-based RONDEL™ delivery system does not cause an interferon response.
- Safety – Has been shown to be non-toxic in *in-vitro* testing with human cell cultures, and the fully formulated polymer/siRNA particles exhibit a significant therapeutic window of safety in animals, even when repeated doses (up to eight doses over a four week period) are used. No serious adverse events have been observed in Calando's current Phase I clinical trial.

## [Table of Contents](#)

- Stable under physiological conditions – Particles have been shown to be stable under physiological conditions.
- Effective targeted delivery – Calando and its partners have demonstrated successful delivery of functional siRNA therapeutics to tumor cells and to hepatocytes by systemic administration and confirmed sequence-specific gene inhibition in animal models.

### *CALAA-01*

CALAA-001 is a combination of RONDEL and a patented siRNA targeting the M2 subunit of ribonucleotide reductase, a clinically-validated cancer target. Ribonucleotide reductase catalyzes the conversion of ribonucleosides to deoxyribonucleosides and is necessary for DNA synthesis and replication. The siRNA, developed at Calando, demonstrates potent anti-proliferative activity across multiple types of cancer cells. We believe the use of CALAA-001 in Calando's Phase I trial, initiated in June 2008, was the first siRNA therapeutic candidate to target cancer in a human clinical study and also the first systemic delivery of an siRNA therapeutic candidate. The trial is utilizing a dose escalation protocol which is nearing the highest dose in the protocol and yielding promising preliminary results. The trial is not currently enrolling new patients (for reasons other than safety or efficacy), but Calando expects to begin enrolling patients again in the near term. Calando plans to finish the Phase I trial, as capital resources allow, and is seeking a partner for the further development of both the siRNA delivery platform and CALAA-01.

### *Calando's Cycloset™ Technology & IT-101*

The other polymeric drug delivery technology, Cycloset, was designed by Calando's scientists for the delivery of small molecule drugs. Cycloset provides many of the same benefits as the RONDEL system. Calando completed a Phase 1 trial with IT-101, comprised of Calando's polymer and Camptothecin, a potent anti-cancer drug, with a positive safety profile and indications of efficacy. On June 23, 2009, Calando entered into agreements to license Cycloset and IT-101 to Cerulean Pharma, Inc. ("Cerulean"), a Boston-based biotech company. Under the terms of the agreements, Calando granted Cerulean an exclusive royalty-bearing worldwide license to certain patent rights and know-how and transferred to Cerulean certain intellectual property related to the linear-cyclodextrin drug delivery platform and IT-101 in exchange for an initial payment of \$2.4 million. Under the agreements, Calando retains the rights to use the linear-cyclodextrin drug delivery platform to deliver tubulysin, cytolysin (the rights to deliver both of which were sublicensed by Calando to R&D Biopharmaceuticals GmbH), second generation epothilones, as well as any kind of nucleic acid, e.g., a DNA or siRNA therapeutics. As such, Calando retains the rights to its RONDEL™ platform, as well as the CALAA-01 and CALAA-02 lead drugs. In connection with the Cerulean Agreements, Calando closed its Phase 2 clinical studies for IT-101.

### **Outsourced Clinical Trial Management, R&D, Manufacturing and Supply**

Calando used contract manufacturers to manufacture each of its product candidates and has on hand sufficient material to complete the CALAA-01 Phase 1 study. These materials were manufactured in accordance with a quality control and quality assurance program, including a set of standard operating procedures and specifications, designed to ensure that its products are manufactured in accordance with current Good Manufacturing Procedures, or cGMPs, and other applicable domestic and foreign regulations. Currently, Calando has no laboratory facilities and is reliant on contract R&D facilities to support its clinical trial. Along with its internal resources, Calando uses consultants to manage and monitor its clinical trial. Calando has no plans to establish a laboratory or manufacturing facility and will continue to rely on third parties to meet these needs.

The development of CALAA-01, IT-101 and other pipeline candidates are preliminary, and there is no assurance that they will be successful. There are numerous technical, regulatory and marketing challenges that must be overcome to successfully commercialize Calando's products, including, but not limited to the following:

- Advancing pipeline candidates requires extensive preclinical testing and approval by the U.S. Food and Drug Administration ("FDA") before clinical testing can commence.
- Advancing therapeutic candidates through preclinical and clinical testing is expensive, resource intensive and time consuming.
- Complications may arise that would cause the clinical testing to be interrupted or stopped. FDA approval is required before products can be sold.
- Even if FDA approval is eventually obtained, there is no assurance that it will be accepted by the medical community.

It is not possible at this time to accurately determine the final cost of the development projects, the completion dates, or when or if revenue will commence.

## **Intellectual Property**

Calando controls an intellectual property portfolio of patents covering the linear cyclodextrin polymers and related technology (the “linear cyclodextrin system”). The portfolio covers both RONDEL and Cycloset. In June 2008, Calando entered in to a drug-development partnership with Cerulean Pharma, Inc. (the “Cerulean Deal”). As part of the Cerulean Deal, Calando sold and assigned to Cerulean Pharma certain Calando owned-patents (“Acquired IP”) directed to linear cyclodextrin polymers conjugated to drugs. Additionally, Calando granted Cerulean an exclusive license under its right to the linear cyclodextrin system to develop certain drug products. However, excluded from the exclusive license to Cerulean are rights to use the linear cyclodextrin system to develop drugs in which the therapeutic agent is a nucleic acid (e.g., siRNA), a second generation epothilone, tubulysin or cytolysin. Additionally, Cerulean granted to Calando an exclusive fully paid up royalty free license under the Acquired IP to use the linear cyclodextrin system to develop drugs in which the therapeutic agent is a nucleic acid (e.g., siRNA), a second generation epothilone, tubulysin or cytolysin.

Calando also owns an issued patent covering the siRNA active ingredient in CALAA-01 and has filed a patent application to cover the siRNA active ingredient of CALAA-02. Calando has licensed patents from Alnylam relevant to siRNA therapeutics for CALAA-01 and CALAA-02. Calando has in-licensed from R&D Pharmaceuticals exclusive rights to second generation synthetic epothilones. Calando has out licensed to R&D the use of the linear cyclodextrin system for delivering tubulysin and cytolysin drugs. In any case, the RNAi and nanoparticle drug delivery patent landscape is complex and rapidly evolving. As such, Calando may need to obtain additional patent licenses prior to commercialization of its lead drug candidates.

## **The Drug Delivery and Oncology Markets**

Despite advances in drug discovery, pharmaceutical firms remain challenged by getting the right compound to the right place in the human body, where it can maximize effect. Additionally, over the next decade, multiple “blockbuster” pharmaceuticals will go off patent, resulting in a significant loss to the pharmaceutical industry as generic versions of these drugs enter the market. Patent expiration coupled with a challenging drug discovery environment, and continued problems with late stage trial failures has left pharmaceutical pipelines thin. In response, the industry has pursued reformulation of existing or previously failed compounds using new drug delivery technology to expand pipelines and prolong patent life. The global drug delivery market for all delivery technologies is expected to exceed \$67 billion in 2009. The market for targeted delivery of small molecule pharmaceuticals using particulate/liposomal delivery systems is estimated to grow to \$4.8 billion in 2012. According to the American Cancer Society, cancer is the second leading cause of death in the United States and accounts for approximately one in every four deaths. The National Institutes of Health has estimated the direct medical cost of cancer to be in excess of \$74 billion per year. Dose limiting toxicity, poor tissue specificity, and large effective distribution are major restrictive factors in effective cancer chemotherapy. Consequently, complete tumor response is not often achieved in patients receiving chemotherapy alone. This offers a potential for significant opportunity for firms developing technologies to more effectively deliver anti-cancer agents to malignant cells.

## **Competition**

Calando is engaged in the rapidly changing business of developing treatments for human disease through the regulation of gene expression and delivery of proprietary novel cancer therapies. Competition in these fields is intense as other companies are developing therapies similar to our nanoparticle drug delivery systems, and targeting patient populations that are similar to the patient populations that are targeted by Calando. A number of companies are pursuing research and development programs relating to the emerging area of cancer therapies using nanoparticle conjugates and RNA interference. A number of these companies have filed patent applications in these areas. It is difficult to predict whether any of these companies will be successful in obtaining patent protection, whether the patent protection sought will address important aspects of the technology and to what extent these companies will be successful in their RNA interference efforts. New competitors may arise and we may not be aware of all competitors in this space. A number of Calando’s competitors are more established and have greater resources than Calando does. Furthermore, even if Calando is successful in developing commercial products, it is possible that competitors will achieve greater market acceptance.

Systemic delivery of siRNA and other oligonucleotide therapeutics has proven critical for the success of all nucleic acid therapeutics. Naturally, multiple firms have recognized the problem of systemic siRNA delivery as a significant opportunity and other firms are developing products in this space. Companies developing siRNA delivery products include but are not limited to Alnylam, Merck, Roche, Tekmira, RXi Pharmaceuticals, PharmRX and Intradigm. Additionally, many academic groups are developing and may seek to commercialize siRNA delivery technologies.

## **Key Personnel**

Christopher Anzalone, Ph.D., is the CEO of Calando. Dr. Anzalone is also the CEO of Arrowhead, Unidym, Tego, Nantope and Leonardo. Thomas Schlupe, Sc.D., is the Chief Scientific Officer (CSO) of Calando.

Calando’s Board of Directors consists of R. Bruce Stewart, Executive Chairman of Arrowhead, and Christopher Anzalone, CEO and director of Arrowhead, Nanotope and Leonardo, Edward W. Frykman, member of the Arrowhead Board. Dr. Bruce Given and Dr. Mostafa Analoui are independent board members.

As of September 30 2009, there were no full time employees at Calando. Two former employees of Calando have been hired by Arrowhead to help manage Calando’s ongoing efforts.

## [Table of Contents](#)

### ***Agonn Systems, Inc.***

Arrowhead founded Agonn in May 2008 to explore, develop and commercialize nanotechnology-based energy storage devices for electric vehicles and other large format applications. Leveraging Arrowhead's expertise in carbon nanotubes, Agonn was pursuing a strategy to acquire energy storage technologies based on nanoscale engineering from research institutions and outsourced testing of various prototypes. As part of Arrowhead's strategy to conserve cash in 2009, Agonn curtailed its development efforts and its current efforts are minimal. At September 30, 2009, Agonn had no facilities or employees and is managed by Arrowhead.

### ***Tego BioSciences Corporation***

Tego's primary asset is an intellectual property portfolio which includes key patents for the modification of fullerenes, a family of symmetrical carbon-cage molecules with antioxidant properties. In order to exploit the therapeutic potential of fullerenes, they must first be chemically modified to render them water-soluble. A patented process, known as the Bingel reaction is of particular significance to fullerene chemistry because it enables modification of the fullerene sphere to provide solubility and appropriate physiologic behavior. Tego has a sole license to a patent directed at the Bingel reaction itself, as well as a large number of modified soluble fullerenes created through its use. Tego also owns or has exclusive licenses to patents directed to a variety of medical uses of Bingel-modified fullerenes. Tego is pursuing a strategy of partnering and licensing its intellectual property and has terminated its research and development efforts. As of September 30, 2009, Tego had no employees or facilities and is managed by Arrowhead.

In line with this strategy, on July 1, 2009, Tego exclusively licensed to The Bronx Project, Inc. ("TBP"), a development stage pharmaceutical company, the rights to develop and commercialize carboxylated fullerenes, e.g., the fullerene "C3," in the fields of Parkinson's disease, amyotrophic lateral sclerosis (or "Lou Gehrig's" disease), multiple sclerosis, brain trauma and schizophrenia. TBP was founded to commercialize the work of Dr. Laura Dugan, Associate Professor of Medicine at the University of California, San Diego. Dr. Dugan has published numerous papers in peer-reviewed scientific journals on the use of fullerenes as potential neuroprotective therapeutics to counteract the deleterious role of free radicals in neurodegenerative diseases. The TBP License provides Tego with \$100,000 in upfront fees, \$2.35 million in potential milestone payments and royalties, as well as 5% of the proceeds of a sale of TBP itself to a third party.

### **Minority Investments**

#### ***Nanotope, Inc.***

##### **Overview**

Nanotope is a company in the field of regenerative medicine developing a suite of products customized to regenerate specific tissues; including neuronal, vascular, bone, myocardial, and cartilage. Its two lead clinical candidates are focused on spinal cord regeneration and treatment of peripheral artery disease ("PAD"). PAD causes the loss of vasculature in the extremities and it has been estimated that as many as 20% of people over the age of 70 have some form of PAD. Currently there is no treatment for regenerating lost vasculature. Nanotope has demonstrated in multiple animal models that injection of its angiogenic compound leads to revascularization of affected areas. Importantly, neither the spinal cord nor PAD treatments use stem cells. Nanotope's products work with surviving cells and tissues to spur regeneration.

The Company acquired its initial stake in Nanotope from a Nanotope shareholder in April 2008 and increased its position through a direct investment of \$2 million in two tranches of \$1 million each in July 2008 and in September 2008. At September 30, 2009, the Company owned 22% of Nanotope's outstanding securities. The Company is interested in increasing its stake in Nanotope if the opportunity arises, the Company has the capital resources and Nanotope's technology development continues to move forward.

##### **Related Party Interests**

Nanotope was co-founded by the Company's President and Chief Executive Officer, Dr. Christopher Anzalone, through the Benet Group, a private investment entity solely owned and managed by Dr. Anzalone. Through the Benet Group, Dr. Anzalone owns approximately 14.2% of Nanotope's outstanding voting securities. Dr. Anzalone does not hold options, warrants or any other rights to acquire securities of Nanotope directly or through the Benet Group. The Benet Group has the right to appoint a representative to the Board of Directors of Nanotope. Dr. Anzalone currently serves on the Nanotope Board in a seat reserved for Nanotope's CEO and another individual holds the seat designated by the Benet Group. Dr. Anzalone has served as President and Chief Executive Officer of Nanotope since its formation and continues to serve in these capacities. Dr. Anzalone has not received any compensation for his work on behalf of Nanotope since joining the Company on December 1, 2007. Dr. Anzalone has also waived his right to any unpaid compensation accrued for work done on behalf of Nanotope before he joined the Company.

### ***Leonardo Biosystems, Inc.***

##### **Overview**

Leonardo is a drug delivery company that employs a novel multi-layer drug delivery mechanism aimed at dramatically increasing targeting efficiency. The Company currently owns 6% of Leonardo. Leonardo's silicon microparticulate technology

## [Table of Contents](#)

involves transporting a therapeutic agent past multiple biological barriers using multiple carriers, each optimized for a specific barrier. Leonardo's proprietary primary vehicles are designed to preferentially accumulate at tumor vasculature. Secondary carriers are then released from the primary carriers that are designed to accumulate around tumor cells and release their therapeutic payloads. Animal testing suggests that Leonardo's platform enables significantly increased targeting. The Company is interested in increasing its stake in Leonardo if the opportunity arises, the Company has the capital resources and Leonardo's technology development continues to move forward.

### **Related Party Interests**

Like Nanotope, Leonardo was co-founded by the Company's President and Chief Executive Officer, Dr. Christopher Anzalone, through the Benet Group, a private investment entity solely owned and managed by Dr. Anzalone. Through the Benet Group, Dr. Anzalone owns approximately 17% of the outstanding stock of Leonardo. Dr. Anzalone does not hold options, warrants or any other rights to acquire securities of Leonardo directly or through the Benet Group. The Benet Group has the right to appoint a representative to the Board of Directors of Leonardo. Dr. Anzalone currently serves on the Leonardo Board in a seat reserved for Leonardo's CEO and another individual holds the seat designated by the Benet Group. Dr. Anzalone has served as President and Chief Executive Officer of Leonardo since its formation and continues to serve in these capacities. Dr. Anzalone has not received any compensation for his work on behalf of Leonardo since joining the Company on December 1, 2007. Dr. Anzalone has also waived his right to any unpaid compensation accrued for work done on behalf of Leonardo before he joined the Company.

### **Academic Partnerships**

Since inception, Arrowhead has worked with some of the most outstanding academic institutions in the country, including the California Institute of Technology (Caltech), Stanford University, Duke University and the University of Florida, in critical areas such as stem cell research, carbon electronics and molecular diagnostics. This has provided the Company with a deep network in the academic community, insight into cutting edge technologies and a world class scientific advisory board. Through these partnerships, Arrowhead has gained access to exclusive rights that have formed the basis for the Company's subsidiaries and minority investments and has leveraged university resources to further develop and test technology in a highly cost effective way. The collaborations with academic scientists have included technology licenses and options to license technology, sponsored research, donations to the labs of individual scientists and use of university facilities that are made available to development stage companies. In prior years, Arrowhead devoted significant capital resources to sponsored research. As the Subsidiaries have matured, the Company has decreased its reliance on sponsored research for technology development and sponsored research expense has decreased. As of September 30, 2009, Arrowhead had one active sponsored research agreement at Duke University through Unidym. Depending on capital resources, Arrowhead is likely to continue to invest in nanoscience research and development through sponsored research agreements at universities.

### **ITEM 1A. 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 similar stages 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 refer to the other information contained or incorporated by reference in our other filings with the Securities and Exchange Commission.*

#### **Risks Related to Our Financial Condition**

***We do not have sufficient cash reserves to fund our activities at their current pace beyond the next fiscal year.***

Our plan of operations is to provide substantial amounts of development funding and financial support for our majority-owned subsidiaries over an extended period of time. Our Board of Directors adopted a cash conservation strategy that scaled back our financial support for our majority-owned subsidiaries, Unidym and Calando. This has influenced Unidym's decision to engage partners for its capital-intensive bulk CNT manufacturing and concentrate its resources on its CNT inks and CNT-based film products. Calando's Board of Directors has determined to partner future development efforts for its drug delivery platforms and clinical candidates. Management has developed a plan based upon the latest financing (See Note 15 – Subsequent Events) which includes the December 2009 financing and several other transactions which are expected to close in the near term. The plan shows that the Company has enough cash to fund all operations through September 30, 2010. Should a shortfall occur in expected cash receipts, the plan has contingencies to reduce operations in order to operate through September 30, 2010 without additional financing.

## [Table of Contents](#)

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

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

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

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

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

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

### ***Our business may be harmed if we cannot maintain our listing on the NASDAQ Capital Market.***

To maintain our listing on the NASDAQ Capital Market we must satisfy certain minimum financial and other continued listing standards, including, among other requirements, (i) a \$1.00 minimum bid price requirement and (ii) a \$2.5 million minimum stockholders' equity requirement, \$500,000 minimum net income requirement or \$35 million minimum market value of listed securities requirement. As of December 15, 2009, the bid price of our Common Stock was \$0.51 per share and our market value for listed securities was approximately \$29 million. At September 30, 2009 our stockholders' equity was \$4.8 million and our net loss was \$19.3 million for the fiscal year ended September 30, 2009. We previously received a notice of non-compliance from NASDAQ regarding our stockholders' equity. On August 11, 2009, NASDAQ informed the Company that our stockholders' equity as of June 30, 2009 (\$3.7 million) complied with NASDAQ Listing Rules. However, it is possible going forward that NASDAQ may decide our stockholders' equity is insufficient for continued compliance. We may face deficiencies in our stockholders' equity in the future and, if we cannot resolve such deficiencies, our Common Stock could be delisted from the NASDAQ Capital Market. As of July 31, 2009, NASDAQ reinstated the \$1.00 minimum bid requirement for continued listing.

On September 18, 2009, we received a deficiency letter from the NASDAQ Stock Market indicating that, based on our closing bid price for the last 30 consecutive business days, we did not comply with the \$1.00 minimum bid price as set forth in NASDAQ Marketplace Rule 5550(a)(2). In accordance with NASDAQ Marketplace Rule 5810(c)(3)(A), we have been provided a grace period of 180 calendar days, or until March 15, 2010, to regain compliance by maintaining a minimum closing bid price of \$1.00 per share for 10 consecutive business days. As of December 15, 2009, our Common Stock was trading at \$0.51, which is below the \$1.00 minimum bid price requirement. As a result, we may need to effect a reverse stock split to raise our stock price over \$1.00 to regain compliance with NASDAQ Listing Rules. At a special meeting of stockholders on October 6, 2009, a proposal was approved giving authority to our Board of Directors to effect a reverse stock split of our Common Stock in the range of 1:2 to 1:15, if deemed necessary. Despite the ability of the Board of Directors to effect a reverse stock split if necessary, there is no assurance that such a reverse stock split would in fact enable us to meet the \$1.00 minimum bid price requirement and stockholders may suffer a decline in value of their shares as many stocks do not trade at or above the implied post-split price.

## [Table of Contents](#)

In addition, because of cash constraints, we may have to “go dark” and stop filing reports with the SEC. If we stop filing reports with the SEC, that would negatively affect our stockholders’ ability to sell their shares. In addition, we would be under breach of certain agreements if we stop filing reports with the SEC, which would expose us to potential legal action.

If our Common Stock is delisted by, or we voluntarily delist from NASDAQ, our Common Stock may be eligible to trade on the OTC Bulletin Board or the Pink OTC Markets. In such an event, it could become more difficult to dispose of, or obtain accurate quotations for the price of our Common Stock, and there would likely also be a reduction in profile in the investment community and the news media, which could cause the price of our Common Stock to decline further.

As a consequence, our inability to maintain our listing on NASDAQ could also adversely affect our ability to obtain financing for the continuation of our operations and could result in a loss of confidence by investors, suppliers and employees. In addition, our stockholders’ ability to trade or obtain quotations on our shares could be severely limited because of lower trading volumes and transaction delays. These factors could contribute to lower prices and larger spreads in the bid and ask price for our Common Stock.

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

**Unidym.** We have debt on our consolidated balance sheet, including a capital lease obligation acquired in connection with Unidym’s acquisition of Nanoconduction, Inc. As of September 30, 2009, the capital lease obligation requires us to pay a total of \$750,000 in 10 monthly payments of \$75,000 each for capital equipment at Unidym’s Sunnyvale, California location and the equipment itself serves as collateral for the debt. Unidym’s ability to make payments on its indebtedness will depend on its ability to conserve the cash that it has on hand and to generate cash in the future. Neither Unidym nor the Company currently generates significant revenue. Because Unidym does not currently have a substantial amount of cash on hand, Unidym might be required to divert cash from development activities or to generate cash via debt or equity financing to be able to meet the monthly payment requirements under the capital lease obligation. This, to some extent, is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control. Also, given the current economic climate, financing options might be limited going forward, which could prevent Unidym from obtaining the necessary funds to pay its indebtedness when due. Because the equipment serves as collateral for the debt, if Unidym is unable to make the monthly payments when due, the lessor of the equipment, at its discretion, may seize the equipment and Unidym would not be able to use the equipment in its development activities.

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

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

### **Risks Related to Our Business Model and Company**

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

The implementation of our business strategy is still in the development stage. We currently own majority interests in two subsidiary companies, 100% ownership interest in the non-operating subsidiaries, investments in two early stage biotech companies and, through Unidym, one university research project at Duke University. Our business and operations should be considered to be in the development stage and subject to all of the risks inherent in the establishment of a new business venture. Accordingly, our intended business and operations may not prove to be successful in the near future, if at all. Any future success that we might enjoy will depend upon many factors, several of which may be beyond our control, or which cannot be predicted at this time, and which could have a material adverse effect upon our financial condition, business prospects and operations and the value of an investment in the company.

## [Table of Contents](#)

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

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

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

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

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

The business model of our subsidiaries has historically been to develop new nanotechnologies and to exploit the intellectual property created through the research and development process to develop commercially successful products. Calando has licensed a portion of its technology to Cerulean Pharma, Inc. and intends to pursue further licensing arrangements with other companies. As Calando licenses its technology to other companies, it will lose control over certain of the technologies it licenses and will be unable to significantly direct the commercialization of its technologies. In addition, Calando's licensees may not be successful in the further commercialization of Calando's technologies and anticipated revenues from such license agreements may be less than expected or may not be paid at all.

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

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

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

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

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

## [Table of Contents](#)

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

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

- a development partner would likely gain access to our proprietary information, potentially enabling the partner to develop products without us or design around our intellectual property;
- we may not be able to control the amount and timing of resources that our collaborators may be willing or able to devote to the development or commercialization of our product candidates or to their marketing and distribution; 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.

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

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

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

- limitations on our ability to borrow;
- limitations on our capital structure;
- restrictions on acquisitions of interests in associated companies;
- prohibitions on transactions with our affiliates;
- restrictions on specific investments; and
- compliance with reporting, record keeping, voting, proxy disclosure and other rules and regulations.

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

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

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

## [Table of Contents](#)

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

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

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

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

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

Our model to integrate and oversee the strategic direction of various subsidiaries and research and development projects presents many risks, including:

- the difficulty of integrating operations and personnel; and
- the diversion of our management's attention as a result of evaluating, negotiating and integrating acquisitions or new business ventures.

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

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

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

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

While we expect that our officers and directors who also serve as officers and/or directors of our subsidiaries will comply with their fiduciary duties owed to our stockholders, they may have conflicting fiduciary obligations to our stockholders and the minority stockholders of our subsidiaries. Specifically, Dr. Anzalone, our CEO and President, is the founder, CEO and a board member of each of Nanotope, Inc. ("Nanotope"), a regenerative medicine company that is separately financed in which the Company owns a 22% interest, and Leonardo Biosystems, Inc. ("Leonardo"), a drug delivery company that is separately financed in which the Company owns a 6% interest. Dr. Anzalone owns a minority interest in the stock of each of Nanotope and Leonardo. To the extent that any of our directors choose to recuse themselves from particular Board actions to avoid a conflict of interest, the other members of our Board of Directors will have a greater influence on such decisions.

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

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

- clinical trial results are not acceptable, even though preclinical trial results were promising;
- inefficacy and/or harmful side effects in humans or animals;
- the necessary regulatory bodies, such as the U.S. Food and Drug Administration, 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 the subsidiaries' technology is not cost effective or if the associated drug products do not achieve wide market acceptance, the value of a subsidiary would be materially and adversely affected.

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

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

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

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

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

**Risks Related to Our Intellectual Property**

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

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

## [Table of Contents](#)

### ***Our ability to protect our patents and other proprietary rights is uncertain, exposing us to the possible loss of competitive advantage.***

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

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

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

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

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

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

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

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

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

## **Risks Related to Regulation of Our Products**

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

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

## [Table of Contents](#)

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

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

### **Risks Related to our Stock**

#### ***Stockholder equity interest may be substantially diluted in any additional financing.***

Our certificate of incorporation authorizes the issuance of 145,000,000 shares of Common Stock and 5,000,000 shares of preferred stock, on such terms and at such prices as our Board of Directors may determine. As of September 30, 2009, 56,411,744 shares of Common Stock and no shares of preferred stock were issued and outstanding. As of September 30, 2009, 1,532,000 shares and 1,369,588 shares were reserved for issuance upon exercise of options granted under our 2000 Stock Option Plan, (the “2000 Plan”), and 2004 Equity Incentive Plan, (the “2004 Plan”), respectively. As of September 30, 2009, we had warrants outstanding to purchase 15,417,815 shares of Common Stock and issued warrants to purchase 5,245,891 shares in a recent private offering. All of the warrants are callable by us under certain market conditions.

In October 2009, the stockholders approved an increase in the number of the authorized shares of Common Stock from 70 million to 145 million under our certificate of incorporation (See footnote 15 – Subsequent Events – in the attached financials). The increase in authorized shares of Common Stock approved by our stockholders, together with the issuance of additional securities in financing transactions by us or through the exercise of options or warrants will dilute the equity interests of our existing stockholders, perhaps substantially, and might result in dilution in the tangible net book value of a share of our Common Stock, depending upon the price and other terms on which the additional shares are issued.

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

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

- announcements of developments related to our business;
- developments in our strategic relationships with scientists within the nanotechnology field;
- our ability to enter into or extend investigation phase, development phase, commercialization phase and other agreements with new and/or existing partners;
- announcements regarding the status of any or all of our collaborations or products;
- market perception and/or investor sentiment regarding nanotechnology as the next technological wave;
- announcements regarding developments in the nanotechnology field in general;
- the issuance of competitive patents or disallowance or loss of our patent rights; and
- quarterly variations in our operating results.

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

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

Although our Common Stock is listed for trading on the NASDAQ Capital Market, our securities are currently relatively thinly traded. Our current solvency concerns could serve to exacerbate the thin trading of our securities. For example, mandatory sales of our Common Stock by institutional holders could be triggered if an investment in our Common Stock no longer satisfies their investment standards and guidelines as a result of the solvency concerns. Accordingly, it may be difficult to sell shares of 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. Moreover, our stock price has generally been declining for the last 24 months.

## [Table of Contents](#)

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

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

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

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

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

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

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

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

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

We have adopted and may in the future adopt certain measures that may have the effect of delaying, deferring or preventing a takeover or other change in control of the Company that a holder of our Common Stock might consider in its best interest. Specifically, our Board of Directors, without further action by our stockholders, currently has the authority to issue up to 5,000,000 shares of preferred stock and to fix the rights (including voting rights), preferences and privileges of these shares (“blank check” preferred). Such preferred stock may have rights, including economic rights, senior to our Common Stock. Additionally, because we are effectively out of authorized by unissued common stock, we may be forced to issue preferred stock in future capital raising transactions. 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.

### **ITEM 1B. UNRESOLVED STAFF COMMENTS**

None.

## [Table of Contents](#)

### ITEM 2. PROPERTIES

Our corporate headquarters is located in Pasadena, California. The Company leases the following facilities:

	<u>Lab/Office Space</u>	<u>Monthly Rent</u>	<u>Lease Commencement</u>	<u>Lease Term</u>
Arrowhead				
Pasadena(1)	7,388 sq ft	\$ 18,101	March 1, 2006	62 Months
New York(2)	130 sq ft	\$ 1,600	October 1, 2008	14 Months
Calando(3)	4,354 sq ft	\$ 12,173	June 1, 2009	1 Month
Unidym				
Menlo Park, CA(4)	9,255 sq ft	\$ 14,345	February 1, 2007	36 Months
Sunnyvale, CA	20,500 sq ft	\$ 26,650	October 1, 2008	60 Months

- (1) Arrowhead leases corporate office space in Pasadena, which it occupied beginning March 1, 2006.
- (2) As of April 1, 2009, Arrowhead closed its New York office.
- (3) Calando's laboratory was closed on June 30, 2009 and its lease expired on July 15, 2009.
- (4) On September 30, 2009, Unidym entered into a lease termination agreement with the landlord of its Menlo Park, California facility. Under the terms of the agreement, Unidym forfeited its security deposit of \$14,808 and agreed to pay the landlord an additional payment of \$63,000. In return, the lease was terminated and Unidym has no further obligations related to the Menlo Park lease.

On April 22, 2009, Unidym entered into a lease termination agreement with the landlord for its Pasadena, Texas location. At the time of the termination, approximately 9.5 years remained on the term of the lease with the minimum estimated future payments totaling approximately \$2,139,000. Under terms of the lease termination agreement, Unidym forfeited its \$109,200 security deposit and made an additional payment to the landlord of \$14,800.

The Company has no plans to own any real estate and expects all facility leases will be operating leases.

Facility and equipment rent expense for the years ended September 30, 2009 and 2008 was \$1,326,860 and \$1,075,524, respectively. From inception to date, rent expense has totaled \$4,304,993.

### ITEM 3. LEGAL PROCEEDINGS

The Company is not currently party to any material legal proceedings.

### ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

No items were submitted to a vote of stockholders in the quarter ended September 30, 2009.

**PART II****ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES***Price Range of Common Stock*

Our Common Stock is traded on the NASDAQ Stock Market under the symbol "ARWR". The following table sets forth the high and low sales prices for a share of the Company's Common Stock during each period indicated. During the year ended September 30, 2009, the weekly trading volume ranged from 55,200 shares to 896,800 shares with an average weekly volume of 192,515 shares.

	Fiscal Year Ended September 30,			
	2009		2008	
	High	Low	High	Low
1st Quarter	\$ 1.78	\$ 0.77	\$ 5.01	\$ 3.36
2nd Quarter	1.20	0.36	3.55	1.90
3rd Quarter	0.70	0.40	3.07	2.13
4th Quarter	0.71	0.31	2.59	1.04

*NASDAQ Compliance*

On September 18, 2009, Arrowhead Research Corporation announced that it received a deficiency letter from the NASDAQ Stock Market indicating that based on the Company's closing bid price for the last 30 consecutive business days, the Company did not comply with the \$1.00 minimum bid price as set forth in NASDAQ Marketplace Rule 5550(a)(2). In accordance with NASDAQ Marketplace Rule 5810(c)(3)(A), Arrowhead has been provided a grace period of 180 calendar days, or until March 15, 2010, to regain compliance by maintaining a minimum closing bid price of \$1.00 per share for 10 consecutive business days. The NASDAQ deficiency notice has no effect on the listing of the Arrowhead's Common Stock at this time and Arrowhead will seek to regain compliance within the grace period. If Arrowhead does not meet the minimum bid requirement during the initial 180-day grace period, the Company will be notified by NASDAQ that its Common Stock will be subject to delisting. Alternatively, the Company may be eligible for an additional grace period if it meets the initial listing standards, with the exception of the bid price, for The NASDAQ Capital Market. If the Company meets the initial listing criteria, NASDAQ will notify the Company that it has been granted an additional 180 calendar day grace period. NASDAQ had previously implemented a temporary suspension of this listing requirement on October 16, 2008. The temporary suspension was lifted on July 31, 2009. During the period of the temporary suspension, the Company was not considered to be out of compliance with this continued listing requirement.

*Shares Outstanding*

At December 15, 2009, an aggregate of 62,788,380 shares of the Company's Common Stock were issued and outstanding, and were owned by 444 stockholders of record, based on information provided by the Company's transfer agent.

*Dividends*

The Company has never paid dividends on its Common Stock and does not anticipate that it will do so in the foreseeable future.

*Sales of Unregistered Securities*

In the fourth quarter of fiscal 2009, the Company issued 1,011,546 shares of Common Stock in exchange for shares of Unidym preferred and common stock. The offering was exempt from registration under the Securities Act of 1933 (the "Securities Act") as a private placement within the meaning of Section 4(2) and the safe harbor provided by Regulation D under the Securities Act.

On July 17, 2009 and August 6, 2009, the Company completed the closing of a private placement (the "Private Placement") of an aggregate of 9,196,642 shares (the "Shares") of its common stock, \$0.001 par value per share ("Common Stock"), at a price of \$0.30 per share, and warrants to purchase up to an additional 9,196,642 shares of Common Stock (the "Warrants"), exercisable at \$0.50 per share. The Warrants become exercisable in January 2010 and remain exercisable until June 17, 2014, unless redeemed earlier as permitted. The warrants may be redeemed for nominal consideration if the Company's common stock trades above \$1.20 for at least 30 trading days in any 60-trading day period. Gross proceeds of the Private Placement totaled approximately \$2.75 million and proceeds net of commissions were approximately \$2.5 million. The Shares and Warrants were offered and sold only to accredited investors in reliance on Section 4(2) of the Securities Act of 1933, as amended (the "Securities Act"), and Rule 506 promulgated thereunder.

*Repurchases of Equity Securities*

We did not repurchase any shares of our common stock during fiscal 2009 or fiscal 2008.

## [Table of Contents](#)

### Information Regarding Equity Compensation Plans

The following table provides certain information as of September 30, 2009, with respect to all of the Company's equity compensation plans in effect on that date.

Plan Category	Equity Compensation Plan Information		
	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders(1)	2,901,588	\$ 1.73	4,368,722

(1) Includes the 2000 Stock Option Plan and the 2004 Equity Incentive Plan.

## ITEM 6. SELECTED FINANCIAL DATA

As a "Smaller Reporting Company," we are not required to provide this information.

## ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

### Description of Business

Unless otherwise noted, (1) the term "Arrowhead" refers to Arrowhead Research Corporation, a Delaware corporation formerly known as InterActive Group, Inc., (2) the terms the "Company," "we," "us," and "our," refer to the ongoing business operations of Arrowhead and its Subsidiaries, whether conducted through Arrowhead or a subsidiary of Arrowhead, (3) the term "ARC" refers to Arrowhead Research Corporation, a privately-held California corporation with which Arrowhead consummated a stock exchange transaction in January 2004, (4) the term "Subsidiaries" refers collectively to Calando Pharmaceuticals, Inc. ("Calando"), Unidym, Inc. ("Unidym"), Agonn Systems, Inc. ("Agonn") and Tego Biosciences Corporation ("Tego"), Masa Energy LLC ("Masa") and (5) the term "Common Stock" refers to Arrowhead's Common Stock and the term "stockholder(s)" refers to the holders of Common Stock or securities exercisable for Common Stock.

### Overview

Arrowhead Research Corporation is a development stage nanotechnology holding company that forms, acquires, and operates subsidiaries commercializing innovative nanotechnologies. By working closely with leading scientists and universities, Arrowhead identifies advances in nanotechnology and matches them with product development opportunities in high-growth markets. The Company is currently focused on the electronics and biotech industries.

Providing strategic management, financing, and operational services to its subsidiaries, Arrowhead takes an active role in their development, keeping the business and technical development teams at the subsidiary companies focused on near term revenue opportunities and capital efficiency.

Arrowhead's ultimate goal is to realize the value of its subsidiaries by:

- A public offering of subsidiary stock;
- A sale of subsidiary to another company; or
- Building Arrowhead's ownership position to 100% with revenue from subsidiary flowing to Arrowhead's bottom line.

Arrowhead owns two majority-owned subsidiaries, Unidym and Calando, three wholly-owned non-operating subsidiaries and has minority investments in two early-stage nanotechnology companies, Nanotope and Leonardo. Arrowhead's business plan includes adding to its portfolio through selective acquisition and formation of new companies, as capital resources allow. The Company's subsidiaries are seeking to commercialize or license the technology covering a variety of nanotechnology products and applications, including anti-cancer RNAi therapeutics, carbon-based electronics and fullerene based anti-oxidants. The Company's minority investments are focused on developing advanced nanomaterials for spinal cord injury and wound healing and drug delivery technology.

Arrowhead has been active in the operation of its subsidiaries, providing key management functions. During 2009, the Company continued its efforts to streamline the operations of Arrowhead and its Subsidiaries to increase efficiency and decrease costs while continuing to move the business plans of each entity forward. With the decision to move to a licensing model for Calando and the decision to reduce costs at Unidym, the amount of cash needed to fund both operations is expected to be reduced from historical levels.

## [Table of Contents](#)

### ***Cash Resources and Going Concern***

At September 30, 2009, the Company had approximately \$2 million in cash to fund operations. In fiscal 2009, the Company raised \$7.3 million in capital and \$4.4 million through the sales of assets, products and license fees, on a consolidated basis, through equity financing at the Arrowhead level and sales of equity and convertible loans by its subsidiaries.

On December 11, 2009, Arrowhead Research Corporation (the "Company") executed definitive agreements for a private placement offering (the "Offering") with a selected group of accredited investors. Pursuant to the Offering, the Company sold an aggregate of approximately 5.1 million shares (the "Shares") of the Company's Common Stock, \$0.001 par value per share ("Common Stock"), at a price of \$0.634 per share, and warrants to purchase up to an equal number of shares of Common Stock (the "Warrants"), exercisable at \$0.509 per share. The closing bid price on the Company's Common Stock on December 11, 2009 was \$0.509. The Warrants become exercisable on June 12, 2010 and remain exercisable until December 11, 2014, unless redeemed earlier as permitted. The warrants may be redeemed for nominal consideration if the Company's common stock trades above \$1.20 for at least 30 trading days in any 60-trading day period after December 11, 2010. Gross proceeds of the Offering totaled over \$3.2 million with net proceeds estimated at approximately \$3.2 million. The Shares and Warrants were offered and sold only to accredited investors in reliance on Section 4(2) of the Securities Act of 1933, as amended (the "Securities Act"), and Rule 506 promulgated thereunder. The Shares and Warrants sold in the private placement have not been registered under the Securities Act or state securities laws and may not be offered or sold in the United States absent registration with the Securities and Exchange Commission or an applicable exemption from the registration requirements. The Company has agreed to file a registration statement with the Securities and Exchange Commission covering the resale of the Shares and the shares of Common Stock issuable upon exercise of the Warrants.

Based on this financing, the Company has developed a plan which indicates that the Company has sufficient cash to operate through September 30, 2010.

### **Majority-owned Subsidiaries**

#### Unidym

Unidym is a leader in carbon nanotube-based transparent, conductive films (TCFs) for the electronics industry. TCFs are a critical component in devices such as touch panels, displays, and thin-film solar cells. For example, both touch panels and LCDs typically employ two TCF layers per device. Unidym's TCFs offer substantial advantages over the incumbent technology, indium-based metal oxides, including: improved durability, lower processing costs, and lower overall cost structure. Unidym is working in close collaboration with customers, especially in Asia where the bulk of display manufacturing is located. Unidym is initially focused on the touch panel market and expects modest revenue from sales of its films in the near term.

In fiscal 2009, Unidym reduced costs and liabilities and restructured operations. During the year, headcount was reduced and Unidym's facilities were consolidated in Sunnyvale, California. In line with its strategy to work with manufacturing partners, in May 2009, Unidym transferred a portion of its assets for CNT production to CCNI, a manufacturer of CNTs and carbon black, and is in the process of negotiating a license and supply agreement with CCNI for the production of Unidym's CNT supply needs. The consideration for the assets to be transferred and licenses to be granted in the license and supply agreement is still being negotiated, but is expected to consist of upfront payments and royalties.

In November 2008, Unidym raised \$2 million through the sale of Series C-1 Preferred Stock to Tokyo Electron Ventures ("TEL Ventures"). Since March 2009, Unidym's operations have been funded by Arrowhead through a series of stock purchases. Arrowhead also increased its ownership through acquisition of stock from minority holders in Unidym, including TEL Ventures. At September 30, 2009, Arrowhead's interest in Unidym was 79.97% and 64.16% on a fully diluted basis.

Unidym requires additional capital to fund its operations and obligations through fiscal 2010. Unidym's cash consumption has been reduced from fiscal 2008 levels of \$2.0 million to \$4.2 million per quarter to \$532,000 in the fourth fiscal quarter of 2009. From September 30, 2008 to September 30, 2009, Unidym's liabilities have been reduced from \$3.3 to \$1.5 million.

The development, production and sale of Unidym's products have required and are expected to continue to require significant investment and to take a long time. There are a variety of technical, cost, and marketing barriers that must be overcome. It is not possible at this time to predict the final cost of developing Unidym's transparent conductive film or other CNT products, the final cost of scaling up the production process, when or if Unidym will generate significant licensing revenue, or when or if Unidym will become profitable.

Calando

Calando is a clinical stage oncology drug delivery company. Calando has developed proprietary technologies to create targeted siRNA-based therapeutics and small molecule nanoparticle drug conjugates. Calando's innovative CycloSert™ and RONDEL™ nanoparticle systems have been designed to solve the long-standing obstacle of safe and effective delivery and targeting for oligonucleotide and small molecule therapeutics. Calando has developed two clinical stage drug candidates for the treatment of cancer. CALAA-001, a therapeutic candidate based on siRNA and the RONDEL system, is currently undergoing a Phase I clinical study. The trial is utilizing a dose escalation protocol which is nearing the highest dose in the protocol and yielding recent promising results. Calando plans to complete the Phase I trial, as capital resources allow, and is seeking a partner for the further development of both the siRNA delivery platform and CALAA-01.

The other clinical candidate is IT-101, a conjugate of Calando's delivery molecule and the potent small molecule anti-cancer drug, Camptothecin. IT-101 has completed a Phase I clinical trial with a positive safety profile and indications of efficacy. On June 23, 2009, Calando entered into agreements to license its small molecule delivery platform and IT-101, to Cerulean Pharma, Inc. ("Cerulean"), a Boston, MA based biotech company. Under the terms of the agreements, Calando granted Cerulean an exclusive royalty-bearing worldwide license to certain patent rights and know-how and transferred to Cerulean certain intellectual property related to the linear-cyclodextrin drug delivery platform and IT-101 in exchange for an initial payment of \$2.4 million. Under the agreements, Calando retains the rights to use the linear-cyclodextrin drug delivery platform to deliver tubulysin, cytolysin (the rights to deliver both were previously sublicensed by Calando to R&D Biopharmaceuticals GmbH), second generation epothilones, as well as any kind of nucleic acid, e.g., a DNA or siRNA therapeutics. As such, Calando retains the rights to its RONDEL™ platform, as well as the CALAA-01 and CALAA-02 lead drugs. In connection with the Cerulean Agreements, Calando closed its Phase 2 clinical studies for IT-101. The \$2.4 million payment from Cerulean was used to pay down Calando's existing obligations.

Under the terms of the agreements, Cerulean will pay Calando up to \$2.75 million in development milestone payments if IT-101 progresses through clinical trials and receives marketing approval. If approved, Calando is also entitled to receive up to an additional \$30 million in sales milestones, plus royalties on net sales, depending on sales levels, with any development milestone payments credited against such royalties. For every new drug candidate that Cerulean is able to bring to market with the linear-cyclodextrin drug delivery platform, Calando is entitled to receive up to \$3 million in development milestone payments and up to an additional \$15 million in sales milestones, plus royalties on annual net sales, depending on sales levels, with any development milestone payments credited against such royalties. In addition, should Cerulean enter into any sublicense agreements for the development and sale of IT-101, Calando is entitled to 10% to 40% of Cerulean's sublicense income, depending on timing of the underlying sublicensing deal.

Historically, Calando chose to finance the development of drug candidates and its platform systems from its own resources and minority investments. Significant cash was consumed in fiscal 2008 and in the first three quarters of fiscal 2009 for Calando's clinical program and the development of a second siRNA therapeutic. Calando has moved from an internal development strategy to a partnership and licensing model. In line with this strategy, Calando phased down its operations significantly in the first half of fiscal 2009 as part of the Company's overall cash conservation strategy and closed its laboratory facility on June 30, 2009. Two employees were transferred to Arrowhead to manage the CALAA-01 clinical study and facilitate partnership negotiations. Since July 2009, Calando has further reduced expenses except for limited expenses necessary to complete the CALAA-01 Phase 1 clinical study. Calando's cash consumption has been reduced from fiscal 2008 levels of \$2.2 million to \$2.6 million per quarter to less than \$502,000 in the fourth fiscal quarter of 2009. Calando's continuing cash needs are being met through a series of bridge loans from Arrowhead. Calando will need significant additional capital to fund the completion of its Phase 1 trial and to pay its existing obligations.

We believe there is an opportunity to derive value from the further development of the Calando platform drug delivery systems, as they have been demonstrated to enhance and enable the delivery of diverse pharmaceutical entities, including peptides and small molecules as well as other RNA and DNA-based oligonucleotides. At September 30, 2009, Arrowhead's interest in Calando was 67.8% and 63.6% on a fully diluted basis.

The development of CALAA-01, IT-101 and other pipeline candidates are preliminary, and there is no assurance that they will be successful. There are numerous technical, regulatory and marketing challenges that must be overcome to successfully commercialize Calando's products, including, but not limited to the following:

- Advancing pipeline candidates requires extensive preclinical testing and approval by the U.S. Food and Drug Administration ("FDA") before clinical testing can commence.
- Advancing therapeutic candidates through preclinical and clinical testing is expensive, resource intensive and time consuming.
- Complications may arise that would cause the clinical testing to be interrupted or stopped. FDA approval is required before products can be sold.
- Even if FDA approval is eventually obtained, there is no assurance that it will be accepted by the medical community.

It is not possible at this time to accurately determine the final cost of the development projects, the completion dates, or when or if revenue will commence.

## [Table of Contents](#)

### **Wholly-owned Subsidiaries**

#### **Tego**

Tego has been pursuing a licensing and partnering strategy. In line with this strategy, on July 1, 2009, Tego exclusively licensed to The Bronx Project, Inc. (“TBP”), a development stage pharmaceutical company, the rights to develop and commercialize carboxylated fullerenes, e.g., the fullerene “C3,” in the fields of Parkinson’s disease, amyotrophic lateral sclerosis (or “Lou Gehrig’s disease”), multiple sclerosis, brain trauma and schizophrenia. The TBP License provides Tego with \$100,000 in upfront fees, \$2.35 million in potential milestone payments and royalties, as well as 5% of the proceeds of a sale of TBP itself to a third party.

#### **Agonn**

As part of Arrowhead’s strategy to conserve cash in 2009, Agonn curtailed its development efforts. At September 30, 2009, Agonn had no facilities or employees and is managed by Arrowhead.

#### **Masa Energy LLC**

Masa’s only assets are a 5.78% minority position in Nanotope, Inc. (“Nanotope”) and a 6.13% minority position in Leonardo Biosystems, Inc. (“LBS”).

### **Minority Investments**

#### **Nanotope, Inc.**

Nanotope is an early stage nano-biotechnology company developing advanced materials for regeneration and wound healing. Arrowhead owns 22% of Nanotope and accounts for its investment in Nanotope using the equity method of accounting. In fiscal 2009, Arrowhead recorded a loss of \$225,804, representing its interest in Nanotope’s loss. Nanotope is positioned to enter into a commercialization corporate partnership in 2010 and expects to be able to start a first round of clinical trials in 2010. Nanotope’s model is to partner product candidates prior to clinical trials and, therefore, assume no clinical costs. Nanotope was co-founded by Dr. Anzalone, the Company’s CEO, prior to his employment with Arrowhead. He owns approximately 14.2% of Nanotope’s outstanding voting securities and he serves as the CEO of Nanotope.

#### **Leonardo Biosystems, Inc.**

Leonardo is a drug delivery company based on technology developed by Dr. Mauro Ferrari, one of the world’s best-known nano-cancer scientists. Arrowhead has a 6% interest in Leonardo and accounts for its \$187,000 investment in Leonardo using the cost method of accounting. Leonardo expects to enter into commercial development partnerships in 2010. Leonardo was co-founded by Dr. Anzalone, the Company’s CEO, prior to his employment by Arrowhead. Dr. Anzalone, through his ownership in the Benet Group, owns 17% of the outstanding stock of Leonardo and he serves as the CEO of Leonardo.

### **Academic Partnerships**

In prior years, Arrowhead devoted significant capital resources to sponsored research. As the subsidiaries have matured, the Company has decreased its reliance on sponsored research for technology development and sponsored research expense has decreased. As of September 30, 2009, Unidym had one active sponsored research agreement at Duke University. Negotiations with Duke to reduce the scope of the sponsored research project are expected to reduce the cost to approximately \$100,000 per year. Depending on capital resources, Arrowhead and/or its subsidiaries expect to continue to invest in nanoscience research and development through sponsored research agreements at universities.

### **Factors Affecting Further R&D Expenses**

Since early fiscal 2009, the Company has dramatically decreased its research and development expenses due to cash constraints. Research and development expenses are expected to fluctuate in the foreseeable future as the Company’s product development efforts move through various phases of development and as capital resources allow. Each phase of development requires different resources. Also, the pace of development can affect the resources required. Over the past five years, the Company has increased and decreased subsidiaries and products in its pipeline, increased and decreased research and development personnel, engineers, business development and marketing personnel; expanded and contracted its pre-clinical research, begun and ended clinical trial activities, increased its regulatory compliance capabilities, and purchased capital equipment and laboratory supplies. The timing and amount of these fluctuations in expenses is difficult to predict due to the uncertainty inherent in the timing and extent of progress in the Company’s research programs. As the Company’s research efforts evolve, it will continue to review the direction of its research based on an assessment of the value of possible commercial applications emerging from these efforts.

In addition to these general factors, specific factors that will determine the eventual cost to complete the current projects at Arrowhead’s nano-biotechnology Subsidiaries or their partners and potential partners include the following:

- the number, size and duration of clinical trials required to gain FDA approval;

## Table of Contents

- the costs of producing supplies of the drug candidates needed for clinical trials and regulatory submissions;
- the efficacy and safety profile of the drug candidate; and
- the costs and timing of, and the ability to secure, regulatory approvals.

It is possible that the completion of studies could be delayed for a variety of reasons, including difficulties in enrolling patients, delays in manufacturing, incomplete or inconsistent data from the pre-clinical or clinical trials, difficulties evaluating the trial results and lack of funding. Any delay in completion of a trial would increase the cost of that trial. Due to these uncertainties, the Company cannot reasonably estimate the amount or timing of cash inflows from Calando's current activities.

### ***Critical Accounting Policies and Estimates***

Management makes certain judgments and uses certain estimates and assumptions when applying accounting principles generally accepted in the United States in the preparation of our Consolidated Financial Statements. We evaluate our estimates and judgments on an ongoing basis and base our estimates on historical experience and on assumptions that we believe to be reasonable under the circumstances. Our experience and assumptions form the basis for our judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may vary from what we anticipate and different assumptions or estimates about the future could change our reported results. We believe the following accounting policies are the most critical to us, in that they are important to the portrayal of our consolidated financial statements and require our most difficult, subjective or complex judgments in the preparation of our consolidated financial statements. For further information, see *Note 1, Organization and Significant Accounting Policies*, to our Consolidated Financial Statements which outlines our application of significant accounting policies and new accounting standards.

#### *Revenue Recognition*

Revenue from product sales are recorded when persuasive evidence of an arrangement exists, title has passed and delivery has occurred, a price is fixed and determinable, and collection is reasonably assured.

We may generate revenue from product sales, technology licenses, collaborative research and development arrangements, and research grants. Revenue under technology licenses and collaborative agreements typically consists of nonrefundable and/or guaranteed technology license fees, collaborative research funding, and various milestone and future product royalty or profit-sharing payments.

Revenue associated with up-front license fees and research and development funding payments, under collaborative agreements, is recognized ratably over the relevant periods specified in the agreement, generally the research and development period. Revenue from substantive milestones and future product royalties is recognized as earned based on the completion of the milestones and product sales, as defined in the respective agreements. Payments received in advance of recognition as revenue are recorded as deferred revenue.

#### *Research and Development Expenses*

Research and development expenses include salaries and benefits, trial (including pre-clinical, clinical and other) and production costs, purchased in-process research expenses, contract and other outside service fees, and facilities and overhead costs related to research and development efforts. Research and development expenses also consist of costs incurred for proprietary and collaborative research and development. Research and development costs are expensed as incurred.

#### *Impairment of Long-lived Assets*

We review long-lived assets for impairment whenever events or changes in business circumstances indicate that the carrying amount of assets may not be fully recoverable or that our assumptions about the useful lives of these assets are no longer appropriate. If an impairment is indicated, the asset is written down to its estimated fair value based on quoted fair market values.

#### *Intellectual Property*

Intellectual property consists of patents and patent applications internally developed, licensed from universities or other third parties or obtained through acquisition. Patents and patent applications are reviewed for impairment whenever events or circumstances indicate that the carrying amount may not be recoverable, and any impairment found is written off. Licensed or internally developed patents are amortized over the life of the patent. Purchased patents are amortized over three years.

### **Results of Operations**

The Company had a consolidated loss of approximately \$19.3 million for the year ended September 30, 2009, compared to a consolidated loss of \$27.1 million for the year ended September 30, 2008.

## [Table of Contents](#)

The decrease in the fiscal 2009 consolidated loss over fiscal 2008 is the result of a number of factors. The number of management and staff employees at Arrowhead declined over fiscal 2009 and other cost savings measures were instituted, including the closure of Arrowhead's New York office and reduction in scientific advisory fees. It is expected that the trend to consolidate management of the Subsidiaries at Arrowhead will continue with the goal of reducing cash outlay throughout the Company.

Unidym also reduced its expenses in fiscal 2009 compared to fiscal 2008. In fiscal 2008, Unidym was pursuing a business plan based on building a vertically integrated company that would manufacture both carbon nanotubes and carbon nanotube films. With the dramatic changes in economic conditions in late 2008, Unidym decided to look to partners for manufacturing capability rather than expand its internal capabilities. In line with this strategy, Unidym closed its Texas operations in January 2009. This resulted in a reduction in workforce and other expenses related to the operation of the Texas plant and a reduction in lease expenses later in the year. Unidym consolidated its Northern California operations into one facility in 2009 and also decreased the number of management and technical staff in the early part of the year. Significant expense is expected to be incurred in the further development of Unidym's products. However, development costs at Unidym have been substantially reduced and the pace of development will depend on the cash resources and partnership opportunities available to Unidym.

Calando also reduced expenses in fiscal 2009 compared to fiscal 2008 due to a change in business strategy. Rather than bear the significant expense of running multiple clinical trials, Calando decided to seek partners for further development of its technology. Beginning in fiscal 2008 and continuing into fiscal 2009, Calando reduced its management and technical staff culminating with the closure of its lab facility in Pasadena, California in June fiscal 2009 after a partnership for one of its drug delivery technologies and its associated clinical candidate was signed. Calando's outside lab and contract services expense decreased by approximately \$3 million in fiscal 2009 compared to fiscal 2008. Calando incurred major expenses during fiscal 2008 related to the IT-101 clinical trial and preparation for a phase 1 clinical trial for CALAA-01. With the initiation of the phase I trial for CALAA-01 in fiscal 2009, the need to incur outside labs and contract service expenses was reduced. In fiscal 2009, significant expense was incurred for manufacture of the components for CALAA-02, preparation for an IND for CALAA-02 and the continuation of Calando's clinical trials. Continued clinical and preclinical development of Calando's drug candidates will depend on the cash resources available to Calando.

Development expenses related to Agonn and Tego were minimal in fiscal 2009 compared to fiscal 2008.

## Revenues

The Company generated revenues of \$3,773,000, and \$1,303,000 for the years ended September 30, 2009 and 2008, respectively. The revenue for the year ended September 30, 2009 consists of a license fee of \$1,750,000 related to the license of Calando's IT-101 to Cerulean, sale of approximately \$678,000 in IT-101 inventory to Cerulean, \$203,000 from grants to fund research for the development of carbon nanotube applications, \$503,000 from license fees applicable to Unidym technology, \$602,000 from the sale and delivery of carbon nanotubes to third parties and \$37,000 of collaboration services revenue. The revenue for the year ended September 30, 2008 consists of \$570,000 from grants to fund research for the development of carbon nanotube applications, \$85,000 from license fees from Unidym technology, and \$648,000 from the sale and delivery of carbon nanotubes to third parties. Revenues from sales of carbon nanotubes are expected to decline in 2010 as Unidym depletes its inventories and transfers its bulk carbon nanotube production to a third party in exchange for payments based on the third party sales. Unidym is anticipating modest revenue from film sales in fiscal 2010.

## Operating Expenses

The analysis below details the operating expenses and discusses the expenditures of the Company within the major expense categories. For purposes of comparison, the amounts for the years ended September 30, 2009 and 2008 are shown in the table below.

### *Salary & Wage Expenses - Fiscal 2009 compared to Fiscal 2008*

Arrowhead employs management, administrative and technical staff at the Arrowhead corporate offices and the Subsidiaries. Salary and wage expense consists of salary, benefits, and non-cash charges related to equity based compensation in the form of stock options. Salary and benefits are allocated to two major categories: general and administrative compensation related expense and research and development compensation related expense depending on the primary activities of each employee. The following table details salary and related expenses for fiscal 2009 and fiscal 2008.

(in thousands)

	Year Ended September 30, 2009	% of expense category	Year Ended September 30, 2008	% of expense category
G&A—compensation-related	\$ 2,878	36%	\$ 6,675	49%
Stock-based compensation	2,676	33%	3,188	23%
R&D—compensation-related	2,483	31%	3,858	28%
Total	<u>\$ 8,037</u>	<u>100%</u>	<u>\$ 13,721</u>	<u>100%</u>

## [Table of Contents](#)

In fiscal 2009, General and Administrative (G&A) compensation expense decreased due to a reduction of accrued severance pursuant to an amendment to the severance agreement between the Company and the Executive Chairman, such that, in the event his employment with the Company terminates, he would receive a lump sum payment equal to one month's salary rather than 36 months' salary. This change resulted in a reduction of G&A compensation-related expense in fiscal 2009 as well as a reduction in the accrued severance liability on the Company's balance sheet from \$750,000 as of September 30, 2008 to approximately \$24,000 at September 30, 2009. G&A compensation expense would have been approximately \$3.6 million without this adjustment. Also, the Company reduced the number of employees across all its entities during fiscal 2009. In fiscal 2008, management positions were added at Arrowhead including a Chief Executive Officer in December 2007. Beginning in fiscal 2008 and increasingly in 2009, the cost of the new positions at Arrowhead was offset by the termination of several senior management positions at the Subsidiaries, as well as several members of the administrative staff. The responsibilities of the terminated employees have been absorbed by Arrowhead management, administrative and finance personnel or other employees at Unidym. The Company expects to continue to run at a salary rate which will result in lower G&A compensation expense in fiscal 2010. The decrease in G&A salaries also includes the impact of the salary reductions for selected management and staff at Arrowhead and Unidym.

Stock-based compensation is a non-cash charge related to the issuance and vesting of stock options to new and existing employees. This expense is recorded pursuant to guidance by the FASB, which requires expensing of stock-based compensation for vested options. Stock options are awarded to new full time employees and to existing employees. During the fiscal year, the number of options outstanding decreased as a result of options being canceled following terminations. Also, in July 2009, 4,005,000 options issued to officers, directors and selected employees were cancelled to facilitate a financing by the Company in the fourth quarter of fiscal 2009. In return, the vesting schedule for certain recent stock option grants for officers, directors and employees was accelerated. As a result, the expense applicable to those options was accelerated causing an increase to stock based compensation expense of approximately \$380,000 for fiscal 2009. In October 2009, a special meeting of the stockholders was held and the number of authorized shares of common stock was increased to 145 million shares. The stockholders also authorized the Board of Directors to make a grant of stock options to purchase 2,000,000 shares of common stock by officers, directors and employees of the Company who agreed to forfeit their stock options to facilitate the financing. The number of options outstanding and the option expense will vary from period to period depending on hiring, terminations and awards to new and existing employees.

Research and development (R&D) compensation expense decreased in fiscal 2009 compared to fiscal 2008 due primarily to Unidym's reduction in research scientists and process engineers and the closure of Unidym's Texas facility. Calando has also reduced laboratory personnel in connection with its decision in June to license its technology and close its laboratory facility. Two employees have been retained and moved to Arrowhead to complete the CALAA-01 clinical study and to facilitate the partnership arrangements for Calando's technology.

On a consolidated basis, the Company expects that the salaries and wages expense will continue to decrease compared to the prior year as a result of recent reductions in headcount and salaries throughout the organization.

### **General & Administrative Expenses – Fiscal 2009 compared to Fiscal 2008**

The following table summarizes our general and administrative expenses for the fiscal years ended September 30, 2009 and 2008.

(in thousands)

	Year Ended September 30, 2009	% of expense category	Year Ended September 30, 2008	% of expense category
Professional/outside services	\$ 2,235	48%	\$ 2,331	34%
Recruiting	32	1%	397	6%
Facilities related	292	6%	284	4%
Patent expense	693	15%	1,268	18%
Travel expense	389	8%	792	12%
Business insurance	414	9%	519	8%
Depreciation-G&A	132	3%	164	2%
Communications and technology	197	4%	333	5%
Office expense	169	4%	339	5%
Others	101	2%	421	6%
Total	<u>\$ 4,654</u>	<u>100%</u>	<u>\$ 6,848</u>	<u>100%</u>

Professional/outside services include general legal, accounting and other outside services retained by the Company and its subsidiaries. All periods include normally occurring legal and accounting expenses related to SEC compliance and other corporate matters. However, the majority of this expense was related to financing for the Company, which was a significant activity in fiscal 2009 and is expected to continue in fiscal 2010.

## [Table of Contents](#)

Recruiting expense was very low in fiscal 2009 compared to fiscal 2008 as the Company was reducing executive staff and consolidating management of the Subsidiaries at Arrowhead rather than recruiting for these positions.

Facilities and related expense were fairly constant during fiscal 2009 compared to fiscal 2008 but are expected to be substantially reduced in fiscal 2010 due to the closing of a number of facilities. Arrowhead's New York office was closed on April 1, 2009. The Company was obligated to pay the base rent on the office through the lease term ending on December 1, 2009, but realized savings related to incidental expenses previously incurred by the operation of the New York office from April through November. Calando closed its laboratory operations and returned the space to the landlord on July 15, 2009. Unidym's leases in Texas were terminated and Unidym has consolidated its operations into one facility in Sunnyvale, California.

Patent expense decreased in fiscal 2009 as a result of Arrowhead employing a Chief Patent Officer (whose salary was accounted for in G&A compensation-related expense), from April 2008 through August 2009 to manage the patent portfolio. This reduced use of outside patent counsel resulted in decreased patent activity by Calando and Unidym. Certain Calando patents that are not being utilized were returned to Caltech which also reduced the ongoing patent expense. The Company expects to continue to invest in patent protection as the Company extends and maintains protection for its current portfolios and files new patent applications as its product applications are improved. The cost will vary depending on the needs of the Company.

Travel expense includes recurring expenses related to travel by Company personnel to and from Company locations in Pasadena, Northern California, and New York City. Travel expense is also incurred as the Company pursues business initiatives and collaborations throughout the world with other companies and for marketing, investor relations, fund raising and public relations purposes. With the closing of operations in Houston, Texas, the reduction of Calando's operations and with the Company and subsidiaries reducing travel to conserve cash, the Company expects travel expense to continue to decrease in fiscal 2010. However, travel expense fluctuates from year to year depending on current projects.

Insurance expense has decreased due to generally lower rates in insurance markets and a steep reduction in coverage for clinical trials with the termination of the Phase 2 clinical study for IT-101. This expense is expected to fluctuate but eventually decrease as a result of changes in the market and the status of clinical trials and the reduction in number of facilities at Unidym requiring insurance.

The decrease in office expense and communications and technology expense is primarily related to the closing of the Texas facility and to the reduction in employees.

### **Research and Development Expenses – Fiscal 2009 compared to Fiscal 2008**

Most of Arrowhead's R&D expenses for fiscal 2009 and fiscal 2008 were related to research and development activities by Arrowhead's Subsidiaries. The following table details R&D expenses for fiscal 2009 and 2008:

(in thousands)

	Year Ended September 30, 2009	% of expense Category	Year Ended September 30, 2008	% of expense Category
Outside labs & contract services	\$ 3,095	35%	\$ 3,702	30%
License, royalty & milestones	262	3%	1,044	9%
In-Process R&D purchased	2,292	26%	3,276	27%
Laboratory supplies & services	1,175	13%	1,624	14%
Facilities related	1,227	14%	991	8%
Sponsored research	195	2%	742	6%
Depreciation-R&D	476	5%	497	4%
Other research expenses	253	2%	269	2%
Total	<u>\$ 8,975</u>	<u>100%</u>	<u>\$ 12,145</u>	<u>100%</u>

The decrease in outside labs & contract services for fiscal 2009 was a result of the advanced state of the IT-101 phase 1 clinical trial, the decision to close the IT-101 phase 2 clinical trials in connection with the agreement with Cerulean for further development of IT-101, completion of preparatory work for the CALAA-01 phase 1 clinical trial, and the suspension of development efforts for CALAA-02. During fiscal 2009, process development and preclinical expenses for Calando's drug candidate CALAA-02, together with the clinical trial expenses for CALAA-01 (Phase I) and IT-101 (Phase I and II) totaled approximately \$2.9 million. However, the expenses were significantly reduced by June 30, 2009 when the Calando facility was closed. The fiscal 2008 expenses include the outsourced preclinical studies in preparation for the INDA filing for Phase I of CALAA-01, outsourced manufacture of components for CALAA-01 for clinical studies and Tego's outsourced preclinical studies (\$1.8 million). Also in fiscal 2008, Unidym incurred expenses for outside lab and contract services were about \$1.7 million. The current year outside lab & contract services expense also include approximately \$153,000 attributable to Agonn's prototype development efforts. With the decision to close the laboratory of Calando and to license the drug delivery platforms, the cost related to outside labs and contract services is expected to decrease in fiscal 2010. Calando expects to incur limited expenses to complete the CALAA-01 trial and seek an appropriate development partner.

## [Table of Contents](#)

In fiscal 2009, purchased In-Process R&D expense resulted from the exchange of Arrowhead stock for Unidym stock. As a result of these exchanges, Arrowhead increased its ownership in Unidym to 79.9%. The purchased in-process research and development expense equals the estimated fair value of the Arrowhead stock issued to purchase Unidym shares from Unidym's minority shareholders. Arrowhead's purchase of the Unidym shares is accounted for as an additional investment in subsidiaries by Arrowhead. However, the additional investment by Arrowhead does not result in a corresponding increase in Unidym's asset or capital accounts. The additional investment is expensed in consolidation as purchased in-process research and development in accordance with guidance by the FASB. This determination was made in light of the risks inherent in the technical development and the uncertainty of acceptance of Unidym's products.

Unidym's R&D expenses are also declining as a result of streamlining its R&D effort and the closure of its production facility in Texas. Unidym continues to focus on the production and sale of CNT based inks and is seeking to establish partnerships for both CNT production and coating of film. Outside laboratory & contract services expenses will continue to fluctuate depending upon where a particular project is in its development, approval or trial process.

Licensing fees, milestones and royalties consist primarily of amounts paid by Unidym under the terms of its license agreement with Rice University and Calando for the license for siRNA targets from Alnylam. This expense decreased because Arrowhead has completed several sponsored research agreements.

Laboratory supplies and services consist primarily of materials, supplies and services consumed in the laboratory. With the closing of Calando's lab and the scale down of Unidym operations, this expense is expected to dramatically decrease in fiscal 2010.

Facilities related expenses increased for fiscal 2009 over the prior year period primarily due to the addition of facilities in Houston, Texas and in Sunnyvale, California for Unidym. Relocation of the Menlo Park operations to the larger Sunnyvale, California location is complete and both leases for facilities in Texas have been terminated. The Calando laboratory facility was closed on June 30, 2009. Facility related expenses are expected to decrease as a result of the reduction in the number of leased facilities.

Sponsored research expense decreased for the year ended September 30, 2009 compared to the prior year, as projects were completed (University of Florida) or terminated (Caltech). No new research projects were added during fiscal 2009. The only sponsored research agreement currently in place is Unidym's agreement with Duke University.

The table below sets forth the approximate amount of Arrowhead's cash expenses for research and development projects at each Subsidiary for the periods described below.

<u>Name of Subsidiary / Project</u>	<u>Project expenses for year ended September 30, 2009</u>	<u>Project expenses for year ended September 30, 2008</u>	<u>Project expenses from inception of Project through September 30, 2009</u>
Calando Pharmaceuticals, Inc. / CALAA-01 & IT 101	\$ 6.5 Million	\$ 9.8 Million	\$ 40.1 Million
Unidym, Inc. / Thin Film Carbon Nanotubes	\$ 7.0 Million	\$ 12.4 Million	\$ 26.0 Million
Tego Biosciences Corp. / Fullerene Anti-oxidants	\$ 0.1 Million	\$ 0.8 Million	\$ 0.9 Million
Agonn Systems, Inc. / Fullerene Anti-oxidants	\$ 0.2 Million	\$ 0.3 Million	\$ 0.5 Million
Total of all listed Subsidiaries	\$ 13.8 Million	\$ 23.3 Million	\$ 67.5 Million

### **Consulting**

For fiscal 2009, consulting fees and related travel totaled approximately \$1,449,000. Total 2009 consulting fees included \$944,000 for Calando and \$256,000 for Unidym.

Consulting fees in fiscal 2009 were substantially reduced from those incurred in fiscal 2008. For Calando, the reduction reflects the decision to reduce cash outflows in light of the Company's cash balances. With the closure of the Phase 2 trial for IT 101 and its ultimate licensing to a third party for development, consulting for clinical studies is expected to continue to show a dramatic decrease in fiscal 2010. The consulting fees incurred by Calando consisted of approximately \$773,000 for clinical and regulatory consulting fees during fiscal 2009 compared to \$1,121,000 for similar items in the same period in the prior year. In fiscal 2010, Calando expects to complete its Phase 1 trial for CALAA-01 and due to the advanced stage of the trial, consulting fees for clinical and regulatory activity are expected to decline. The current year consulting expense is related to administration of the various clinical trials in process while the prior year expenses relate to preclinical research, preparation for the filing of its IND with the FDA.

The consulting fees incurred by Unidym consisted of \$201,000 for consulting related to the process to manufacture sheets of thin film nanotubes and performance testing of those sheets. For the same period in the prior year, there was approximately \$717,000 of consulting fees incurred in similar projects.

For fiscal 2008, consulting fees and related travel totaled approximately \$3,182,000. Total fiscal 2008 consulting fees consisted of \$1,502,000 for Calando and \$1,077,000 for Unidym, 198,000 for Tego, \$222,000 for Arrowhead and \$183,000 for Agonn. The consulting fees incurred by Calando included \$1,121,000 for clinical and regulatory consulting fees. The consulting fees incurred by Unidym of \$717,000 for consulting related to the process of manufacturing sheets of thin film nanotubes and performance testing of those sheets.

## [Table of Contents](#)

The use of consultants with diverse backgrounds enabled the Company to accomplish various objectives without having to add full time staff and is expected to continue in fiscal 2010.

### ***Leveraged Technology and Revenue Strategy***

Arrowhead continues to follow its strategy to leverage technology that is being or has been developed at universities. By doing so, Arrowhead benefits from work done at those universities and through majority-owned Subsidiaries, which can commercialize the most promising technologies developed from sponsored research and other sources. The Subsidiaries are likely to produce prototypes to advance their strategies. The Subsidiaries have three primary strategies to potentially generate product sales revenue:

- License the products and processes to a third party for a royalty or other payment. By licensing, the Company would not be required to allocate resources to build a sales or a production infrastructure and could use those resources to develop additional products.
- Retain the rights to the products and processes, but contract with a third party for production. The Company would then market the finished products. This approach would require either the establishment of a sales and distribution network or collaboration with a supplier who has an established sales and distribution network, but would not require investment in production equipment.
- Build production capability in order to produce and market the end products. This last approach would likely require the most capital to build the production, sales and distribution infrastructure.

On a case-by-case basis, the Company and each Subsidiary will choose the strategy which, in the opinion of management, can be supported by available capital resources and is likely to generate the most favorable return. While the ultimate goal of the Company is to generate revenue through the sale of products and/or the licensing of technology, the Company does record revenue from grants and from development fees. Revenue from grants and development fees are considered to be reimbursements for efforts performed on behalf of third parties and not part of the Company's primary strategy to generate revenue.

Unidym generated revenues of \$1,308,000 in fiscal 2009. With the transfer of carbon nanotube production and sales to CCNI, revenues for carbon nanotube production (\$602,000 in fiscal 2009) are expected to decline in fiscal 2010. License fees for Unidym technology added \$503,000 to Unidym's revenue in fiscal 2009 and grants added approximately \$203,000. Unidym generated combined revenues from grants and sales of carbon nanotubes totaling approximately \$1,303,000 in fiscal 2008. Unidym revenues for fiscal 2010 will likely decrease compared to prior years until the sale of conductive films generates meaningful revenue.

Calando's revenue in fiscal 2009 was approximately \$2,450,000. Calando moved to a license model rather than an operating model at the end of the third quarter. Calando licensed its IT-101 platform and technology to Cerulean generating \$1,750,000 in license fees. The sale of inventory for IT-101 to Cerulean generated additional revenue of \$678,000. While the license agreement calls for future revenue based on Cerulean achieving certain milestones, the bulk of this potential revenue is not expected to commence in fiscal 2010. Calando intends to license its CALAA-001 platform in fiscal 2010. Calando also had \$22,000 in collaborative services revenue in fiscal 2009.

Tego had \$15,000 in revenue related to a license agreement in fiscal 2009.

The Company does not expect substantial product sales in fiscal 2010. Therefore, losses can be expected to increase before any substantial revenue is generated. To partially offset these losses, the Company is pursuing other means of funding such as licenses, contracts and collaborations with third parties. The award of such grants and contracts depends on numerous factors, many of which are not in the Company's control and, therefore, it is difficult to predict if this strategy will be successful.

## **Liquidity and Capital Resources**

### ***Cash Flow Position***

Since inception in May 2003, the Company has incurred significant losses. Cash and cash equivalents decreased by \$8.1 million from \$10.1 million at September 30, 2008 to \$2.0 million at September 30, 2009. The Company invests available cash in certificates of deposit, U.S. government obligations and high grade commercial paper. The Company's investment objectives are primarily to preserve capital and liquidity and secondarily to obtain investment income.

Arrowhead has historically financed its operation through the sale of securities of Arrowhead and its Subsidiaries. In fiscal 2009, the Company obtained \$7.3 in cash through equity and debt financing, including \$2.5 million raised by Calando through the sale of senior unsecured convertible promissory notes, and \$2 million raised by Unidym through the sale of newly issued shares of Series C-1 Preferred Stock. The Company obtained an additional \$4.4 million from the sales of assets, products and license fees, including the sale by Unidym of its equity interest in Ensysce BioSciences Inc. for \$700,000. We have an effective shelf registration statement on file with the SEC covering the public sale by the Company of common stock and warrants to purchase common stock. If the Company meets the market capital requirements in the future, it may seek to sell securities from this shelf registration statement to investors.

## [Table of Contents](#)

On December 11, 2009, the Company executed definitive agreements for a private placement offering (the "Offering") with a selected group of accredited investors. Pursuant to the Offering, the Company sold an aggregate of approximately 5.2 million units (the "Units") consisting of one share of the Company's common stock, \$0.001 par value per share ("Common Stock") and a warrant to purchase an additional share of Common Stock, exercisable at \$0.509 per share. The Unit price was \$0.634 per unit. The unit price is based on the closing bid price on the Company's common stock on December 11, 2009 which was \$0.509 plus a premium of \$0.125 added for the purchase of the warrant, per NASDAQ rules. The Warrants become exercisable on June 12, 2010 and remain exercisable until December 11, 2014, unless redeemed earlier as permitted. The warrants may be redeemed for nominal consideration if the Company's common stock trades above \$1.20 for at least 30 trading days in any 60-trading day period after December 11, 2010. The Offering is expected to close on or before December 21, 2009 with gross proceeds totaling approximately \$3.2 million before estimated expenses of \$25,000. The Shares and Warrants were offered and sold only to accredited investors in reliance on Section 4(2) of the Securities Act of 1933, as amended (the "Securities Act"), and Rule 506 promulgated thereunder. The Shares and Warrants sold in the private placement have not been registered under the Securities Act or state securities laws and may not be offered or sold in the United States absent registration with the Securities and Exchange Commission or an applicable exemption from the registration requirements. The Company has agreed to file a registration statement with the Securities and Exchange Commission covering the resale of the Shares and the shares of Common Stock issuable upon exercise of the Warrants.

Management has developed a plan based upon the latest financing and other transactions which are expected to close in the near term. The plan shows that the Company has enough cash to fund operations through September 30, 2010. Should a shortfall occur in expected cash receipts, the plan has contingencies to reduce expenditures in order to operate through September 30, 2010.

The Board has approved a strategy for the Company to conserve cash and seek sources of new capital. To execute this strategy, the Board will seek to accomplish one or more of the following on favorable terms: the out-license of technology, sale of a subsidiary, sale of non-core assets, scaling down development efforts, funded joint development or partnership arrangements, and sale of securities. The probability that any of these events will occur is uncertain, especially in light of the lack of liquidity in the current capital and credit markets. Until such time as one or more of these goals is accomplished, the Company has scaled back the activities at its Subsidiaries.

### ***Contractual Obligations and Commercial Commitments***

Unidym incurred various contractual obligations and commercial commitments in connection with the acquisition of Nanoconduction. In addition, our Subsidiaries incurred contractual obligations and commercial commitments in the normal course of their businesses. They consist of the following:

- *Capital Lease Obligations*

In connection with its acquisition of Nanoconduction, Unidym guaranteed an equipment lease of \$1,677,000, bearing interest at 8% with a remaining principal balance of \$726,534 as of September 30, 2009. The lease requires monthly payments of principal and interest of \$75,344 each through July 1, 2010. The equipment lease is secured by research and development assets at Nanoconduction.

- *Patents and Licenses*

Our Subsidiaries have entered into various licensing agreements requiring royalty payments of specified product sales. Some of these agreements contain provisions for the payment of guaranteed or minimum royalty amounts. Typically, the licensor can terminate our license if we fail to pay minimum annual royalties.

- *Purchase Commitments*

In connection with conducting Phase Ia and Ib trials, in the normal course of business, Calando incurred purchase obligations with vendors and suppliers for materials and supplies or for manufacture of therapeutic agents, as well as other goods and services. These obligations are generally evidenced by purchase orders that contain the terms and conditions associated with the purchase arrangements. Calando is committed to accept delivery of such material pursuant to the purchase orders subject to various contract provisions which allow us to delay receipt of such orders or cancel orders beyond certain agreed upon lead times. Cancellations may result in cancellation costs payable by us.

### **Off-Balance Sheet Arrangements**

We do not have and have not had any off-balance sheet arrangements or relationships.

## [Table of Contents](#)

### **Inflation and Changing Prices**

Inflation has not generally been a material factor affecting our financial condition, results of operations or cash flows in the periods shown. Management does not believe that inflation will be a material factor in fiscal 2009, even though our general operating expenses, such as salaries, employee benefits and facilities costs are subject to normal inflationary pressures.

### **Contractual Obligations and Commitments**

Our contractual commitments as of September 30, 2009 are summarized below by category in the following table:

	<b>Total</b>	<b>Less than 1 year</b>	<b>&gt;1-3 Years</b>	<b>&gt;3-5 Years</b>	<b>More than 5 Years</b>
Operating Lease Obligation	\$1,716,023	\$551,265	\$808,058	\$356,700	\$ —
Capital Lease Obligation	\$ 753,439	\$753,439	\$ —	\$ —	\$ —
Sponsored Research(1)	\$ 125,000	\$100,000	\$ 25,000	\$ —	\$ —

(1) The sponsored research obligations in the table above include our commitments to Duke University.

### **ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

As a “Smaller Reporting Company,” we are not required to provide this information.

### **ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

Financial statements and notes thereto appear on pages F-1 to F-24 of this Annual Report on Form 10-K.

### **ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.**

None.

### **ITEM 9A.(T) CONTROLS AND PROCEDURES.**

Our Chief Executive Officer and our Chief Financial Officer, after evaluating our “disclosure controls and procedures” (as defined in Securities Exchange Act of 1934 (the “Exchange Act”) Rules 13a-15(e) and 15d-15(e)) as of the end of the period covered by this Annual Report on Form 10-K (the “Evaluation Date”) have concluded that as of the Evaluation Date, our disclosure controls and procedures are effective to ensure that information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms, and to ensure that information required to be disclosed by us in such reports is accumulated and communicated to our management, including our chief executive officer and chief financial officer where appropriate, to allow timely decisions regarding required disclosure.

### **Management’s Annual Report on Internal Control over Financial Reporting**

#### ***Internal Control over Financial Reporting***

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States. This process includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the internal control over financial reporting to future periods are subject to risk that the internal control may become inadequate because of changes in conditions, or that the degree of compliance with policies or procedures may deteriorate.

## [Table of Contents](#)

### **Management's Assessment of the Effectiveness of our Internal Control over Financial Reporting**

Management has evaluated the effectiveness of our internal control over financial reporting as of September 30, 2009. In conducting its evaluation, management used the framework set forth in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on our evaluation under such framework, our management has concluded that our internal control over financial reporting was effective as of September 30, 2009.

### **Changes in Internal Control Over Financial Reporting**

There was no change in our internal control over financial reporting that occurred during the fourth quarter of the year ended September 30, 2009, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

### **ITEM 9B. OTHER INFORMATION**

None

## **PART III**

### **ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT.**

The names, ages and positions of our current executive officers and directors serving as of September 30, 2009 are provided below. Directors are elected annually for a one year term. Biographical information regarding these officers is set forth under the following table.

<u>Name</u>	<u>Age</u>	<u>Position with Arrowhead</u>
Christopher Anzalone	40	Chief Executive Officer & President and Director
R. Bruce Stewart	71	Executive Chairman of the Board
John Miller	31	Vice President, Business Development
Edward W. Frykman	73	Director
Charles P. McKenney	71	Director
LeRoy T. Rahn	74	Director

**Dr. Christopher Anzalone** has been President, Chief Executive Officer and Director of the Company since December 1, 2007. Since 2005, Dr. Anzalone has also served as CEO and principal in The Benet Group LLC, a private equity firm focused on creating and building new nano-biotechnology companies from university-generated science. While at The Benet Group, Dr. Anzalone was founding CEO in two portfolio companies, Nanotope Inc., a tissue regeneration company, and Leonardo Biosystems Inc., a cancer drug delivery company. Dr. Anzalone remains CEO of each company. In fiscal 2008, Arrowhead acquired 22% and 6% of the outstanding stock of Nanotope, Inc. and Leonardo Biosystems, Inc., respectively. Prior to his tenure at Benet Group, from 1999 until 2003, he was a partner at the Washington, DC-based private equity firm Galway Partners, LLC. There, he was in charge of sourcing, structuring, and building new business ventures and was founding CEO of NanoInk, Inc., a leading nanolithography company. He continued as CEO of NanoInk until 2004. Dr. Anzalone holds a Ph.D. in Biology from UCLA and a B.A. in Government from Lawrence University.

**R. Bruce Stewart** has been Executive Chairman of the Board of the Company since December 1, 2007. Mr. Stewart was Arrowhead's Chief Executive Officer and Chairman of the Board of the Company from January 2004 to November 30, 2007. Mr. Stewart was the Chairman of the Board of Arrowhead's predecessor company since its inception in May 2003 and devoted much of his time from early in 2003 to development of its plan of operations. Mr. Stewart founded Acacia Research Corporation in March 1991, and was employed by Acacia Research Corporation in various capacities until January 2003, serving as its President from inception through January 1997, Chairman until April 2000, and as a senior advisor until January 2003.

**John Miller**, Vice President, Business Development joined Arrowhead in May 2004 and has been instrumental in monitoring the intellectual property landscape and licensing patents held by Arrowhead and its subsidiaries, as well as identifying and developing new business ideas for Arrowhead. Mr. Miller founded NanoPolaris (now Unidym) and guided its development through the acquisition of three nanotechnology companies. Prior to joining the Company, from 2002 until 2004, Mr. Miller was a founder and Managing Editor of Nanotechnology Law & Business, a peer-reviewed, quarterly journal. He has published various articles on legal and policy issues in nanotechnology and co-authored The Handbook of Nanotechnology Business, Policy, and Intellectual Property Law (John Wiley, 2004). John is a member of the California bar and federal courts in the Northern District of California. He graduated Order of the Coif from Stanford Law School.

## [Table of Contents](#)

**Edward W. Frykman** has been a director of the Company since January 2004. Mr. Frykman was an Account Executive with Crowell, Weedon & Co., a position he held from 1992 until 2008 when he retired. Before his service at Crowell, Weedon & Co., Mr. Frykman served as Senior Vice President of L.H. Friend & Co. Both Crowell Weedon & Co. and L.H. Friend & Co. are investment brokerage firms located in Southern California. In addition, Mr. Frykman was a Senior Account Executive with Shearson Lehman Hutton, where he served as the Manager of the Los Angeles Regional Retail Office of E. F. Hutton & Co. Mr. Frykman was a director in Arrowhead's predecessor company since its inception in May 2003 until January 2004, when he became a director of the Company. Mr. Frykman is also a director of Acacia Research Corporation, a publicly-held corporation based in Newport Beach, California.

**Charles P. McKenney** has been a director of the Company since April 2004. Mr. McKenney has maintained a government affairs law practice in Pasadena, California since 1989, representing businesses and organizations in their relations with state and local government regarding their obligations under state and local land use and trade practices laws. From 1973 through 1989, he served as Attorney for Corporate Government Affairs for Sears, Roebuck and Co., helping organize and carry out Sears's western state and local government relations programs. Mr. McKenney has served two terms on the Pasadena, California, City Council as well as on several city boards and committees, including three city Charter Reform Task Forces.

**LeRoy (Lee) T. Rahn** has been a director of the Company since January 2004. Mr. Rahn was a partner with the intellectual property law firm of Christie, Parker & Hale from 1968 to 2003, with a practice focused on assisting clients in protecting their intellectual property through obtaining, maintaining and enforcing patents and other legal rights. He retired from the law firm's partnership in 2003, but remained affiliated with the firm on an "of counsel" basis until December 31, 2007. He is a former president of the Los Angeles Intellectual Property Association. Prior to becoming an attorney, Mr. Rahn obtained a degree in electrical engineering. Mr. Rahn was a director in Arrowhead's predecessor company from December 2003 to January 2004 when he became a director of the Company.

We have adopted a code of conduct that applies to our Chief Executive Officer, Chief Financial Officer, and to all of our other officers, directors and employees. The code of conduct is available at the Corporate Governance section of the Investor Relations page on our website at [www.arrowheadresearch.com](http://www.arrowheadresearch.com). Any waivers from or amendments to the code of conduct, if any, will be posted on our website.

The Audit Committee of the Board is comprised of three directors and operates under a written charter adopted by the Board. The members of the Audit Committee are Edward W. Frykman, LeRoy T. Rahn and Charles P. McKenney. All members of the Audit Committee are "independent," as defined in Rule 10A-3 under the Exchange Act and Rule 4200(a)(14) of the NASDAQ Marketplace Rules, and financially literate. The Board has determined that Mr. Frykman is an "audit committee financial expert" in accordance with the applicable regulations.

### **Section 16(a) Beneficial Ownership Reporting Compliance**

Under Section 16(a) of the Securities Exchange Act of 1934, the Company's directors and officers and its significant stockholders (defined by statute as stockholders beneficially owning more than ten percent (10%) of the Common Stock) are required to file with the SEC and the Company reports of ownership, and changes in ownership, of common stock. Based solely on a review of the reports received by it, the Company believes that, during the fiscal year ended September 30, 2009, all of its officers, directors and significant stockholders complied with all applicable filing requirements under Section 16(a) except as follows: Form 4s for Edward W. Frykman, LeRoy T. Rahn and Charles P. McKenney were not filed timely for automatic director grants on March 26, 2009; Form 4s for R. Bruce Stewart, Christopher Anzalone, and Paul McDonnell were not filed timely for options granted on October 23, 2008; and Form 4s for R. Bruce Stewart, Christopher Anzalone, Paul C. McDonnell, Edward W. Frykman, Charles McKenney and LeRoy Rahn were not filed timely for the cancellation of certain options and the acceleration of certain other options effective July 17, 2009.

**ITEM 11. EXECUTIVE COMPENSATION.****Summary Compensation Table**

The following table summarizes compensation paid, awarded or earned for services rendered during fiscal 2009 and fiscal 2008 by our Chief Executive Officer and our two most highly paid executive officers serving the Company as of September 30, 2009. We refer to those persons collectively as our “Named Executive Officers”.

On May 12, 2009, the Company and R. Bruce Stewart entered into an amendment to his severance agreement whereby the amount payable to Mr. Stewart upon his retirement was reduced from 36 month’s salary to 1 month’s salary.

Effective July 17, 2009, Mr. Stewart, Dr. Anzalone, and Mr. Miller voluntarily terminated options to purchase 575,000, 2,000,000, and 50,000, respectively.

<u>Name and Principal Position</u>	<u>Year</u>	<u>Salary (\$)</u>	<u>Bonus (\$)</u>	<u>Stock Awards (\$)</u>	<u>Option Awards (\$)(1)</u>	<u>All Other Compensation (\$)</u>	<u>Total (\$)</u>
Christopher Anzalone (2)	2009	394,485	—	—	967,296	—	1,316,781
President & Chief Executive Officer	2008	323,569	—	—	979,911	101,090(3)	1,404,570
R. Bruce Stewart	2009	249,726	—	—	131,289	—	381,015
Executive Chairman of the Board	2008	250,000	—	—	330,947	—	580,947
John Miller	2009	210,405	—	—	112,907	—	323,312
Vice President, Business Development	2008	229,121	40,000	—	68,461	—	337,582

- (1) Amounts shown do not reflect compensation actually received by the named executive officer. Instead, the amounts are shown are the compensation cost recognized by the Company, as determined pursuant to FASB guidance. The assumptions used to calculate the value of the stock underlying the option awards are set forth in Note 11 of the Notes to the Consolidated Financial Statements attached hereto.
- (2) Dr. Anzalone began employment with the Company on December 1, 2007.
- (3) Consists of \$100,000 in relocation expenses and \$1,090 for life insurance.

## [Table of Contents](#)

### Outstanding Equity Awards at Fiscal Year-End

The following table provides information, with respect to the Named Executive Officers, concerning the Outstanding Equity Awards of the Company's stock at the end of fiscal 2009.

	Option Awards (1)				
	Number of Securities Underlying Unexercised Option (#) Exercisable		Number of Securities Underlying Unexercised Option (#) Unexercisable	Option Exercise Price (\$)	Option Expiration Date
R. Bruce Stewart	50,000	(2)	—	2.13	6/11/2018
	250,000		—	1.00	2/14/2014
Christopher Anzalone	25,000	(2)	—	2.13	6/11/2018
John Miller	—	(2)	25,000	1.11	10/23/2018
	80,000	(2)	—	2.13	6/11/2018
	400,000		—	1.00	5/1/2014

- (1) All option awards were granted under the 2000 Stock Option Plan or the 2004 Equity Incentive Plan of the Company. Options were granted at the closing market price the day before the award until May 26, 2006, when the Company changed to the market closing price on the day of the award. Options vest over various times but all options are fully vested within 48 months or sooner after the award is granted.
- (2) Effective July 17, 2009, in connection with the forfeiture of other awards, the vesting of these awards was accelerated such that each option is fully vested on the one year anniversary of the date of grant.

### Director Compensation

Directors who are also employees of the Company receive no separate compensation from the Company for their service as members of the Board. Non-employee directors currently receive a cash retainer of \$20,000 per year. Additionally, non-employee directors who have served on the Board for at least six months receive automatic grants of non-qualified stock options to purchase 40,000 shares of common stock upon re-election each year, starting at the 2010 Annual Meeting of Stockholders. All options granted to non-employee directors vest on the one-year anniversary of the grant. The following table sets forth the total compensation paid to our non-employee directors in fiscal 2009.

Name	Fee Earned or Paid in Cash (\$)(1)	Option Awards (\$)(2)(3)	Total (\$)
Edward Frykman	\$ 20,000	\$13,739	\$33,739
Leroy Rahn	\$ 20,000	\$13,739	\$33,739
Charles McKenney	\$ 20,000	\$13,739	\$33,739

- (1) Until March 31, 2008, each non-employee director received \$1,000 quarterly for his service as a director. After March 31, 2008, each non-employee director received \$5,000 quarterly for his service as a director. There are no additional payments for being a member of a committee.
- (2) Amounts shown do not reflect compensation actually received by directors. Instead, the amounts shown are the fair value recognized by the Company in fiscal 2009 for option awards as determined pursuant to FASB guidance. The assumptions used to calculate the value of option awards are set forth under Note 11 to the Consolidated Financial Statements attached hereto.
- (3) Options vest one year from date of grant. At September 30, 2009, Mr. Frykman and Mr. Rahn each had outstanding option grants to purchase 100,000 shares at prices ranging from \$0.49 to \$2.02, and Mr. McKenney has outstanding option grants to purchase 50,000 shares at prices ranging from \$0.49 to \$2.02.

[Table of Contents](#)

**ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS.**

The following table sets forth the beneficial ownership of the Company's Common Stock as of December 15, 2009, by (i) by each of the named executive officers named in the table under "Executive Compensation and Related Information," (ii) by each director, (iii) all current directors and executive officers as a group, and (iv) the sole holder of greater than 5% of our total shares outstanding known to us. The persons and entities named in the table have sole voting and investment power with respect to all shares beneficially owned, subject to community property laws, where applicable and the address of each stockholder is c/o Arrowhead Research Corporation, 201 South Lake Avenue, Suite 703, Pasadena, California 91101.

Name	Number of Shares	Percentage Ownership
<b>5% Owners</b>		
M. Robert Ching	5,480,972 (1)	8.7%
<b>Directors and Named Executive Officers</b>		
R. Bruce Stewart	883,055 (2)	1.4
Christopher Anzalone	761,062 (3)	1.2
John C. Miller	533,080 (4)	*
Edward W. Frykman	75,555 (5)	*
Charles P. McKenney	25,555 (6)	*
LeRoy T. Rahn	75,555 (7)	*
All current executive officers and directors as a group (6 persons)	2,353,862 (8)	3.8%

\* indicates less than 1%

- (1) Includes 762,535 shares issuable upon the exercise of common stock purchase warrants that are exercisable within 60 days of December 15, 2009.
- (2) Includes 371,555 shares issuable upon the exercise of stock options that are exercisable within 60 days of December 15, 2009.
- (3) Includes 275,333 shares issuable upon the exercise of stock options and 164,000 shares issuable upon the exercise of common stock purchase warrants that are exercisable within 60 days of December 15, 2009.
- (4) Includes 511,222 shares issuable upon the exercise of stock options and 10,929 shares issuable upon the exercise of common stock purchase warrants that are exercisable within 60 days of December 15, 2009.
- (5) Includes 75,555 shares issuable upon the exercise of stock options that are exercisable within 60 days of December 15, 2009.
- (6) Includes 25,555 shares issuable upon the exercise of stock options that are exercisable within 60 days of August 18, 2009.
- (7) Includes 75,555 shares issuable upon the exercise of stock options that are exercisable within 60 days of August 18, 2009.
- (8) See footnotes (2) - (7). Includes 1,344,588 shares issuable upon exercise of stock options and 174,929 shares issuable upon the exercise of stock options that are exercisable within 60 days of August 18, 2009.

**EQUITY COMPENSATION PLAN INFORMATION**

The following table provides information as of September 30, 2009 with respect to shares of our Common Stock that may be issued under our equity compensation plans.

Plan Category	Equity Compensation Plan Information		
	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders(1)	2,901,588	\$ 1.73	4,368,722(3)
Equity compensation plans not approved by security holders	N/A	N/A	—
<b>Total</b>	<b>2,901,588</b>		<b>4,368,722</b>

- (1) Includes 1,369,588 shares subject to the 2004 Equity Incentive Plan and 1,532,000 shares subject to the 2000 Option Plan (each stated as of September 30, 2009).

**ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE.**

A majority of the members of the Board are independent directors, as defined by the NASDAQ Marketplace Rules. The Board has determined that all of the Company's directors are independent, except Mr. Stewart, the Company's Executive Chairman and former Chief Executive Officer and Dr. Anzalone, the Company's Chief Executive Officer. Independent directors do not receive consulting, legal or other fees from the Company, other than Board and Committee compensation.

Nanotope and Leonardo were co-founded by the Company's President and Chief Executive Officer, Dr. Christopher Anzalone, through The Benet Group, a private investment entity solely owned and managed by Dr. Anzalone. Through The Benet Group, Dr. Anzalone owns approximately 14.2% and 5% of the outstanding voting securities of Nanotope and Leonardo, respectively. Dr. Anzalone does not hold options, warrants or any other rights to acquire securities of Nanotope or Leonardo directly or through The Benet Group. The Benet Group has the right to appoint a representative to the Board of Directors of each Nanotope and Leonardo. Dr. Anzalone has served as President and Chief Executive Officer of both Nanotope and Leonardo since their formation and continues to serve in these capacities. Dr. Anzalone has not received any compensation for his work on behalf of Nanotope or Leonardo since joining the Company on December 1, 2007.

**ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES**

The Audit Committee regularly reviews and determines whether specific projects or expenditures with our independent auditors, Rose, Snyder & Jacobs, may potentially affect their independence. The Audit Committee's policy is to pre-approve all audit and permissible non-audit services provided by RS&J. Pre-approval is generally provided by the Audit Committee for up to one year, detailed to the particular service or category of services to be rendered and is generally subject to a specific budget. The Audit Committee may also pre-approve additional services of specific engagements on a case-by-case basis. All engagements of our independent registered public accounting firm in 2009 and 2008 were pre-approved by the audit committee.

The following table sets forth the aggregate fees invoiced by RS&J for the fiscal years ended September 30, 2009, and September 30, 2008:

	Year Ended September 30,	
	2009	2008
Audit fees (1)	\$ 117,000	\$ 101,700
Audit-related fees (2)	43,500	144,050
Tax fees (3)	56,900	59,950
All other fees (4)	57,500	59,200
Total	<u>\$ 274,900</u>	<u>\$ 364,900</u>

- (1) Fees invoiced by RS&J include year-end audit and quarterly reviews of Form 10-Q.
- (2) Fees invoiced by RS&J include the audits of Calando, Unidym, Nanoconduction and preparation of the Arrowhead Comfort Letter and Consents.
- (3) This category consists of professional services rendered by RS&J for tax return preparation.
- (4) Fees were paid for Sarbanes-Oxley compliance work.

**PART IV****ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES**

The following documents are filed as part of this Annual Report on Form 10-K:

**(1) Financial Statements.**

See Index to Financial Statements and Schedule on page F-1.

**(2) Financial Statement Schedules.**

See Index to Financial Statements and Schedule on page F-1. All other schedules are omitted as the required information is not present or is not present in amounts sufficient to require submission of the schedule, or because the information required is included in the consolidated financial statements or notes thereto.

## [Table of Contents](#)

### (3) Exhibits.

The following exhibits are filed (or incorporated by reference herein) as part of this Annual Report on Form 10-K:

<b>Exhibit Number</b>	<b>Document Description</b>
3.1	Certificate of Incorporation of InterActive, Inc., a Delaware corporation, dated December 15, 2000. (1)
3.2	Certificate of Amendment of Certificate of Incorporation of InterActive Group, Inc., dated December 12, 2003 (effecting, among other things a change in the corporation's name to "Arrowhead Research Corporation"). (2)
3.3	Certificate of Amendment to Certificate of Incorporation of Arrowhead Research Corporation, dated January 25, 2005. (3)
3.4	Certificate of Amendment to Certificate of Incorporation of Arrowhead Research Corporation, dated October 13, 2009.*
3.5	Bylaws. (1)
4.1	Form of Registration Rights Agreement, July and August 2009. (4)
4.2	Form of Registration Rights Agreement, December 2009. *
4.3	Form of Warrant to Purchase Common Stock expiring January 24, 2011. (5)
4.4	Form of Common Stock Warrant expiring in July and August 2013. (6)
4.5	Form of Common Stock Warrant expiring in September 2013. (7)
4.6	Form of Warrant to Purchase Capital Stock expiring June 2014. (4)
4.7	Form of Warrant to Purchase Capital Stock expiring December 2014.*
4.8	Form of Warrant to Purchase Common Stock expiring May 2017. (8)
4.9	Form of Common Stock Certificate. (9)
10.1**	Copy of the Arrowhead Research Corporation (fka InterActive, Inc.) 2000 Stock Option Plan, the Arrowhead Research Corporation Stock Option Agreement (Incentive Stock Option) and the Arrowhead Research Corporation Stock Option Agreement (Nonstatutory Option). (1)
10.2**	Copy of the Arrowhead Research Corporation 2004 Equity Incentive Plan, as amended (10)
10.3**	Executive Incentive Plan, adopted December 12, 2006. (11)
10.4**	Directors Compensation Policy (10)
10.5**	Severance Agreement dated May 24, 2007 by and between Arrowhead and R. Bruce Stewart. (12)
10.6**	Amendment to Severance Agreement between Arrowhead and R. Bruce Stewart, effective May 12, 2009.*
10.7**	Employment Agreement, between Arrowhead and Dr. Christopher Anzalone, dated June 11, 2008. (13)
10.8**	Amendment to Employment Agreement between Arrowhead and Dr. Christopher Anzalone, effective May 12, 2009.*
10.9	Insert Therapeutics, Inc. Amended and Restated Investors' Rights Agreement, dated April 17, 2008. (14)
10.10	Agreement and Plan of Merger by and among AmberWave Systems Corporation, Aonex Acquisition Corporation, Aonex Technologies, Inc. and the stockholders signatory thereto, dated May 5, 2008. (15)
10.11	Second Amended and Restated Investors' Rights Agreement, dated as of July 23, 2008, by and between Nanotope, Inc. and the Investors and Stockholders listed therein. (16)

## Table of Contents

10.12	Form of Unsecured Convertible Promissory Note Agreement dated November 26, 2008. (17)
10.13	Exchange Agreement dated February 25, 2009 by and among Arrowhead and several holders of Unidym, Inc. Series A Preferred Stock. (18)
10.14	Form of Subscription Agreement dated July 17, 2009 and August 6, 2009. (4)
10.15	Platform Agreement, dated as of June 23, 2009, by and between Calando Pharmaceuticals, Inc. and Cerulean Pharma Inc.† (19)
10.16	IT-101 Agreement, dated as of June 23, 2009, by and between Calando Pharmaceuticals, Inc. and Cerulean Pharma, Inc.† (19)
10.17	IP Transfer and Waiver Agreement, dated as of June 25, 2009, by and between Unidym, Inc. and TEL Venture Capital (19)
10.18	Subscription Agreement, dated as of June 25, 2009, by and between Arrowhead Research Corporation and Unidym, Inc.(19)
10.19	Exchange Agreement, dated as of June 25, 2009, by and between Arrowhead Research Corporation and TEL Venture Capital (19)
10.20	LEFT INTENTIONALLY BLANK
10.21	Subscription Agreement, dated as of July 30, 2009, by and between Arrowhead Research Corporation and Unidym, Inc. (19)
10.22	Form of Subscription Agreement, dated as of September 30, 2009, by and between Arrowhead Research Corporation and Unidym, Inc.*
10.23	Second Amended and Restated Investor Rights Agreement among Unidym, Inc., Investors and the stockholders party thereto, dated September 30, 2009*
10.24	Form of Subscription Agreement between Arrowhead Research Corporation and several investors dated December 11, 2009.*
21.1	List of Subsidiaries.*
23.1	Consent of Independent Public Registered Accounting Firm.*
24.1	Power of Attorney (contained on signature page)
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002*
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002*
32.1	Certification by Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002*
32.2	Certification by Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002*

\* Filed herewith

\*\* Indicates compensation plan, contract or arrangement.

† Confidential treatment has been requested with respect to certain portions of this exhibit. Omitted portions have been filed separately with the Securities and Exchange Commission.

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

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

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

(4) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on July 17, 2009.

(5) Incorporated by reference from the Current Report on Form 8-K, filed by registrant on January 18, 2006.

## [Table of Contents](#)

- (6) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on August 26, 2008.
- (7) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on September 11, 2008.
- (8) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on May 30, 2007.
- (9) Incorporated by reference from Amendment No. 2 to the Registration Statement on Form S-1, filed by the registrant on September 11, 2009.
- (10) Incorporated by reference from the definitive Schedule 14C filed by registrant on September 4, 2009.
- (11) Incorporated by reference from the Annual Report on Form 10-K, filed by the registrant on December 14, 2006.
- (12) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on May 30, 2007.
- (13) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on June 13, 2008.
- (14) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on April 23, 2008.
- (15) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on May 9, 2008.
- (16) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on July 25, 2008.
- (17) Incorporated by reference from the Current Report on Form 8-K, filed by the registrant on December 3, 2008.
- (18) Incorporated by reference from the Quarterly Report on Form 10-Q, filed by the registrant on May 15, 2009.
- (19) Incorporated by reference from the Quarterly Report on Form 10-Q, filed by the registrant on August 10, 2009.



[Table of Contents](#)

**INDEX TO FINANCIAL STATEMENTS AND SCHEDULE**

*As a result of the change in control resulting from the stock exchange transaction (the “Share Exchange”) with the owners of Arrowhead Research Corporation, a California corporation (“ARC”), the financial statements of the Company are deemed to be the historical financial statements of ARC.*

<a href="#">Report of Independent Registered Public Accounting Firm</a>	F-2
<a href="#">Consolidated Balance Sheets of Arrowhead Research Corporation and Subsidiaries, September 30, 2009 and 2008</a>	F-3
<a href="#">Consolidated Statements of Operations of Arrowhead Research Corporation and Subsidiaries for the years ended September 30, 2009 and 2008 and the period from May 7, 2003 (inception) through September 30, 2009</a>	F-4
<a href="#">Consolidated Statement of Stockholders’ Equity of Arrowhead Research Corporation and Subsidiaries for the period from May 7, 2003 (inception) through September 30, 2009</a>	F-5
<a href="#">Consolidated Statements of Cash Flows of Arrowhead Research Corporation and Subsidiaries for the years ended September 30, 2009 and 2008 and the period from May 7, 2003 (inception) through September 30, 2009</a>	F-6
<a href="#">Notes to Consolidated Financial Statements of Arrowhead Research Corporation and Subsidiaries</a>	F-8

**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To the Board of Directors and Stockholders of Arrowhead Research Corporation

We have audited the accompanying consolidated balance sheets of Arrowhead Research Corporation (a Delaware corporation) and Subsidiaries (the "Company") as of September 30, 2009 and 2008 and the related consolidated statements of operations, stockholders' equity and cash flows for the years ended September 30, 2009, and 2008 and for the period from May 7, 2003 (inception) through September 30, 2009. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audit included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Arrowhead Research Corporation and Subsidiaries as of September 30, 2009 and 2008, and the consolidated results of their operations and their cash flows for the years ended September 30, 2009 and 2008, and for the period from May 7, 2003 (inception) through September 30, 2009 in conformity with accounting principles generally accepted in the United States of America.

Rose, Snyder & Jacobs  
A Corporation of Certified Public Accountants

Encino, California

December 21, 2009

**Arrowhead Research Corporation and Subsidiaries**  
**(A Development Stage Company)**  
**Consolidated Balance Sheets**

	September 30, 2009	September 30, 2008
<b>ASSETS</b>		
<b>CURRENT ASSETS</b>		
Cash and cash equivalents	\$ 2,020,224	\$ 10,093,585
Trade receivable, net of allowance for doubtful accounts of \$30,789 at September 30, 2009 and \$116,031 at September 30, 2008	144,148	4,054
Grant receivable, net of allowance for doubtful account of \$0	—	54,436
Other receivables	3,109	28,109
Other prepaid expenses	316,074	380,933
<b>TOTAL CURRENT ASSETS</b>	<b>2,483,555</b>	<b>10,561,117</b>
<b>PROPERTY AND EQUIPMENT</b>		
Computers, office equipment and furniture	374,991	571,616
Research equipment	932,683	1,986,117
Software	150,445	167,615
Leasehold improvements	94,317	115,871
	1,552,436	2,841,219
Less: Accumulated depreciation and amortization	(1,025,392)	(1,596,009)
<b>NET PROPERTY AND EQUIPMENT</b>	<b>527,044</b>	<b>1,245,210</b>
<b>INTANGIBLE AND OTHER ASSETS</b>		
Rent deposit	109,648	254,289
Patents	2,362,460	2,749,555
Investment in Nanotope Inc., equity basis	2,032,467	2,258,271
Investment in Leonardo Biosystems Inc., at cost	187,000	187,000
<b>TOTAL OTHER ASSETS</b>	<b>4,691,575</b>	<b>5,449,115</b>
<b>TOTAL ASSETS</b>	<b>\$ 7,702,174</b>	<b>\$ 17,255,442</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
<b>CURRENT LIABILITIES</b>		
Accounts payable	\$ 1,013,281	\$ 1,342,000
Accrued expenses	420,077	844,549
Payroll liabilities	160,846	479,294
Accrued severance	23,500	250,000
Capital lease obligation - short term	726,534	810,456
<b>TOTAL CURRENT LIABILITIES</b>	<b>2,344,238</b>	<b>3,726,299</b>
<b>LONG-TERM LIABILITIES</b>		
Notes payable	500,000	—
Capital lease obligation - long term	—	726,534
Accrued severance	—	500,000
<b>TOTAL LONG-TERM LIABILITIES</b>	<b>500,000</b>	<b>1,226,534</b>
Minority interests	—	—
Commitment and contingencies	—	—
<b>STOCKHOLDERS' EQUITY</b>		
Preferred stock, \$0.001 par value; 5,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock, \$0.001 par value; 70,000,000 shares authorized; 56,411,774 and 42,934,517 shares issued and outstanding as of September 30, 2009 and 2008 respectively	56,428	42,950
Additional paid-in capital	110,070,327	97,756,126
Subscription receivable	(300,000)	—
Accumulated deficit during the development stage	(104,968,819)	(85,496,467)
<b>TOTAL STOCKHOLDERS' EQUITY</b>	<b>4,857,936</b>	<b>12,302,609</b>
<b>TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY</b>	<b>\$ 7,702,174</b>	<b>\$ 17,255,442</b>

*The accompanying notes are an integral part of these consolidated financial statements.*

**Arrowhead Research Corporation and Subsidiaries**  
**(A Development Stage Company)**  
**Consolidated Statements of Operations**

	Years Ended September 30,		May 7, 2003 (Inception) to September 30, 2009
	2009	2008	
<b>REVENUE</b>	<b>\$ 3,773,147</b>	<b>\$ 1,303,201</b>	<b>\$ 7,522,639</b>
<b>OPERATING EXPENSES</b>			
Salaries	8,036,511	13,720,561	40,205,525
Consulting	1,449,351	3,181,952	8,055,507
General and administrative expenses	4,654,160	6,848,332	23,319,540
Research and development	8,974,666	12,144,529	53,948,734
Patent amortization	387,095	410,408	1,786,466
<b>TOTAL OPERATING EXPENSES</b>	<b>23,501,783</b>	<b>36,305,782</b>	<b>127,315,772</b>
<b>OPERATING LOSS</b>	<b>(19,728,636)</b>	<b>(35,002,581)</b>	<b>(119,793,133)</b>
<b>OTHER INCOME (EXPENSES)</b>			
Loss on equity of investments - Nanotope	(225,804)	(114,729)	(340,533)
Gain on sale of stock in subsidiary	—	—	2,292,800
Gain on sale of equity of investments - Ensysce	700,000	—	700,000
Loss on sale of fixed assets, net	(77,374)	—	(77,374)
Realized and unrealized gain in marketable securities	—	—	382,264
Interest income (expense), net	(150,891)	736,343	2,866,046
Other income	174,253	—	177,890
<b>TOTAL OTHER INCOME</b>	<b>420,184</b>	<b>621,614</b>	<b>6,001,093</b>
<b>LOSS BEFORE MINORITY INTERESTS</b>	<b>(19,308,452)</b>	<b>(34,380,967)</b>	<b>(113,792,040)</b>
Minority interests	60	7,445,542	15,287,738
<b>LOSS FROM CONTINUING OPERATIONS</b>	<b>(19,308,392)</b>	<b>(26,935,425)</b>	<b>(98,504,302)</b>
Loss from discontinued operations - Nanotechnica, Inc.	—	—	(1,342,505)
Loss on disposal of Nanotechnica, Inc. (July 2005 - September 2005)	—	—	(73,797)
Loss from discontinued operations - Aonex Technologies, Inc.	—	(459,949)	(4,882,655)
Gain on sale of Aonex Technologies, Inc.	—	306,344	—
Provision for income taxes	—	—	(1,600)
<b>LOSS FROM DISCONTINUED OPERATIONS</b>	<b>—</b>	<b>(153,605)</b>	<b>(6,300,557)</b>
Provision for income taxes	—	—	—
<b>NET LOSS</b>	<b>\$(19,308,392)</b>	<b>\$(27,089,030)</b>	<b>\$ (104,804,859)</b>
Income (loss) from continuing operations per share, basic and diluted	\$ (0.43)	\$ (0.69)	
Loss from discontinued operations, basic and diluted	—	—	
Net income (loss) per share, basic and diluted	\$ (0.43)	\$ (0.69)	
Weighted average shares outstanding, diluted and undiluted	45,169,015	39,191,292	

*The accompanying notes are an integral part of these consolidated financial statements.*

[Table of Contents](#)

**Arrowhead Research Corporation and Subsidiaries**  
**(A Development Stage Company)**  
**Consolidated Statement of Stockholders' Equity**  
**from inception to September 30, 2009**

	Common Stock		Additional Paid-in-Capital	Subscription Receivable	Accumulated Deficit during the Development Stage	Totals
	Shares	Amount				
<b>Initial Issuance of Stock:</b>						
Common stock & warrants issued for cash @ \$0.001 per unit	3,000,000	\$ 3,000	\$ —	\$ —	\$ —	\$ 3,000
Common stock & warrants issued for cash @ \$1.00 per unit	1,680,000	1,680	1,678,320	—	—	1,680,000
Stock issuance cost charged to additional paid-in capital	—	—	(168,000)	—	—	(168,000)
Net loss for period from inception to September 30, 2003	—	—	—	—	(95,238)	(95,238)
<b>Balance at September 30, 2003</b>	<b>4,680,000</b>	<b>4,680</b>	<b>1,510,320</b>	<b>—</b>	<b>(95,238)</b>	<b>1,419,762</b>
Exercise of stock options	75,000	75	14,925	—	—	15,000
Common stock & warrants issued for cash @ \$1.00 per unit	475,000	475	474,525	—	—	475,000
Common stock & warrants issued for marketable securities @ \$1.00 per unit	500,000	500	499,500	—	—	500,000
Stock issuance cost charged to additional paid-in capital	—	—	(96,500)	—	—	(96,500)
Common stock and warrants issued for cash @ \$1.50 per unit	6,608,788	6,609	9,906,573	—	—	9,913,182
Common stock issued in reverse acquisition	705,529	706	(151,175)	—	—	(150,469)
Common stock issued as a gift for \$1.09 per share	150,000	163	162,587	—	—	162,750
Common stock and warrants issued as stock issuance cost @ \$1.50 per unit	356,229	356	533,988	—	—	534,344
Stock issuance cost charged to additional paid-in capital	—	—	(991,318)	—	—	(991,318)
Exercise of stock option @ \$0.20 per share	75,000	75	14,925	—	—	15,000
Exercise of stock options @ \$1.00 per share	6,000	6	5,994	—	—	6,000
Stock-based compensation	—	—	175,653	—	—	175,653
Net loss for the year ended September 30, 2004	—	—	—	—	(2,528,954)	(2,528,954)
<b>Balance at September 30, 2004</b>	<b>13,631,546</b>	<b>13,645</b>	<b>12,059,997</b>	<b>—</b>	<b>(2,624,192)</b>	<b>9,449,450</b>
Exercise of warrants @ \$1.50 per share	13,812,888	13,813	20,705,522	—	—	20,719,335
Exercise of stock options @ \$1.00 per share	25,000	25	24,975	—	—	25,000
Common stock issued to purchase Insert Therapeutics share @ \$3.98 per share	502,260	502	1,999,498	—	—	2,000,000
Common stock issued for services	12,500	12	49,988	—	—	50,000
Stock-based compensation	—	—	508,513	—	—	508,513
Change in percentage of ownership in subsidiary	—	—	230,087	—	—	230,087
Net loss for the year ended September 30, 2005	—	—	—	—	(6,854,918)	(6,854,918)
<b>Balance at September 30, 2005</b>	<b>27,984,194</b>	<b>27,997</b>	<b>35,578,580</b>	<b>—</b>	<b>(9,479,110)</b>	<b>26,127,467</b>
Exercise of stock options	115,794	116	341,421	—	—	341,537
Common stock issued @ \$4.88 per share	204,854	205	999,795	—	—	1,000,000
Common stock issued @ \$3.84 per share	15,000	15	57,585	—	—	57,600
Common stock issued @ \$3.50 per share	5,590,000	5,590	19,539,410	—	—	19,545,000
Common stock issued @ \$5.91 per share	25,364	25	149,975	—	—	150,000
Common stock issued to purchase Calando Pharmaceuticals, Inc. @ \$5.17 per share	208,382	208	1,077,125	—	—	1,077,333
Stock-based compensation	—	—	1,369,478	—	—	1,369,478
Net loss for the year ended September 30, 2006	—	—	—	—	(18,997,209)	(18,997,209)
<b>Balance at September 30, 2006</b>	<b>34,143,588</b>	<b>34,156</b>	<b>59,113,369</b>	<b>—</b>	<b>(28,476,319)</b>	<b>30,671,206</b>
Exercise of stock options	186,164	186	434,541	—	—	434,727
Common stock issued @ \$5.78 per share, net	2,849,446	2,849	15,149,366	—	—	15,152,215
Arrowhead's increase in proportionate share of Insert Therapeutics' equity	—	—	2,401,394	—	—	2,401,394
Common stock issued for purchase of Carbon Nanotechnologies, Inc. @ \$3.77 per share	1,431,222	1,431	5,398,569	—	—	5,400,000
Stock-based compensation	—	—	2,175,544	—	—	2,175,544
Net loss for the year ended September 30,	—	—	—	—	(29,931,118)	(29,931,118)

2007

<b>Balance at September 30, 2007</b>	<b><u>38,610,420</u></b>	<b><u>38,622</u></b>	<b><u>84,672,783</u></b>	<b><u>—</u></b>	<b><u>(58,407,437)</u></b>	<b><u>26,303,968</u></b>
Exercise of stock options	105,357	106	289,921	—	—	290,027
Common stock issued at approximately \$1.80 per share, net	3,863,989	3,867	6,956,718	—	—	6,960,585
Arrowhead's increase in proportionate share of Unidym's equity	—	—	1,720,962	—	—	1,720,962
Common stock issued @ \$2.72 per share to Rice University	50,000	50	135,950	—	—	136,000
Common stock issued @ \$2.83 per share to purchase shares of Unidym, Inc.	70,547	71	199,929	—	—	200,000
Common stock issued @ \$2.95 per share to purchase MASA Energy, LLC	105,049	105	309,895	—	—	310,000
Common stock issued @ \$2.19 per share to Unidym for the acquisition of Nanoconduction	114,155	114	249,886	—	—	250,000
Common stock issued @ \$2.18 per share	15,000	15	32,685	—	—	32,700
Stock-based compensation	—	—	3,187,397	—	—	3,187,397
Net loss for the year ended September 30, 2008	—	—	—	—	(27,089,030)	(27,089,030)
<b>Balance at September 30, 2008</b>	<b><u>42,934,517</u></b>	<b><u>42,950</u></b>	<b><u>97,756,126</u></b>	<b><u>—</u></b>	<b><u>(85,496,467)</u></b>	<b><u>12,302,609</u></b>
Common Stock issued @ \$0.55 per share to Unidym stockholders in exchange for Unidym's shares	2,058,393	2,059	1,131,617	—	—	1,133,676
Common Stock issued @ \$0.52 per share to TEL Ventures in exchange for Unidym's shares	2,222,222	2,222	1,156,111	—	—	1,158,333
Reclassification of former Unidym mezzanine debt to equity	—	—	2,000,000	—	—	2,000,000
Arrowhead's increase in proportionate share of Calando's equity	—	—	2,120,250	—	—	2,120,250
Common stock issued @ \$0.30 per share	9,196,642	9,197	2,749,796	—	—	2,758,993
Change in percentage of ownership in subsidiary	—	—	16,297	—	—	16,297
Stock-based compensation	—	—	2,676,170	—	—	2,676,170
Issuance of Series D Preferred Stock for Subscription in Unidym	—	—	300,000	(300,000)	—	—
Amortization of discount on Unidym Series D Preferred Stock	—	—	163,960	—	(163,960)	—
Net loss for the year ended September 30, 2009	—	—	—	—	(19,308,392)	(19,308,392)
<b>Balance at September 30, 2009</b>	<b><u>56,411,774</u></b>	<b><u>56,428</u></b>	<b><u>110,070,327</u></b>	<b><u>(300,000)</u></b>	<b><u>(104,968,819)</u></b>	<b><u>4,857,936</u></b>

**Arrowhead Research Corporation and Subsidiaries**  
**( A Development Stage Company )**  
**Consolidated Statements of Cash Flows**

	<u>Years ended September 30,</u>		<u>May 7, 2003</u>
	<u>2009</u>	<u>2008</u>	<u>(Date of inception) to</u> <u>September 30, 2009</u>
<b>CASH FLOWS FROM OPERATING ACTIVITIES:</b>			
Net Loss	\$(19,308,392)	\$(27,089,030)	\$ (104,804,859)
Realized and unrealized (gain) loss on investment	(700,000)	—	(1,082,263)
Gain from sale of subsidiary	—	(306,344)	(306,344)
Loss on sale/donation of fixed assets	77,374	—	77,374
Stock issued as gift to Caltech	—	—	162,750
Stock issued as gift to Rice University	—	136,000	136,000
Stock issued for professional services	—	32,700	232,700
Stock issued for in-process research and development	2,292,009	200,000	13,166,347
Change in percentage of ownership in subsidiary	16,297	—	16,297
Purchased in-process research and development - Nanoconduction	—	2,685,208	2,685,208
Stock-based compensation	2,676,170	3,187,397	10,092,755
Depreciation and amortization	994,604	1,133,381	4,737,645
Gain on sale of stock in subsidiary	—	—	(2,292,800)
Non-cash loss from equity investment	225,804	114,729	340,533
Minority interests	—	(7,445,542)	(16,287,926)
Gain on negotiation of accrued expenses	(726,500)	—	(726,500)
Change in operating assets and liabilities			
Receivables	(60,658)	188,625	(148,097)
Prepaid research expense	—	499,611	(1)
Other prepaid expenses	64,859	26,245	(318,551)
Deposits	144,641	(96,755)	(111,708)
Accounts payable	(328,719)	(437,606)	381,012
Accrued expenses	(326,536)	(155,523)	30,541
Deferred revenue	—	(98,570)	—
Preferred stock liability	—	—	—
Accrued severance and other liabilities	(318,448)	(159,203)	928,035
NET CASH USED IN OPERATING ACTIVITIES	<u>(15,277,495)</u>	<u>(27,584,677)</u>	<u>(93,091,852)</u>
<b>CASH FLOWS FROM INVESTING ACTIVITIES:</b>			
Purchase of marketable securities - US Treasury Bills	—	—	(18,575,915)
Purchase of property and equipment	(40,245)	(684,111)	(3,550,518)
Purchase of MASA Energy, LLC	—	(250,000)	(250,000)
Minority equity investment	—	(2,000,000)	(2,000,000)
Cash paid for interest in Nanotechnica	—	—	(4,000,000)
Cash paid for interest in Aonex	—	—	(5,000,000)
Cash paid for interest in Insert	—	—	(10,150,000)
Cash paid for interest in Calando	(800,000)	—	(8,800,000)
Cash paid for interest in Unidym	(2,137,003)	(5,000,000)	(14,138,003)
Cash paid/obtained for interest in Tego	1,700,000	(2,400,000)	(801,000)
Cash obtained from interest in Nanotechnica	—	—	4,000,000
Cash obtained from interest in Aonex	—	—	5,001,250
Cash obtained from interest in Insert	—	—	10,529,594
Cash obtained from interest in Calando	800,000	—	8,800,000
Cash obtained from interest in Unidym	2,137,003	5,000,000	14,138,003
Cash paid/obtained from interest in Tego	(1,700,000)	2,400,000	801,000
Proceeds from sale of marketable securities - US Treasury Bills	—	—	18,888,265
Proceeds from sale of investments	700,000	—	1,269,913
Proceeds from sale of subsidiary (net)	—	359,375	359,375
Proceeds from sale of fixed assets	79,375	—	79,375
Payment for patents	—	—	(303,440)
Restricted cash	—	—	50,773
NET CASH PROVIDED BY (USED) IN INVESTING ACTIVITIES	<u>739,130</u>	<u>(2,574,736)</u>	<u>(3,651,328)</u>
<b>CASH FLOWS FROM FINANCING ACTIVITIES:</b>			
Payments of capital leases	(810,456)	(140,010)	(950,466)
Proceeds of issuance of Calando debt	2,516,467	—	2,516,467
Proceeds from sale of stock in subsidiary	2,000,000	9,013,898	18,575,168
Proceeds from issuance of common stock and warrants, net	2,758,993	7,259,013	78,622,235
NET CASH PROVIDED BY FINANCING ACTIVITIES	<u>6,465,004</u>	<u>16,132,901</u>	<u>98,763,404</u>
NET INCREASE (DECREASE) IN CASH	<u>(8,073,361)</u>	<u>(14,026,512)</u>	<u>2,020,224</u>
<b>CASH AT BEGINNING OF PERIOD</b>	<u>10,093,585</u>	<u>24,120,097</u>	<u>—</u>
<b>CASH AT END OF PERIOD</b>	<u>\$ 2,020,224</u>	<u>\$ 10,093,585</u>	<u>\$ 2,020,224</u>
Supplementary disclosures:			
Interest paid	\$ 88,267	\$ 10,247	

Income tax paid

\$ 4,800 \$ 4,800

**Arrowhead Research Corporation and Subsidiaries  
(A Development Stage Company)**

**Consolidated Statements of Cash Flows—(Continued)**

**SUPPLEMENT NON CASH TRANSACTIONS**

On March 23, 2005, Arrowhead purchased 7,375,000 shares of Insert Therapeutics, Inc. common stock from two minority stockholders of Insert for 502,260 newly issued shares of Arrowhead Common Stock valued at \$2,000,000 based on the closing market price of Arrowhead Common Stock on NASDAQ on the date of the closing.

On March 31, 2006, Arrowhead purchased 964,000 shares of Calando Pharmaceuticals, Inc. common stock from minority stockholders of Calando for \$1,928,000 consisting of 208,382 newly issued shares of Arrowhead Common Stock valued at \$1,077,333 plus \$850,667 in cash. The 208,382 shares of Arrowhead common stock were valued based on the average closing price of Arrowhead's Common Stock on NASDAQ the ten trading days immediately prior to the date of the closing.

On April 20, 2007, Arrowhead purchased the Series E Preferred Stock of Carbon Nanotechnologies, Inc. in exchange for 1,431,222 shares of Arrowhead Common Stock with an estimated fair market value of \$5,400,000 based on the average closing price of Arrowhead's Common Stock on NASDAQ the ten trading days immediately prior to March 24, 2007, as set forth in the Agreement and Plan of Merger among Unidym, Carbon Nanotechnologies, Inc., the Company, and others.

On April 23, 2008, Arrowhead purchased 200,000 shares of the Common Stock of Unidym Inc., in exchange for 70,547 shares of Arrowhead Common Stock with an estimated fair market value of \$200,000 based on the average closing price of Arrowhead's Common Stock on NASDAQ the ten trading days immediately prior to the date of the closing.

On April 29, 2008, Arrowhead purchased all of the membership units of MASA Energy, LLC for \$560,000. The purchase price consisted of 105,049 shares of Arrowhead Common Stock with an estimated fair market value of \$310,000 based on the average closing price of Arrowhead's Common Stock on NASDAQ the ten trading days immediately prior to the date of the closing, plus \$250,000 in cash.

On August 8, 2008, Unidym acquired all of the outstanding stock of Nanoconduction, Inc. in exchange for 114,115 shares of Arrowhead stock with an estimated fair market value of \$250,000.

On June 11, 2009, the Company issued 1,324,625 shares of Common Stock with an estimated fair market value of \$688,802 in exchange for an equal number of Series A Preferred Stock of Unidym, with minority stockholders of Unidym.

On June 25, 2009, the Company issued 1,944,444 shares of Common Stock with an estimated fair market value of \$972,222 in exchange for an equal number of Series C Preferred Stock of Unidym, with a minority stockholder of Unidym.

On September 22, 2009, the Company issued 91,495 shares of Common Stock with an estimated fair market value of \$46,662 in exchange for an equal number of Series A Preferred Stock of Unidym with a minority stockholder of Unidym.

On September 28, 2009, the Company issued 642,273 shares of Common Stock with an estimated fair market value of \$398,209 in exchange for 5,574 shares of Series A Preferred Stock and 636,699 shares of Series C Preferred Stock of Unidym, with several minority stockholders of Unidym.

On September 30, 2009, the Company issued 277,778 shares of Common Stock with an estimated fair market value of \$186,111 in exchange for an equal number of Series C-1 Preferred Stock of Unidym, with a minority stockholder of Unidym.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

Unless otherwise noted, (1) the term "Arrowhead" refers to Arrowhead Research Corporation, a Delaware corporation formerly known as InterActive Group, Inc., (2) the terms the "Company," "we," "us," and "our," refer to the ongoing business operations of Arrowhead and its Subsidiaries, whether conducted through Arrowhead or a subsidiary of Arrowhead, (3) the term "ARC" refers to Arrowhead Research Corporation, a privately-held California corporation with which Arrowhead consummated a stock exchange transaction in January 2004, (4) the term "Subsidiaries" refers collectively to Calando Pharmaceuticals, Inc. ("Calando"), Unidym, Inc. ("Unidym"), Agonn Systems, Inc. ("Agonn"), Tego Biosciences Corporation ("Tego") and Masa Energy LLC ("Masa") and (5) the term "Common Stock" refers to Arrowhead's Common Stock and the term "stockholder(s)" refers to the holders of Common Stock or securities exercisable for Common Stock.

**NOTE 1. ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES**

*Nature of Business and Going Concern*

Arrowhead Research Corporation is a development stage nanotechnology holding company that forms, acquires, and operates subsidiaries commercializing innovative nanotechnologies. By working closely with leading scientists and universities, Arrowhead identifies advances in nanotechnology and matches them with product development opportunities in high-growth markets. The Company is currently focused on the electronics and biotech industries. Arrowhead owns two majority-owned subsidiaries, Unidym and Calando, three wholly-owned subsidiaries, Tego, Agonn, and Masa, and has minority investments in two early-stage nanotechnology companies, Nanotope, Inc. ("Nanotope") and Leonardo Biosystems, Inc. ("Leonardo").

Arrowhead is incorporated in Delaware and its principal executive offices are located in Pasadena, California.

The Company was originally incorporated in South Dakota in 1989, and was reincorporated in Delaware in 2000. The Company's principal executive offices are located at 201 South Lake Avenue, Suite 703, Pasadena, California 91101, and its telephone number is (626) 304-3400. As of September 30, 2009, Arrowhead Research Corporation had 10 full-time employees at the corporate office and 10 full-time employees at its Subsidiary companies.

*Liquidity*

At September 30, 2009, the Company had approximately \$2.0 million in cash to fund operations. Since September 30, 2008, the Company raised \$7.3 million in capital, on a consolidated basis, through equity financing at the Arrowhead level and sales of equity and convertible loans by its subsidiaries. On December 11, 2009, the Company executed definitive agreements for a private placement with gross proceeds expected to total over \$3.2 million (\$2 million received as of December 22, 2009) with net proceeds estimated at approximately \$3.2 million. Even with this infusion of additional capital, the Company may decide to obtain more capital to meet its operating needs for the future. Except for the sale of Calando's Cycloset platform, the Company is generating no significant revenue.

The Company's Board of Directors has approved a strategy for the Company to focus on near term revenue opportunities, conserve cash resources and seek sources of new capital. To execute this strategy, the Company is focusing its development efforts on Unidym transparent conductive film product and Calando's siRNA drug candidate. Arrowhead's other subsidiaries have shifted from a focus on internal development to a focus on partnerships and licensing. This strategy is intended to conserve cash while maintaining the opportunity to obtain value from their technologies.

Management has developed a plan based upon the latest financing (See Note 15 – Subsequent Events) and other transactions which are expected to close in the near term. The plan shows that the Company has enough cash to fund all operations through September 30, 2010. Should a shortfall occur in expected cash receipts, the plan has contingencies to reduce expenditures in order to operate through September 30, 2010.

In the third quarter of fiscal 2009, Calando completed license agreements for one of its drug delivery platforms and its associated clinical candidate for \$2.4 million in cash and potential future milestone and royalty payments. This transaction follows the effort that began in early 2008 with the merger of the Company's two biopharmaceutical subsidiaries, reduction in personnel, termination of preclinical development projects and a focus toward continuing Calando's clinical program. Calando is continuing the clinical development of its siRNA drug candidate and is seeking a development partner for this technology. Calando has closed its Pasadena, California laboratory facility and plans to outsource laboratory development, as needed.

Unidym has also executed its plan to dramatically reduce staff and operations beginning with reduction in management personnel in the first quarter of fiscal 2009, the closure of its Houston, Texas facility in the second quarter, the consolidation of its operations in Northern California, and the renegotiation of several key liabilities. Unidym also received \$700,000 from the sale of its ownership interest in Ensysce BioSciences Inc. ("Ensysce"), a Unidym affiliate. Unidym has shifted its strategy from one of building a vertically integrated company to working with partners to commercialize its technology. Tego and Agonn have limited operations and currently require very little cash. Cash conservation measures at the Arrowhead level have been taken and are expected to continue.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

*Summary of Significant Accounting Policies*

**Principles of Consolidation**—The consolidated financial statements of the Company include the accounts of Arrowhead and its wholly-owned and majority-owned Subsidiaries. Prior to April 2008, Arrowhead’s subsidiaries included Insert Therapeutics, Inc. (“Insert”), which was merged with Calando in April 2008. The merged entity is majority-owned by Arrowhead and continues to operate under the name of Calando. Other subsidiaries include Unidym, Tego, Agonn (which is inactive at this time) and Masa. Aonex Technologies, Inc. (“Aonex”) was sold in May 2008 and is included in the results as Loss from Discontinued Operations. Nanotechnica, Inc. (“Nanotechnica”) a majority-owned subsidiary dissolved in June 2005, is included in the results as Loss from Discontinued Operations. All significant intercompany accounts and transactions are eliminated in consolidation, and minority interests are accounted for in the consolidated statements of operations and the balance sheets.

**Basis of Presentation and Use of Estimates**—The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the accompanying financial statements. Significant estimates made in preparing these financial statements include valuing of the stock of the Subsidiaries, assumptions to calculate the value of stock options, stock-based compensation expense, allowance for doubtful accounts, deferred tax asset valuation allowance, patents, minority-interest Common Stock and useful lives for depreciable and amortizable assets. Actual results could differ from those estimates.

**Cash and Cash Equivalents**—For purposes relating to the statement of cash flows, the Company considers all liquid debt instruments purchased with a maturity of three months or less to be cash equivalents.

**Credit Risk**—The Company extends credit to its customers in the normal course of business and generally does not require collateral or other security. The Company performs ongoing credit evaluations of its customers’ financial condition and historically has not incurred significant credit losses.

**Concentration of Credit Risk**—The Company maintains checking accounts for Arrowhead and separate accounts for each Subsidiary at either of two financial institutions. These accounts are insured by the Federal Deposit Insurance Corporation (FDIC) for up to \$250,000 as of fiscal year end. The Company has two wealth management accounts at the same financial institution that invest in higher yield money market accounts and in government securities. At September 30, 2009, the Company had uninsured cash deposits totaling \$1,878,584. The Company has not experienced any losses in such accounts and management believes it has placed its cash on deposit with financial institutions that are financially stable.

**Property and Equipment**—Property and equipment are recorded at cost. Depreciation of property and equipment is recorded on the straight-line method over the respective useful lives of the assets ranging from 3 to 7 years. Leasehold improvements are amortized over the initial or remaining term of the leases.

**Intellectual Property**—At September 30, 2009, intellectual property consisted of patents and patent applications licensed or purchased in the gross amount of \$4,093,624. The accumulated amortization of patents totaled \$1,731,164 at September 30, 2009. Patents are being amortized over 3 years to 20 years. The weighted average original amortization period is 12 years. The weighted average remaining amortization period is 8 years. Amortization is expected to be \$315,624 for fiscal 2010 and fiscal 2011 and \$241,808 for fiscal years 2012, 2013, and 2014. Long-lived assets such as property, equipment and intangible assets subject to amortization are reviewed for impairment whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable. In reviewing for impairment, we compare the carrying value of such assets to the estimated undiscounted future cash flows expected from the use of the assets and their eventual disposition. When the estimated undiscounted future cash flows are less than their carrying amount, an impairment loss is recognized equal to the difference between the assets’ fair value and their carrying value.

**Equity Investments**—Arrowhead has a non-controlling equity investment in Nanotope, a privately held biotechnology company that is classified as an other asset. This investment is carried at cost less Arrowhead’s proportionate share of Nanotope’s operating loss for the period since investment because Arrowhead owns more than 20% of the voting equity and has the ability to exercise significant influence over this company. This investment is high risk as the markets for technologies or products of Nanotope are still in the development stage and such markets may never be significant. Arrowhead could lose its entire investment in Nanotope. Arrowhead monitors this investment for impairment and makes appropriate reductions in carrying value when necessary.

**Minority Equity Investments**—The Company’s minority equity investment in Leonardo, a privately held biotechnology company, is classified as an “other asset”. This investment is carried at historical cost because Arrowhead owns less than 20% of the voting equity and only has the ability to exercise nominal, not significant, influence over this company. This investment is high risk as the markets for technologies or products of Nanotope as still in the development stage and such markets may never be significant. Arrowhead could lose its entire investment in some or all of this company. Arrowhead monitors this investment for impairment and makes appropriate reductions in carrying value when necessary.

**Arrowhead Research Corporation**  
**(A Development Stage Company)**

**Notes to Consolidated Financial Statements**  
**September 30, 2009**

Minority Interests in Majority-Owned Subsidiaries—Operating losses applicable to the majority-owned Calando and Unidym have periodically exceeded the minority interests in the equity capital of either subsidiary. Such excess losses applicable to the minority interests have been and are borne by the Company as there is no obligation of the minority interests to fund any losses in excess of their original investment. There is also no obligation or commitment on the part of the Company to fund operating losses of any subsidiary whether wholly-owned or majority-owned.

When there is a change in the Company's proportionate share of a development-stage subsidiary resulting from additional equity raised by the subsidiary, the change is accounted for as an equity transaction in consolidation. To the extent that the increase in the calculated value of the Company's interest in the equity of the subsidiary exceeds the Company's investment in the offering, that increase in value is referred to as the Company's "increase in its proportionate share of the subsidiary's equity" and the amount is recorded as an increase in the Company's Additional Paid in Capital.

When Insert Therapeutics raised \$10.1 million in October of 2006, Arrowhead participated by investing \$5.0 million in the offering. In comparison, the value of Arrowhead's equity in Insert increased by \$7,401,394. Consistent with the guidance found in Staff Accounting Bulletin Topic 5H, the difference between the amount invested by Arrowhead and the increase in Arrowhead's equity value in the subsidiary or \$2,401,394 was recorded as an "increase in Arrowhead's proportionate share of the subsidiary's equity" and is shown as an increase in the Company's Additional Paid in Capital. A similar calculation was made for the conversion of \$2,120,250 of third party Calando debt into Calando Series A Preferred Stock in June 2009 (*See Note 4 Investment in Subsidiaries*). A similar calculation was made for the Unidym \$10.0 million offering in the fall of 2007. Arrowhead contributed \$3.0 million but the value of its interest in the equity of Unidym increased by \$4,720,962. The \$1,720,962 difference was recorded as an "increase in Arrowhead's proportionate share of the subsidiary's equity" and is shown as an increase in the Company's Additional Paid in Capital.

Revenue Recognition—Revenue from product sales are recorded when persuasive evidence of an arrangement exists, title has passed and delivery has occurred, a price is fixed and determinable, and collection is reasonably assured. We may generate revenue from product sales, technology licenses, collaborative research and development arrangements, and research grants. Revenue under technology licenses and collaborative agreements typically consists of nonrefundable and/or guaranteed technology license fees, collaborative research funding, and various milestone and future product royalty or profit-sharing payments.

Revenue associated with up-front license fees and research and development funding payments, under collaborative agreements, is recognized ratably over the relevant periods specified in the agreement, generally the research and development period. Revenue from substantive milestones and future product royalties is recognized as earned based on the completion of the milestones and product sales, as defined in the respective agreements. Payments received in advance of recognition as revenue are recorded as deferred revenue.

The Company generated revenues of \$3,773,000 and \$1,303,000 for the years ended September 30, 2009 and 2008, respectively. Calando's revenue for the year ended September 30, 2009 consists of \$1,750,000 in license fees paid by Cerulean to license IT-101 and \$678,000 to purchase the inventory applicable to IT-101. Unidym's revenue for 2009 consists of license fees of 503,000, \$602,000 from the sale and delivery of CNTs and inks, \$202,000 from grants and \$37,000 from collaborative services. Revenue for the year ended September 30, 2008 consists of \$570,000 from grants to fund research for the development of carbon nanotube applications, \$85,000 from license fees from Unidym technology, and \$648,000 from the sale and delivery of carbon nanotubes to third parties.

Cost of Goods Sold—The production of nanotubes by Unidym has been primarily for R&D activities, therefore the nanotubes produced are not capitalized as inventory, nor is a cost of goods sold calculated, even though some nanotubes are eventually sold to third parties.

Allowance for Doubtful Accounts—The Company accrues an allowance for doubtful accounts based on estimates of uncollectible revenues by analyzing historical collections, accounts receivable aging and other factors. Accounts receivable are written off when all collection attempts have failed. The allowance for doubtful accounts applicable to Unidym as of September 30, 2009, and 2008 is \$30,789 and \$116,031, respectively.

Research and Development—Costs and expenses that can be clearly identified as research and development are charged to expense as incurred in accordance with guidance by the FASB.

Earnings (Loss) per Share—Basic earnings (loss) per share is computed using the weighted-average number of common shares outstanding during the period. Diluted earnings (loss) per share are computed using the weighted-average number of common shares and dilutive potential common shares outstanding during the period. Dilutive potential common shares primarily consist of stock options issued to employees and consultants and warrants of the Company. These items have been excluded from the loss per share because their effect is anti-dilutive.

**Arrowhead Research Corporation**  
**(A Development Stage Company)**

**Notes to Consolidated Financial Statements**  
**September 30, 2009**

**Stock- Based Compensation**—Compensation costs related to stock options are determined in accordance with guidance issued by the FASB, using the modified prospective method. Under this method, compensation cost recognized during the year ended September 30, 2009 and 2008 includes compensation cost for all share-based payments granted prior to but not yet vested as of August 10, 2005, and all grants subsequent to that date, based on the grant date fair value, which is amortized over the remaining vesting period for such options. During October 2008, and March and September 2009 we issued 240,000, 120,000, and 70,000 stock options to various employees, respectively. Such options generally vest in equal installments over six years and unvested options are subject to forfeiture should the respective employee leave the company. Compensation costs related to total stock options outstanding for the years ended September 30, 2009 and 2008 were \$2,676,000 and \$3,187,000, respectively. Compensation costs related to total stock options outstanding for the period from inception (May 7, 2003) to September 30, 2009 was \$10,092,755.

**Income Taxes**—The Company accounts for income taxes under the liability method, which requires the recognition of deferred income tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Under this method, deferred income taxes are recognized for the tax consequences in future years of differences between the tax bases of assets and liabilities and their financial reporting amounts at each period end based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. Valuation allowances are established, when necessary, to reduce deferred income tax assets to the amount expected to be realized. The provision for income taxes, if any, represents the tax payable for the period and the change during the period in deferred income tax assets and liabilities.

**Fair Value Measurements**—The Company measures its financial assets and liabilities at fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (i.e., exit price) in an orderly transaction between market participants at the measurement date. Additionally, the Company is required to provide disclosure and categorize assets and liabilities measured at fair value into one of three different levels depending on the assumptions (i.e., inputs) used in the valuation. Level 1 provides the most reliable measure of fair value while Level 3 generally requires significant management judgment. Financial assets and liabilities are classified in their entirety based on the lowest level of input significant to the fair value measurement. The fair value hierarchy is defined as follows:

- Level 1 – quoted prices in active markets for identical assets or liabilities.
- Level 2 – other significant observable inputs for the assets or liabilities through corroboration with market data at the measurement date.
- Level 3 – significant unobservable inputs that reflect management’s best estimate of what market participants would use to price the assets or liabilities at the measurement date.

The following table summarizes fair value measurements by level at September 30, 2009 for assets and liabilities measured at fair value on a recurring basis:

	<u>Level I</u>	<u>Level II</u>	<u>Level III</u>	<u>Total</u>
Cash and cash equivalents	\$2,020,224	\$ —	\$ —	\$2,020,224

#### **Recently Issued Accounting Standards**

On July 1, 2009, the FASB issued the FASB Accounting Standards Codification (the Codification). The Codification became the single source of authoritative nongovernmental U.S. GAAP, superseding existing FASB, American Institute of Certified Public Accountants (AICPA), Emerging Issues Task Force (EITF) and related literature. The Codification eliminates the previous US GAAP hierarchy and establishes one level of authoritative GAAP. All other literature is considered non-authoritative. The Codification was effective for interim and annual periods ending after September 15, 2009. The Company adopted the Codification for the year ended September 30, 2009. There was no impact to the consolidated financial statements.

In May 2009, the FASB issued guidelines on subsequent event accounting which sets forth: 1) the period after the balance sheet date during which management of a reporting entity should evaluate events or transactions that may occur for potential recognition or disclosure in the financial statements; 2) the circumstances under which an entity should recognize events or transactions occurring after the balance sheet date in its financial statements; and 3) the disclosures that an entity should make about events or transactions that occurred after the balance sheet date. These guidelines were effective for interim and annual periods ending after June 15, 2009, and the Company adopted them in the quarter ended June 30, 2009. There was no impact to the consolidated financial statements.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

In April 2009, the FASB issued guidance on determining fair value when the volume and level of activity for an asset or liability has significantly decreased, and in identifying transactions that are not orderly. Based on the guidance, if an entity determines that the level of activity for an asset or liability has significantly decreased and that a transaction is not orderly, further analysis of transactions or quoted prices is needed, and a significant adjustment to the transaction or quoted prices may be necessary to estimate fair value. The guidance was effective on a prospective basis for interim and annual periods ending after June 15, 2009. The Company adopted this guidance in the quarter ended June 30, 2009, and there was no material impact on the consolidated financial statements.

In April 2009, the FASB issued guidance on the recognition and presentation of other-than-temporary impairments on investments in debt securities. If an entity's management asserts that it does not have the intent to sell a debt security and it is more likely than not that it will not have to sell the security before recovery of its cost basis, then an entity may separate other-than-temporary impairments into two components: 1) the amount related to credit losses (recorded in earnings), and 2) all other amounts (recorded in other comprehensive income). This guidance was effective on a prospective basis for interim and annual periods ending after June 15, 2009. The Company adopted this guidance for the quarter ended June 30, 2009, and there was no material impact on the consolidated financial statements.

In April 2009, the FASB issued additional requirements regarding interim disclosures about the fair value of financial instruments which were previously only disclosed on an annual basis. Entities are now required to disclose the fair value of financial instruments which are not recorded at fair value in the financial statements in both their interim and annual financial statements. The new requirements were effective for interim and annual periods ending after June 15, 2009 on a prospective basis. The Company adopted these requirements in the quarter ended June 30, 2009. There was no impact on the consolidated financial statements as this relates only to additional disclosures.

In March 2008, the FASB issued new disclosure requirements regarding derivative instruments and hedging activities. Entities must now provide enhanced disclosures on an interim and annual basis regarding how and why the entity uses derivatives; how derivatives and related hedged items are accounted for, and how derivatives and related hedged items affect the entity's financial position, financial results and cash flow. Pursuant to the transition provisions, the Company adopted these new requirements on January 1, 2009. These new requirements do not impact the consolidated financial statements as they are only related to disclosures.

In October 2008, the FASB issued guidance that clarifies the application of guidance on fair value measurements in a market that is not active, and provides an example to illustrate key considerations in determining the fair value of a financial asset when the market for that financial asset is not active. This guidance is effective upon issuance, including prior periods for which financial statements have not been issued. The impact of adoption did not have a material effect on its consolidated financial statements.

In June 2008, the FASB issued guidance in determining whether instruments granted in share-based payment transactions are participating securities. The guidance became effective on January 1, 2009 via retrospective application. This guidance clarifies whether instruments, such as restricted stock, granted in share-based payments are participating securities prior to vesting. Such participating securities must be included in the computation of earnings per share under the two-class method. This guidance also requires companies to treat unvested share-based payment awards that have non-forfeitable rights to dividend or dividend equivalents as a separate class of securities in calculating earnings per share. The Company retrospectively adopted this guidance on January 1, 2009. The impact of adoption did not have a material effect on its consolidated financial statements.

February 2007, the FASB issued guidance permitting entities to choose to measure many financial instruments and certain other items at fair value. This guidance provides companies with an option to measure, at specified election dates, many financial instruments and certain other items at fair value that are not currently measured at fair value. A company that adopts this guidance will report unrealized gains and losses on items for which the fair value option has been elected in earnings at each subsequent reporting date. This guidance also establishes presentation and disclosure requirements designed to facilitate comparisons between entities that choose different measurement attributes for similar types of assets and liabilities. This guidance is effective for fiscal years beginning after November 15, 2007. The Company implemented the new standard effective October 1, 2008. The impact of adoption did not have a material effect on its consolidated financial statements.

**Recent Accounting Guidance Not Yet Adopted**

Management does not believe that any recently issued, but not yet effective, accounting standards, if currently adopted, would have a material effect on the accompanying financial statements.

In June 2009, the FASB issued amendments to the accounting rules for variable interest entities (VIEs) and for transfers of financial assets. The new guidance for VIEs eliminates the quantitative approach previously required for determining the primary beneficiary of a variable interest entity and requires ongoing qualitative reassessments of whether an enterprise is the primary beneficiary. In addition, qualifying special purpose entities (QSPEs) are no longer exempt from consolidation under the amended guidance. The amendments also limit the circumstances in which a financial asset, or a portion of a financial asset, should be

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

derecognized when the transferor has not transferred the entire original financial asset to an entity that is not consolidated with the transferor in the financial statements being presented, and/or when the transferor has continuing involvement with the transferred financial asset. This guidance is effective as of the beginning of a reporting entity's first annual reporting period that begins after November 15, 2009 and for interim periods within the first annual reporting period. The Company does not expect the adoption of these amendments to have a material impact on the consolidated financial statements.

In June 2009, the FASB issued revised guidance to improve the relevance, representational faithfulness, and comparability of the information that a reporting entity provides in its financial reports about a transfer of financial assets; the effects of a transfer on its financial position, financial performance, and cash flows; and a transferor's continuing involvement in transferred financial assets. This guidance will be effective for fiscal years beginning after November 15, 2009. The Company is currently evaluating the impact the adoption of these standards will have on its consolidated financial statements and related disclosures.

In June 2009, the FASB issued new guidance regarding accounting for own-share lending arrangements in contemplation of convertible debt issuance which changes the accounting for equity share lending arrangements on an entity's own shares when executed in contemplation of a convertible debt offering. This guidance requires the share lending arrangement to be measured at fair value and recognized as an issuance cost. These issuance costs should then be amortized as interest expense over the life of the financing arrangement. Shares loaned under these arrangements should be excluded from computation of earnings per share. This guidance is effective for fiscal years beginning after December 15, 2009 and requires retrospective application for all arrangements outstanding as of the beginning of the fiscal year. The Company does not expect the adoption of this guidance to have a material impact on its consolidated financial statements.

In December 2007, the FASB issued new guidance regarding business combinations. The revised guidance requires that the acquisition method of accounting be applied to a broader set of business combinations, amends the definition of a business combination, provides a definition of a business, requires an acquirer to recognize an acquired business at its fair value at the acquisition date and requires the assets and liabilities assumed in a business combination to be measured and recognized at their fair values as of the acquisition date (with limited exceptions). This guidance applies prospectively to business combinations where the acquisition date is on or after the beginning of the first annual reporting period beginning on or after December 15, 2008. An entity may not apply it before that date. The new standard also converges financial reporting under U.S. GAAP with international accounting rules. The Company will adopt this guidance on October 1, 2009. There is not expected to be an impact upon adoption and the effects of this guidance depend on the nature and significance of business combinations occurring after the effective date.

In April 2009, the FASB issued an amendment to the revised business combination guidance regarding the accounting for assets acquired and liabilities assumed in a business combination that arise from contingencies. The requirements of this amended guidance carry forward without significant revision to the guidance on contingencies which existed previously. Assets acquired and liabilities assumed in a business combination that arise from contingencies are recognized at fair value if fair value can be reasonably estimated. If fair value cannot be reasonably estimated, the asset or liability would generally be recognized in accordance with the Accounting Standards Codification (ASC) Topic 450 on contingencies. The Company does not expect an impact upon adoption.

In December 2008, the FASB issued new guidance regarding disclosure by public entities about transfers of financial assets and interests in variable interest entities. This guidance requires public companies to provide additional disclosures about transferor's continuing involvement with transferred financial assets. It also requires public companies to provide additional disclosures regarding their involvement with variable interest entities. This guidance was adopted for the quarter ended March 31, 2009. These new requirements do not impact the consolidated financial statements as they are only related to disclosures.

In April 2008, the FASB issued new requirements regarding the determination of the useful lives of intangible assets. In developing assumptions about renewal or extension options used to determine the useful life of an intangible asset, an entity needs to consider its own historical experience adjusted for entity-specific factors. In the absence of that experience, an entity shall consider the assumptions that market participants would use about renewal or extension options. The new guidance is effective for fiscal years beginning after December 15, 2008. Earlier adoption is not permitted. The Company does not believe that the adoption of this guidance will have any impact on its consolidated financial statements.

In December 2007, the FASB issued new guidance on non-controlling interests in consolidated financial statements. This guidance requires that the non-controlling interest in the equity of a subsidiary be accounted for and reported as equity, provides revised guidance on the treatment of net income and losses attributable to the non-controlling interest and changes in ownership interests in a subsidiary and requires additional disclosures that identify and distinguish between the interests of the controlling and non-controlling owners. The new guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2008. Earlier adoption is not permitted. The Company is currently evaluating the effect of this guidance on its consolidated financial statements.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

**NOTE 2. BASIS OF CONSOLIDATION**

The consolidated financial statements for the years ended September 30, 2009 and 2008 respectively, include the accounts of Arrowhead and its Subsidiaries, Calando, Unidym, Tego and Agonn. All significant intercompany accounts and transactions are eliminated in consolidation and minority interests were accounted for in the consolidated statements of operations and the balance sheets.

**NOTE 3. INVESTMENT IN SUBSIDIARIES**

*Unidym, Inc.*

The company now known as Unidym, Inc. was founded by Arrowhead in 2005. Through the license of intellectual property and the acquisition of three development stage nanotechnology companies in 2006, 2007 and 2008, Unidym acquired the rights to key patents for the manufacture of and application of carbon nanotubes and is developing products with applications for the display industry. The consolidated financial statements include the results of the merged companies.

Prior to fiscal 2008, Arrowhead invested \$4,000,000 in Unidym and provided Arrowhead stock valued at \$5.65 million to facilitate two of the acquisitions.

In fiscal 2008, Unidym raised a total of \$14.6 million through the sale of Series C Preferred Stock, of which \$5.25 million was invested by Arrowhead. In fiscal 2009, Unidym raised a total of \$4.7 million through the sale of Series C-1 Preferred Stock, of which \$2.7 million was invested by Arrowhead. The other \$2 million was invested by Tokyo Electron Ventures ("TEL"). In connection with the investment, TEL received two put options that obligated Unidym to repurchase TEL Series C-1 Stock in the event Unidym did not achieve certain cash flow requirements and enter into joint development agreement with TEL. The contingent buy back obligations were secured by certain Unidym intellectual property assets. In June 2009, Unidym and TEL entered into an IP Transfer and Waiver Agreement whereby the cash flow requirement was reduced and the put options were postponed and modified in exchange for certain rights to Unidym's technology and a future royalty on product sales. In July 2009, the cash flow requirement was met and the put rights were permanently waived.

In September 2009, Arrowhead invested \$642,000 in exchange for 2,140,000 shares of Unidym Series D Preferred Stock and a warrant to purchase 3,146,208 shares of Unidym common stock at an exercise price of \$0.30 per share with an expiration date three years from the date of issuance. The Series D Stock has a \$0.30 per share liquidation preference and each Series D Share is convertible into one share of Unidym common stock. Concurrent with the purchase, each outstanding share of Unidym Series C-1 Stock was converted to six shares of Series D Preferred Stock.

In March 2008, Unidym sub-licensed certain of its intellectual property to Ensysce BioSciences Inc. ("Ensysce"), a company founded to focus on research into the medical therapeutic applications of carbon nanotubes. Ensysce is both funded and effectively controlled by a related party to Unidym who also serves as a director of Unidym. Terms of the licensing arrangement between Unidym and Ensysce include a \$25,000 up-front sub-licensing fee, ongoing royalties, and an initial 50% equity position for Unidym in Ensysce. In November 2008, Unidym sold its 50% interest in Ensysce to the controlling stockholder and recognized a gain of \$700,000 on the sale.

In fiscal 2008 and fiscal 2009, Arrowhead has been increasing its position in Unidym through a series of stock exchanges with minority holders of Unidym. In April 2008, Arrowhead acquired 550,000 shares of Unidym common stock from a director and minority holder of Unidym in exchange for \$350,000 in cash and restricted Company common stock valued at \$200,000. As part of the agreement, the director resigned from his seat on the Unidym board and the Chief Executive Officer of the Company was appointed to the Unidym board. In transactions in June and September 2009, Arrowhead acquired 1,421,694 shares of Unidym Series A Preferred Stock, 1,747,810 shares of Unidym Series C Preferred Stock and 1,111,111 shares of Unidym Series C-1 Preferred Stock for an equal number of shares of Arrowhead common stock. Each share of Unidym Series A Preferred Stock is convertible into 1.68 shares of Unidym common stock.

As of September 30, 2009, Arrowhead owned 79.9% of the outstanding stock of Unidym and 65% on a fully diluted basis.

*Calando Pharmaceuticals, Inc. (formerly known as Insert Therapeutics, Inc.)*

On April 17, 2008, Calando merged with and into Insert, with Insert as the surviving company. Following the common-control merger, Insert changed its name to Calando.

Prior to the merger, Arrowhead invested an aggregate of \$17 million into Insert and Calando, not including a series of working capital loans. At the time of the merger, Arrowhead had a series of 6% simple-interest working capital loans outstanding to Insert totaling \$1,600,000. Arrowhead also had a series of 6% simple-interest working capital loans outstanding to Calando totaling \$4,450,000. As part of the merger, an Agreement to Provide Additional Capital, dated as of March 31, 2006, between Calando and the Company was amended and terminated to accelerate the payment of the remaining \$6,000,000 payable thereunder, against receipt of the repayment of the principal and interest on all loans extended by the Company to either Insert or Calando (\$6,187,663 principal and interest as of the date of the merger).

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

Among other things, the Calando Merger was conditioned upon the recapitalization of Insert and Calando to eliminate the preferred stock of each company. In the Insert recapitalization, immediately before the effective time of the Calando Merger, each share of Insert Series B Preferred Stock, Series C Preferred Stock and Series C-2 Preferred Stock was converted into one share of common stock, par value \$0.0001 per share, of Insert (the "Insert Common Stock"). All warrants outstanding for the purchase of Insert Series D Preferred Stock became exercisable for a like number of shares of Insert Common Stock. In the Calando recapitalization, immediately before the effective time of the Calando Merger, each share of Calando Series A Preferred Stock was converted into one share of Calando common stock, par value \$0.0001 per share (the "Calando Common Stock").

At the time of the Calando Merger, each issued and outstanding share of Calando Common Stock was canceled and automatically converted into the right to receive shares of Insert Common Stock based on the relative enterprise valuation of Insert to Calando of 1 to 1.5, or a Calando Merger share exchange ratio of 5.974126 shares of Insert Common Stock issued for each share of Calando Common Stock. Outstanding options to acquire Calando Common Stock were converted into an option to acquire approximately 5.974126 shares of Insert Common Stock.

On November 26, 2008, Calando entered into Unsecured Convertible Promissory Note Agreements ("Notes") for \$2.5 million with accredited investors plus Arrowhead which invested \$200,000 in the Notes offering. Arrowhead invested an additional \$500,000 on February 23, 2009. Between April and May 2009, Arrowhead invested an additional \$100,000 in the Notes Offering bringing their total Notes invested to \$800,000. The Notes mature on November 26, 2010 and bear 10% annual interest. Unpaid principal of the Notes and accrued but unpaid interest thereon is convertible into common stock of Calando at a conversion price of \$0.5759 per share (subject to adjustment) at any time in the sole discretion of the holder. In the event that Calando achieves a liquidation event as defined in the Notes, each holder has the option to exchange the Notes for two times the then outstanding principal amount owed under the Notes plus accrued and unpaid interest thereon ("Redemption Amount") or convert the outstanding principal and accrued and unpaid interest thereon into Calando common stock at the Conversion Price. At any time a Note is outstanding, Calando may redeem such Note for the Redemption Amount. To facilitate the above investment in Calando, Arrowhead subordinated a series of 6% simple interest working capital loans and advances to Calando outstanding at the time the Notes were issued totaling approximately \$5.3 million of principal plus interest.

Effective June 23, 2009, to facilitate licensing transactions with a third party, holders (including the Company) of an aggregate of \$2.9 million of the Notes plus accrued but unpaid interest, converted the principal and accrued interest into a newly authorized Calando Series A Preferred Stock. The non-voting Series A Stock has a liquidation preference of 2.5 times the Series A Original Issue Price of \$1,000 per share and is convertible into common stock at a conversion price of \$0.5759 per share. The Company converted all of its Notes representing a principal balance of \$800,000 plus accrued but unpaid interest into approximately 830 shares of Series A Stock. One third party Note for \$500,000 plus interest remains outstanding.

As of September 30, 2009, Arrowhead had a series of 6% simple-interest working capital loans and advances outstanding to Calando totaling \$5,735,198 plus accrued interest of \$326,301 payable upon demand.

As September 30, 2009, the Company owns 67.8% of the outstanding shares of Calando and 63.6% on a fully diluted basis.

*Tego BioSciences Corporation*

On April 20, 2007, Tego BioSciences Corporation, a wholly-owned subsidiary of Arrowhead, acquired the assets of C Sixty, Inc., a Texas-based company developing protective products based on the anti-oxidant properties of fullerenes for \$1,000. On July 3, 2007, Arrowhead capitalized Tego with a purchase of 5,000,000 shares of Tego Series A Preferred Stock for \$100,000. On October 25, 2007, Arrowhead purchased 15,000,000 shares of Tego A-2 stock for \$2.4 million. In line with Tego's revised strategy to focus on the out-license of its technology and to reduce its internal development activities, on November 21, 2008, Tego repurchased from Arrowhead 5,000,000 shares of Tego Series A-1 Preferred Stock for \$1.7 million.

As of September 30, 2009, the Company has incurred approximately \$897,000 of expenses related to Tego since its inception.

Arrowhead owns 100% of the outstanding voting securities of Tego and 85% of the outstanding voting securities on a fully diluted basis.

*Agonn Systems, Inc.*

Arrowhead founded Agonn in May 2008 to explore, develop and commercialize nanotechnology-based energy storage devices for electric vehicles and other large format applications. As part of Arrowhead's strategy to conserve cash in 2009, Agonn curtailed its development efforts and its current operations are minimal. As of September 30, 2009, the Company has incurred \$453,000 of expenses related to Agonn since its inception.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

*Masa Energy LLC*

In April 2008, Arrowhead acquired Masa Energy LLC, a Delaware limited liability company whose sole assets were an approximate 6% ownership interest in each Nanotope, Inc. and Leonardo Biosystems, Inc.

*Nanotope, Inc.*

Through the acquisition of Masa Energy LLC, the Company acquired a 5.78% minority position in Nanotope. Nanotope is developing advanced nanomaterials for the treatment of spinal cord injuries and wound healing. In July and September, 2008, the Company acquired 1,801,802 shares of Series B Preferred Stock of Nanotope for two payments of \$ 1 million each, increasing the Company's ownership to approximately 22% of Nanotope. During fiscal 2009, Nanotope did not generate revenues. Operating expenses for the twelve months ended September 30, 2009 were approximately \$1,033,000, Nanotope's net loss for the twelve months ended September 30, 2009 was \$1,025,000 and Arrowhead's proportionate share of Nanotope's loss was \$225,804. Arrowhead accounts for its investment in Nanotope using the equity method of accounting.

*Leonardo Biosystems, Inc.*

Through the acquisition of Masa Energy LLC, Arrowhead acquired a 6.13% ownership interest in Leonardo. Leonardo is developing a drug-delivery platform technology based on novel methods of designing spheroid porous silicon microparticles that selectively accumulate in tumor vasculature. In fiscal 2009, Arrowhead incurred \$75,002 of expenses related to Leonardo. It is expected that the expenses will be repaid or converted into equity. Arrowhead accounts for its investment in Leonardo using the cost method of accounting.

**NOTE 4. DISCONTINUED OPERATIONS—AONEX CORPORATION**

On May 5, 2008, Aonex Corporation, a majority-owned subsidiary of Arrowhead ("Aonex"), entered into an Agreement and Plan of Merger (the "Aonex Merger Agreement") by and among AmberWave Systems Corporation, a Delaware corporation in the business of research, development and licensing of advanced technologies for semiconductor manufacturing ("Amberwave") and Aonex Acquisition Corporation, a California corporation and wholly-owned subsidiary of Amberwave formed for the purpose of acquiring Aonex's business ("Acquirer"). On May 6, 2008, the merger was consummated and the outstanding Company loans to Aonex of \$1,298,000 were converted to equity. At the effective time of the Aonex Merger all of the issued and outstanding shares of Aonex capital stock automatically converted into the right to receive an aggregate amount equal to (a) \$450,000 minus (b) the sum of the of Aonex transaction expenses and \$15,625.31. In addition, the stockholders of Aonex are entitled to receive potential milestone and royalty payments. Arrowhead has preference to the first \$6,298,000 in future payments after which any additional payments will be split 64% to Arrowhead and 36% to the holders of the common stock of Aonex.

**NOTE 5. NOTES PAYABLE**

On November 26, 2008, Calando entered into Unsecured Convertible Promissory Note Agreements ("Notes") for \$2.5 million with accredited investors, plus Arrowhead which invested \$200,000 in the Notes offering. Arrowhead invested an additional \$500,000 in the same offering on February 23, 2009. The Notes mature on November 26, 2010 and bear 10% annual interest. Unpaid principal of the Notes and accrued but unpaid interest thereon is convertible into common stock of Calando at a conversion price of \$0.576647 per share (subject to adjustment) at any time in the sole discretion of the holder. In the event Calando achieves a liquidation event as defined in the Notes, each note holder has the option to exchange the Notes for two times the then outstanding principal amount owed under the Notes plus accrued and unpaid interest thereon ("Redemption Amount") or convert the outstanding principal and accrued and unpaid interest thereon into Calando common stock at the Conversion Price.

Except for one note in the principal amount of \$500,000, all notes and accrued interest were converted into 2,950 shares of Calando Series A Preferred Stock on June 23, 2009.

**NOTE 6. MEZZANINE FINANCING**

Unidym sold 1,111,111 shares of Series C-1 Preferred Stock for cash proceeds of \$2 million in a private financing transaction with TEL Ventures ("TEL") in November 2008. In connection with the investment, TEL was granted certain contingent rights if Unidym failed to meet a cash flow requirement of \$7 million and enter into a joint development agreement with TEL by June 30, 2009. If the contingencies were not satisfied, Unidym was obligated to repurchase the Series C-1 Stock for an aggregate purchase price of \$2,000,000 at TEL's option. Unidym's contingent buy back obligations were secured by a separate security agreement between Unidym and TEL.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

On June 25, 2009 the Company acquired 833,333 of TEL's Series C-1 shares in exchange for restricted Common stock of the Company. This transaction permanently eliminated \$1,500,000 of the potential \$2,000,000 put option liability. With the elimination of the put option right, \$1.5 million was recorded as a reclassification of mezzanine debt to additional paid in capital on the consolidated balance sheet as of June 30, 2009, pursuant to Regulation S-X Rule 5-02.

Also on June 25, 2009, Arrowhead, Unidym and TEL entered into an IP Transfer and Waiver Agreement whereby TEL's remaining put rights totaling \$500,000 were postponed and modified and the cash flow requirement was reduced from \$7 million to \$1.5 million. On July 31, 2009, Unidym met the reduced cash flow requirement and the remaining buy back obligation of \$500,000 was permanently waived. The remaining \$500,000 was reclassified from debt to equity.

**NOTE 7. STOCKHOLDERS' EQUITY**

At September 30, 2009, the number of shares of the Company authorized for issuance was a total of 75,000,000 shares, consisting of 70,000,000 shares of Common Stock, par value \$0.001, and 5,000,000 shares of Preferred Stock. On October 6, 2009, the stockholders of the Company voted to increase the authorized Common Stock of the company to 145,000,000 shares.

At September 30, 2009, 56,411,774 shares of Common Stock were outstanding. At September 30, 2009, 1,532,000 shares and 1,369,588 shares were reserved for issuance upon exercise of options granted under Arrowhead's 2000 Stock Option Plan and 2004 Equity Incentive Plan, respectively. On December 3, 2007, an inducement grant of options to purchase 2,000,000 shares of Common Stock was made outside of Arrowhead's equity incentive plans to the Company's newly hired CEO. The terms of the inducement option were substantially similar to the terms of the Company's 2004 Equity Incentive Plan. The inducement grant was cancelled in July 2009 to facilitate a financing by the Company (see below).

In September 2008, Arrowhead completed a registered direct offering of a total of 3,863,989 units, with each unit consisting of one share of Common Stock and a warrant to purchase one share of Common Stock. Of the 3,863,989 units sold in the offering, 3,683,660 units were sold to investors at a purchase price of \$1.80 per unit and 180,329 units were sold to three members of the Company's management at a purchase price of \$1.83 per unit. The last reported sale price of the Company's Common Stock on the NASDAQ Global Market on August 15, 2008, the day the offering was launched, was \$1.70. The warrants, which represent the right to acquire a total of 3,863,989 shares of Common Stock, have an exercise price of \$2.00 per share and have a five-year term. The gross offering proceeds were approximately \$6.9 million and the net offering proceeds to the Company were approximately \$6.2 million. The offering was made directly by the Company without an underwriter or placement agent. The Company paid finders' fees of 7.5% on a portion of the gross proceeds.

On January 30, 2008, a Form S-3 Registration Statement, originally filed on December 20, 2007 was declared effective. The prospectus allows the Company to issue, from time to time in one or more offerings, shares of Common Stock and Warrants for an aggregate dollar amount of up to \$50 million of which approximately \$6.9 million was issued in the September 2008 registered direct offering described above.

It is the Company's intent to use the net proceeds from the sale of the securities and the net proceeds received upon exercise of the warrants for general corporate purposes, which may include one or more of the following: working capital, research and clinical development activities, repayment of debt, potential future acquisitions of companies and/or technologies, and capital expenditures.

On July 17, 2009 and August 6, 2009, the Company sold an aggregate of 9,196,642 units in a private placement transaction with institutional and accredited investors. Each Unit consisted of one share of Company common stock, \$0.001 par value per share, at a price of \$0.30 per share, and a warrant to purchase an additional share of Common Stock exercisable at \$0.50 per share. The warrants become exercisable on January 18, 2010 and February 6, 2010 and remain exercisable until June 30, 2014, unless redeemed earlier as permitted. The warrants may be redeemed for nominal consideration if the Company's common stock trades above \$1.20 for at least 30 trading days in any 60-trading day period. Gross proceeds of the offering totaled approximately \$2.76 million.

In connection with the offering, directors, officers and employees of the Company agreed to terminate options to purchase 4,005,000 shares of Common Stock with exercise prices ranging from \$2.52 to \$6.83 in order to provide sufficient shares for issuance in the offering. The reserve for the 2004 Equity Incentive Plan was reduced to the options remaining outstanding until such time as sufficient authorized shares are available to restore the reserve. In consideration of the termination of the option agreements, the Compensation Committee of the Board of Directors accelerated the vesting on awards of other existing grants to purchase 450,000 shares such that the awards are fully vested on the one year anniversary of the date of grant. The cancellation was effective July 17, 2009.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

The following table summarizes information about warrants outstanding at September 30, 2009:

<u>Exercise prices</u>	<u>Number of Warrants</u>	<u>Weighted Average Remaining Life in Years</u>	<u>Weighted Average Exercise Price</u>
\$5.04	1,397,500	6.3	\$ 5.04
\$7.06	712,362	7.6	\$ 7.06
\$2.00	3,863,989	3.9	\$ 2.00
\$0.50	9,444,522	4.8	\$ 0.50

On September 18, 2009, Arrowhead Research Corporation announced that it has received a deficiency letter from the NASDAQ Stock Market indicating that based on the Company's closing bid price for the last 30 consecutive business days, the Company does not comply with the \$1.00 minimum bid price as set forth in NASDAQ Marketplace Rule 5550(a)(2). In accordance with NASDAQ Marketplace Rule 5810(c)(3)(A), Arrowhead has been provided a grace period of 180 calendar days, or until March 15, 2010, to regain compliance by maintaining a minimum closing bid price of \$1.00 per share for 10 consecutive business days. The NASDAQ deficiency notice has no effect on the listing of the Arrowhead's common stock at this time and Arrowhead will seek to regain compliance within the grace period. If Arrowhead does not meet the minimum bid requirement during the initial 180-day grace period, the Company will be notified by NASDAQ that its common stock will be subject to delisting. Alternatively, the Company may be eligible for an additional grace period if it meets the initial listing standards, with the exception of the bid price, for The NASDAQ Capital Market. If the Company meets the initial listing criteria, NASDAQ will notify the Company that it has been granted an additional 180 calendar day grace period.

NASDAQ had previously implemented a temporary suspension of this listing requirement on October 16, 2008. The temporary suspension was lifted on July 31, 2009. During the period of the temporary suspension the Company was not considered to be out of compliance with this continued listing requirement.

**NOTE 8. LEASES**

As of September 30, 2009, the Company leased the following facilities:

	<u>Lab/Office Space</u>	<u>Monthly Rent</u>	<u>Lease Commencement</u>	<u>Lease Term</u>
<b>Arrowhead</b>				
Pasadena(1)	7,388 sq ft	\$ 18,101	March 1, 2006	62 Months
New York(2)	130 sq ft	\$ 1,600	October 1, 2008	14 Months
Calando(3)	4,354 sq ft	\$ 12,173	June 1, 2009	1 Month
<b>Unidym</b>				
Menlo Park, CA(4)	9,255 sq ft	\$ 14,345	February 1, 2007	36 Months
Sunnyvale, CA	20,500 sq ft	\$ 26,650	October 1, 2008	60 Months

- (1) Arrowhead leases corporate office space in Pasadena, which it occupied beginning March 1, 2006. The lease agreement provides Arrowhead with two months' free rent which was recorded as a deferred liability and is being amortized over the life of the lease.
- (2) As of April 1, 2009, Arrowhead closed its New York office.
- (3) Calando's laboratory was closed on June 30, 2009 and its lease expired on July 15, 2009.
- (4) On September 30, 2009, Unidym entered into a lease termination agreement with the landlord of its Menlo Park, CA facility. Under the terms of the agreement, Unidym forfeited its security deposit of \$14,808 and agreed to pay the landlord an additional payment of \$63,000. In return, the lease was terminated and Unidym has no further obligations related to the Menlo Park lease.

On April 22, 2009, Unidym entered into a lease termination agreement with the landlord for its Pasadena, Texas location. At the time of the termination, approximately 9.5 years remained on the term of the lease with the minimum estimated future payments totaling approximately \$2,139,000. Under terms of the lease termination agreement, Unidym forfeited its \$109,200 security deposit and made an additional payment to the landlord of \$14,800.

The Company has no plans to own any real estate and expects all facility leases will be operating leases.

**Arrowhead Research Corporation**  
**(A Development Stage Company)**

**Notes to Consolidated Financial Statements**  
**September 30, 2009**

At September 30, 2009, the future minimum commitments remaining under leases are as follows:

<u>Twelve months ending September 30</u>	<u>Facilities Leases</u>	<u>Equipment Leases</u>
2010	\$542,054	\$ 9,210
2011	\$461,390	\$ 2,268
2012	\$344,400	\$ —
2013	\$356,700	\$ —
2014 and thereafter	\$ —	\$ —

Facility and equipment rent expense for the years ended September 30, 2009 and 2008 was \$1,326,860 and \$1,075,524, respectively. From inception to date, rent expense has totaled \$4,304,993.

**NOTE 9. OBLIGATIONS UNDER CAPITALIZED LEASE**

As part of the purchase of Nanoconduction, the Company assumed a capitalized lease for equipment valued at \$1,677,000. Research and development equipment under capitalized lease was allocated a cost of \$0 at the Nanoconduction acquisition by Unidym as the equipment has no alternative use.

At September 30, 2009, the future minimum commitments remaining under capitalized leases are as follows:

Capitalized lease payable in 10 monthly installments of \$75,343, due in July 2010, secured by equipment at Unidym.	\$753,439
Less interest	(26,905)
Present value of future minimum payments	726,534
Less current portion	726,534
Long term portion	<u>\$ —</u>

**NOTE 10. COMMITMENTS AND CONTINGENCIES—SUBSIDIARIES AND SPONSORED RESEARCH**

**Sponsored Research**

In exchange for the exclusive right to license technology developed in sponsored laboratories, Arrowhead has worked with universities in areas such as stem cell research, carbon electronics and molecular diagnostics. By funding university research, Arrowhead has the opportunity to ascertain the technical success at low research cost and, if warranted, continue cost effective development at the university by leveraging the already existing resources available to scientists at universities, such as laboratories and equipment and a culture that encourages the exchange of ideas. If sponsored research results in technology that appears to have commercial applications, the Company can form a majority-owned subsidiary to develop the technology. Should the technology prove to be too hard or too expensive to commercialize, Arrowhead may terminate the license agreement and return the licensed intellectual property to the university.

Sponsored Research expense for the years ended September 30, 2009 and 2008 was \$195,000 and \$741,766. As of September 30, 2009, there were no active sponsored research agreements at the parent company and Unidym had only one agreement in place.

**Sponsored Research Agreement—Duke University**

The terms of the new sponsored research agreement between Unidym and Duke University (“Duke”) are summarized in the following table:

<u>Research Project</u>	<u>Period Covered</u>	<u>Total Estimated Project Cost</u>	<u>Annual Cost</u>	<u>Amount Paid as of Sept. 30, 2009</u>	<u>Prepaid Amt as of Sept. 30, 2009</u>
Electrical Conductivity of Carbon Nanotubes (Dr. Jie Liu)	Dec. 1, 2007 - Nov. 30, 2010 (3 year)	\$ 406,641	\$ 100,000	\$ 306,641	\$ 0

During the last quarter FY 2009, the Duke sponsored research agreement was renegotiated resulting in the annual cost decreasing from \$191,375 to \$100,000.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

***Employment Agreements***

On May 24, 2007, the Company entered into a Severance Agreement with each of R. Bruce Stewart, the Company's Chairman and then Chief Executive Officer, and Joseph T. Kingsley, the Company's then Interim President and Chief Financial Officer, to provide for payments to the officers in the event of their retirement or the termination of their employment. The agreements provide that the executives will be entitled to receive severance payments and payments for any accrued and unused vacation time in the event that (i) the executive dies or voluntarily retires from the Company, (ii) the executive voluntarily terminates his employment other than for cause or (iii) the Company terminates the executive's employment other than for cause (each, a "Termination Event"). Upon the occurrence of a Termination Event, Mr. Stewart is entitled to receive as severance, during each of the first three years following the Termination Event, payments equal to his highest annual salary while employed by the Company, payable in equal monthly installments. Upon the occurrence of a Termination Event, Mr. Kingsley was entitled to receive as severance, during the first year following the Termination Event, payments equal, in the aggregate, to 100% of his highest annual salary while employed by the Company, payable in equal monthly installments, which payments would be reduced by any payments received by Mr. Kingsley or his estate from the Company's Long Term Disability Plan. Each agreement also provides that, if any payment to the executive is subject to excise tax under Section 4999 of the Internal Revenue Code of 1986, as amended (the "Code"), the Company will pay to the executive an amount sufficient, on an after-tax basis, to put the executive in the same position he would have been in if the excise tax was not imposed. The timing of payments under the agreements is also subject to adjustment to avoid any adverse tax treatment under Section 409A of the Code.

Mr. Kingsley stepped down from his positions as Interim President on December 1, 2007 and as Chief Financial Officer of the Company on January 14, 2008 and remained an employee of the Company. On March 10, 2008, the Company entered into an Employment Agreement with Mr. Kingsley. Under the Agreement, Mr. Kingsley served as Assistant to the President from January 14, 2008 through January 13, 2009 and was paid his previous base salary. Mr. Kingsley's previously granted stock options ceased vesting as of January 14, 2008 and all remaining unvested stock options were cancelled. The exercise period for Mr. Kingsley's vested stock options was extended by the Employment Agreement from 90 days after retirement to one year after he terminates employment with the Company. As a condition to the Employment Agreement, the Severance Agreement between the Company and Mr. Kingsley, entered into on May 24, 2007 was terminated in its entirety.

Effective May 12, 2009, Mr. Stewart and the Company agreed to amend the Severance Agreement for Mr. Stewart such that, in the event his employment with the Company terminates, he would receive a lump sum payment equal to one month's salary. This change resulted in a reduction in the accrued severance liability on the Company's balance sheet from \$750,000 as of March 31, 2009 to approximately \$24,000 for the period ending June 30, 2009.

On June 11, 2008, the Company, entered into an Employment Agreement and a Stock Option Agreement with Dr. Christopher Anzalone, the Company's Chief Executive Officer and President as well as a Director of the Company. Dr. Anzalone commenced employment with the Company on December 1, 2007. Under the agreement, Dr. Anzalone is paid an annual base salary of \$400,000 and is eligible to receive bonuses based on the performance of the Company and individual performance objectives. The Company provides supplemental life insurance to bring his life insurance benefit up to \$2,000,000. If the Company terminates Dr. Anzalone's employment without cause, the Company agreed to pay Dr. Anzalone his base salary and benefits for twelve months.

Effective May 12, 2009, the Company entered into an Amendment to the Employment Agreement with Dr. Anzalone, the Company's Chief Executive Officer and President. The Employment Agreement, dated June 11, 2008, previous to the amendment, provided for severance equal to one year's salary based on his highest annual salary while employed by the Company in the event that Dr. Anzalone was terminated by the Company without cause or if he resigned for good reason. The amendment reduces the payments from one year to a single lump sum amount equivalent to one (1) month of Dr. Anzalone's highest monthly salary while at Arrowhead Research Corporation.

**NOTE 11. STOCK BASED COMPENSATION**

Stock-Based Compensation—Arrowhead has two plans that provide for equity-based compensation. Under the 2000 Stock Option Plan, 1,532,000 shares of Arrowhead's Common Stock are reserved for issuance upon exercise of non-qualified stock options. No further grants can be made under the 2000 Stock Option Plan. The 2004 Equity Incentive Plan reserves 5,738,310 shares for the grant of stock options, stock appreciation rights, restricted stock awards and performance unit/share awards by the Board of Directors to employees, consultants and others. As of September 30, 2009, there were options granted and outstanding to purchase 1,532,000 and 1,369,588 shares of common stock under the 2000 Stock Option Plan and the 2004 Equity Incentive Plan, respectively. During the year ended September 30, 2009, 460,000 options were granted under the 2004 Equity Incentive Plan.

In August 2009, officers, directors and employees voluntarily cancelled 4,005,000 stock options to facilitate a financing by the Company. Dr. Anzalone, the Company's CEO, also agreed to forfeit a 2,000,000 share inducement grant that was made to him in connection with his employment with the Company. In October 2009, a special meeting of the shareholders was held and the number of authorized shares was increased to 145 million shares. The shareholders also authorized the Board of Directors make a grant of stock options to purchase 2,000,000 shares to officers, directors and employees of the Company who previously forfeited their stock options to facilitate the financing.

**Arrowhead Research Corporation**  
**(A Development Stage Company)**

**Notes to Consolidated Financial Statements**  
**September 30, 2009**

The following tables summarize information about stock options:

	<u>Number of Options Outstanding</u>	<u>Weighted- Average Exercise Price Per Share</u>	<u>Weighted- Average Remaining Contractual Term</u>	<u>Aggregate Intrinsic Value</u>
Balance At September 30, 2007	4,994,923	\$ 3.07		
Granted	3,445,000	3.49		
Canceled	(326,934)	3.74		
Exercised	(105,357)	2.75		
Balance At September 30, 2008	8,007,632	3.24		
Granted	460,000	0.85		
Canceled	(5,566,044)	3.88		
Exercised	—	—		
Balance At September 30, 2009	2,901,588	\$ 1.73	6.3 years	\$338,383
Exercisable At September 30, 2009	2,430,463	\$ 1.69	5.8 years	\$338,383
	<u>Number of Options</u>	<u>Weighted Average Remaining Life in Years</u>	<u>Weighted Average Exercise Price</u>	
<u>Exercise Prices</u>	2,901,588	6.8		\$ 1.73
\$0.60 – \$5.24				

Stock-based compensation expense for the years ended September 30, 2009 and 2008 was \$2,676,170 and \$3,187,397, respectively, and is included in Salary expense in the Company's consolidated statements of operations.

At September 30, 2009, there were 4,368,722 options available for future grants under Arrowhead's 2004 Equity Incentive Plan. The intrinsic value of the options exercised during fiscal 2008 was approximately \$69,000.

The fair value of the options granted by Arrowhead for the years ended September 30, 2009 and 2008 is estimated at \$258,216 and \$7,523,000, respectively.

As of September 30, 2009, the estimated fair value of the unvested options for Arrowhead is \$558,849 with a weighted average remaining amortization period of 1.2 years. As of September 30, 2009, the estimated aggregate fair value of the unvested options for Unidym and Calando is \$1,191,000 with a weighted average remaining amortization period of 2.53 years.

The aggregate fair value of options granted by Unidym, Calando and Tego for the years ended September 30, 2009 and 2008 is estimated at \$448,715 and \$685,000, respectively.

The fair value of options is estimated at the date of grant using the Black-Scholes option-pricing model with the following weighted-average assumptions: dividend yield of 0%, expected volatility of 49% to 100% (0% to 81% for Subsidiaries), risk-free interest rate of 2.34% to 5.10%, and expected life of five to six years. The weighted-average fair value of options granted by Arrowhead for the year ended September 30, 2009 and 2008 is estimated at \$0.60 and \$2.18, respectively, and the weighted-average exercise price is estimated at \$0.85 and \$3.24, respectively.

The Black-Scholes option valuation model was developed for use in estimating the fair value of traded options, which do not have vesting restrictions and are fully transferable. In addition, option valuation models require the input of highly subjective assumptions, including the expected stock price volatility. Because the Company's employee stock options have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models do not necessarily provide a reliable single measure of the fair value of its employee stock options.

**NOTE 12. INCOME TAXES**

The Company utilizes the guidance issued by the FASB for accounting for income taxes which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

Under this method, deferred income taxes are recognized for the tax consequences in future years of differences between the tax bases of assets and liabilities and their financial reporting amounts at each year-end based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amount expected to be realized. The provision for income taxes represents the tax payable for the period and the change during the period in deferred tax assets and liabilities.

For the years ended September 30, 2009 and 2008, the Company had consolidated losses of \$19,308,392 and \$27,089,030, respectively. The losses result in a deferred income tax benefit of approximately \$7,650,000 for fiscal 2009 and \$10,700,000 for fiscal 2008, offset by an increase in the valuation allowance for the same amount for Arrowhead. Since the Company is a development stage company, management has chosen to take a 100% valuation allowance against the tax benefit until such time as management believes that its projections of future profits as well as expected future tax rates make the realization of these deferred tax assets more-likely-than-not. Significant judgment is required in the evaluation of deferred tax benefits and differences in future results from our estimates could result in material differences in the realization of these assets.

The Federal Net Operating Losses ("NOL") for the past 5 fiscal years are \$4,757,320 for fiscal 2008, \$4,231,541 for fiscal 2007, \$7,487,109 for fiscal 2006, \$2,895,883 for fiscal 2005 and \$1,542,142 for fiscal 2004. The California NOL's for the last 5 fiscal years are \$4,322,601 for fiscal 2008, \$6,791,409 for fiscal 2007, \$7,374,921 for fiscal 2006, \$2,877,608 for fiscal 2005 and \$1,541,517.

Management estimate the Federal NOL for fiscal 2009 will be approximately \$3 to \$3.3 million and the California NOL will be approximately \$3 million.

The Company has adopted guidance issued by the FASB that clarifies the accounting for uncertainty in income taxes recognized in an enterprise's financial statements and prescribes a recognition threshold of more likely than not and a measurement process for financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. In making this assessment, a company must determine whether it is more likely than not that a tax position will be sustained upon examination, based solely on the technical merits of the position and must assume that the tax position will be examined by taxing authorities. Our policy is to include interest and penalties related to unrecognized tax benefits in income tax expense. Interest and penalties totaled \$0 for the years ended September 30, 2009 and 2008, respectively, and \$0 for the period from May 7, 2003 (date of inception) through September 30, 2009. The Company files income tax returns with the Internal Revenue Service ("IRS") and the state of California. For jurisdictions in which tax filings are prepared, the Company is no longer subject to income tax examinations by state tax authorities for years through fiscal 2004, and by the IRS for years through fiscal 2005. Our review of prior year tax positions using the criteria and provisions presented by the FASB did not result in a material impact on the Company's financial position or results of operations.

**NOTE 13. RELATED PARTY TRANSACTIONS**

During the fiscal years ended September 30, 2009 and 2008, the Company's majority-owned subsidiary, Unidym, had product sales of \$110,235 and \$162,089, respectively, to one of its stockholders, Sumitomo. On July 31, 2009, Unidym terminated its contract with Sumitomo as its major product distributor in Japan.

During the fiscal year ended September 30, 2009, the Company's majority-owned subsidiary, Calando, paid \$40,000 in consulting fees to Dr. Mark Davis at Caltech. During the fiscal year ended September 30, 2008, the Company's majority-owned subsidiary, Calando, paid \$164,500 in consulting fees and made a \$50,000 contribution to the laboratory of Dr. Mark Davis at Caltech. Dr. Davis was a director and consultant for Calando.

In April 2008, the Company acquired Masa Energy LLC, a Delaware limited liability company, for \$560,000 in a combination of cash and Arrowhead common stock. Masa's only assets are a 5.78% minority position in Nanotope and a 6.13% minority position in Leonardo. Masa is unrelated to Arrowhead. However, both Nanotope and LBS were co-founded by the Company's President and Chief Executive Officer, Dr. Christopher Anzalone, through the Benet Group, a private investment entity solely owned and managed by Dr. Anzalone.

During the fourth quarter of the prior fiscal year, Arrowhead purchased 1,801,802 shares of Nanotope's Series B preferred stock at a price per share of \$1.11 for an aggregate purchase price of \$2 million. In addition, Nanotope issued 9,548 shares of Nanotope Series B to another investor at a price per share of \$1.11.

The Company's purchase of Nanotope Series B added to the Company's previously acquired 5.78% ownership interest in Nanotope.

Through the Benet Group Dr. Anzalone owns 1,395,900 shares of Nanotope common stock or approximately 14.2% (after giving effect to the sale of Nanotope Series B Preferred Stock) of Nanotope's outstanding voting securities. Dr. Anzalone does not hold options, warrants or any other rights to acquire securities of Nanotope directly or through the Benet Group. The Benet Group has the right to appoint a representative to the board of directors of Nanotope. Dr. Anzalone currently serves on the Nanotope board in a

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

seat reserved for Nanotope's CEO and another individual holds the seat designated by the Benet Group. Dr. Anzalone has served as President and Chief Executive Officer of Nanotope since its formation and continues to serve in these capacities. Dr. Anzalone has not received any compensation for his work on behalf of Nanotope since joining the Company on December 1, 2007. Dr. Anzalone has also waived his right to any unpaid compensation accrued for work done on behalf of Nanotope before he joined the Company.

Dr. Anzalone did not participate on behalf of the Company in the negotiations of the terms of the Nanotope Series B issued to the Company and did not negotiate on behalf of Nanotope after becoming the Chief Executive Officer and President of the Company. Dr. Anzalone did respond to questions asked of him by the Company's board of directors and management regarding Nanotope's business plan, operations and the terms of the Series B Stock Purchase Agreement and ancillary agreements.

During the prior fiscal year, Arrowhead entered into subscription agreements with certain investors (the "Investors") and with three members of Arrowhead management relating to the offering and sale of a total of 3,863,989 units, with each unit consisting of one share of common stock and a warrant to purchase one share of common stock. Of the units sold in the offering, 3,683,660 units were sold to Investors at a purchase price of \$1.80 per unit and 180,329 units were sold to three members of the Company's management at a purchase price of \$1.83 per unit. The last reported sale price of the Company's common stock on the NASDAQ Capital Market on August 15, 2008, the day the offering was launched, was \$1.70. The offering was made directly by the Company without an underwriter or placement agent.

During the fiscal year ended September 30, 2009, Calando raised \$2.5 million through the sale of senior unsecured convertible promissory notes ("New Notes"), to accredited investors, plus \$800,000 from Arrowhead. Dr. Anzalone, Arrowhead's CEO personally participated in the offering by buying \$100,000 of the New Notes.

**NOTE 14. EMPLOYEE BENEFIT PLANS**

In January 2005, the Company began sponsoring a defined contribution 401(k) retirement savings plan covering substantially all of its employees. The Plan was administered under the "safe harbor" provision of ERISA. Under the terms of the plan, an eligible employee may elect to contribute a portion of their salary on a pre-tax basis, subject to federal statutory limitations. The plan allowed for a discretionary match in an amount up to 100% of each participant's first 3% of compensation contributed plus 50% of salary reduction contributions that exceed 3% of compensation but that did not exceed 5% of compensation for the same period. The plan moved out from under "safe harbor" in fiscal 2009 and the Company no longer matched participant contributions.

For the years ended September 30, 2009 and 2008, we recorded expenses under these plans of approximately \$95,000 and \$272,000, respectively and \$637,000 since inception of the Company.

In addition to the employee benefit plans described above, the Company participates in certain customary employee benefits plans, including those which provide health and life insurance benefits to employees.

**NOTE 15. SUBSEQUENT EVENTS**

The Company has evaluated subsequent events through December 21, 2009, the date the financial statements were issued.

On October 6, 2009, stockholders of the Company approved the following proposals:

1. The Board of Directors of the Company was given the authority to effect a reverse split of the Company's Common Stock at a specific ratio within a range from 1-for-2 to 1-for-15. The authority expires in one year.
2. The Board of Directors was given the authority to increase the number of authorized shares of Common Stock by 75 million shares.
3. The Board of Directors was authorized to grant equity grants to directors, officers and employees of the Company under the 2004 Equity Incentive Plan.

On October 6, 2009, the Company completed exchanges with minority stockholders of Calando to exchange 1,140,000 shares of the Company's Common Stock and warrants to purchase 240,000 shares of Common Stock at \$0.50 per share for 2,850,000 shares of Calando common stock and warrants to purchase 600,000 shares of Calando common stock. The Shares and Warrants were exchanged only with accredited investors in reliance on Section 4(2) of the Securities Act of 1933, as amended (the "Securities Act"), and Rule 506 promulgated thereunder. The Shares and Warrants exchanged have not been registered under the Securities Act or state securities laws and may not be offered or sold in the United States absent registration with the Securities and Exchange Commission or an applicable exemption from the registration requirements.

**Arrowhead Research Corporation  
(A Development Stage Company)**

**Notes to Consolidated Financial Statements  
September 30, 2009**

On December 11, 2009, the Company executed definitive agreements for a private placement with a selected group of accredited investors. Pursuant to the Offering, the Company sold an aggregate of approximately 5.1 million units (“Units”) consisting of one share of the Company’s Common Stock, \$0.001 par value per share (“Common Stock”) and a warrant to purchase an additional share of Common Stock, exercisable at \$0.509 per share. The Unit price was \$0.634 per unit. The unit price is based on the closing bid price on the Company’s common stock on December 11, 2009 which was \$0.509 plus a premium of \$0.125 added for the purchase of the warrant, per NASDAQ rules. The Warrants become exercisable on June 12, 2010 and remain exercisable until December 11, 2014, unless redeemed earlier as permitted. The warrants may be redeemed for nominal consideration if the Company’s common stock trades above \$1.20 for at least 30 trading days in any 60-trading day period after December 11, 2010. The Offering is expected to close on or before December 28, 2009 with gross proceeds totaling approximately \$3.2 million before estimated expenses of \$25,000.

The Shares and Warrants were offered and sold only to accredited investors in reliance on Section 4(2) of the Securities Act of 1933, as amended (the “Securities Act”), and Rule 506 promulgated thereunder. The Shares and Warrants sold in the private placement have not been registered under the Securities Act or state securities laws and may not be offered or sold in the United States absent registration with the Securities and Exchange Commission or an applicable exemption from the registration requirements. The Company has agreed to file a registration statement with the Securities and Exchange Commission covering the resale of the Shares and the shares of Common Stock issuable upon exercise of the Warrants.

**CERTIFICATE OF AMENDMENT  
OF  
CERTIFICATE OF INCORPORATION  
OF  
ARROWHEAD RESEARCH CORPORATION  
a Delaware corporation**

Arrowhead Research Corporation, a corporation organized and existing under the laws of the State of Delaware (the "**Company**"), hereby certifies as follows:

FIRST: That the Board of Directors of the Company has duly adopted resolutions (i) authorizing the Company to execute and file with the Secretary of State of the State of Delaware this Certificate of Amendment of Certificate of Incorporation (this "**Certificate of Amendment**") to increase the number of authorized shares of Common Stock by 75 million; and (ii) declaring this Certificate of Amendment to be advisable and recommended for approval by the stockholders of the Company.

SECOND: That this Certificate of Amendment was duly adopted in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware by the Board of Directors and stockholders of the Company.

THIRD: That upon the effectiveness of this Certificate of Amendment, the first sentence of Article Fourth of the Certificate of Incorporation of the Company is hereby deleted in its entirety and replaced with the following:

"The total number of shares which the corporation shall have authority to issue is 150,000,000, of which 145,000,000 shares shall be common stock, \$.001 par value ("Common Stock"), and 5,000,000 shares shall be preferred stock, \$.001 par value ("Preferred Stock")."

IN WITNESS WHEREOF, the Company has caused this Certificate of Amendment of Certificate of Incorporation to be executed by Christopher Anzalone, its Chief Executive Officer, this 13th day of October, 2009.

**ARROWHEAD RESEARCH CORPORATION**

By:           /s/ Christopher Anzalone          

Name: Christopher Anzalone

Title: Chief Executive Officer

## REGISTRATION RIGHTS AGREEMENT

THIS REGISTRATION RIGHTS AGREEMENT (this "**Agreement**") is made and entered into as of this 11th day of December, 2009 by and among Arrowhead Research Corporation, a Delaware corporation (the "**Company**") and the purchasers of the Company's Units (as defined below) listed on Exhibit A hereto, as may be amended from time to time (the "**Investors**").

## RECITALS

WHEREAS, the Investors are purchasing shares of the Company's common stock, par value \$0.001 per share (the "**Common Stock**", pursuant to a Subscription Agreement by and between the Company and each Investor dated as of the date hereof (collectively, the "**Transaction Agreements**");

WHEREAS, in connection with the consummation of the transactions under the Transaction Agreements, the Company and the Investors have agreed to the provisions as set forth below.

NOW, THEREFORE, in consideration of these premises and intending to be legally bound, the parties hereto agree as follows:

**1. Certain Definitions.** As used in this Agreement, the following terms shall have the following respective meanings:

"**Affiliate**" means, with respect to any specified Person, a Person that directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, the specified Person, where "control" (including the terms "controlling," "controlled by" and "under common control with") means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract, or otherwise; provided, however, that when used with respect to the Company, "Affiliate" shall not include any Investor or Affiliate thereof.

"**Closing Date**" means the date of the closing of the purchase and sale of Shares under the Transaction Agreements.

"**Commission**" means the Securities and Exchange Commission or any other federal agency at the time administering the Securities Act.

"**Exchange Act**" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder, or any similar federal rule or statute and the rules and regulations of the Commission thereunder, all as the same shall be in effect at the time.

"**Registrable Securities**" means any Shares purchased by the Investors pursuant to the Purchase Agreements and Common Stock issued or issuable in respect of the foregoing upon any stock split, stock dividend, recapitalization or similar event; *provided*, however, that such securities shall only be treated as Registrable Securities if and so long as they have not been sold pursuant to a registration or in accordance with Rule 144.

The terms “register,” “registered” and “registration” refer to a registration effected by preparing and filing a Registration Statement in compliance with the Securities Act, and the declaration or ordering of the effectiveness of such Registration Statement.

“Registration Expenses” shall mean all expenses, except as otherwise stated below, incurred by the Company in complying with Section 2(a) and 2(c) hereof, including without limitation, all registration, qualification and filing fees, printing expenses, escrow fees, fees and disbursements of counsel for the Company, blue sky fees and expenses, the expense of any special audits incident to or required by any such registration (but excluding the compensation of regular employees of the Company which shall be paid in any event by the Company and excluding any underwriters discounts or commissions which may be applicable). Registration Expenses shall also include the reasonable fees and disbursements for one special counsel to the selling Investors holding Registrable Securities reasonably acceptable to the Company, but shall not include any other fees or expenses of the Investors.

“Registration Statements” means any one or more registration statements of the Company filed under the Securities Act that covers the resale of any of the Registrable Securities pursuant to the provisions of this Agreement (including without limitation the Initial Registration Statement, the Warrant Registration Statement, the New Registration Statement and any Remainder Registration Statements), amendments and supplements to such Registration Statements, including post-effective amendments, all exhibits and all material incorporated by reference or deemed to be incorporated by reference in such Registration Statements.

“Rule 144” and “Rule 145” shall mean Rules 144 and 145, respectively, promulgated under the Securities Act, as such rules may be amended from time to time, or any similar federal rules thereunder, all as the same shall be in effect at the time.

“Securities Act” shall mean the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder, or any similar federal rule or statute and the rules and regulations of the Commission thereunder, all as the same shall be in effect at the time.

## **2. Registration Rights.**

**(a) Company Registration of Shares.** Subject to the receipt of necessary information from the Investors after prompt request from the Company to the Investor to provide such information, the Company shall: (i) use commercially reasonable efforts to cause a Registration Statement on Form S-3 (or other appropriate form) covering the resale of all of the Shares not already covered by an existing and effective Registration Statement for an offering to be made on a continuous basis pursuant to Rule 415 or, if Rule 415 is not available for offers and sales of the Registrable Securities, by such other means of distribution of Registrable Securities as the Investors may reasonably specify (the “**Initial Registration Statement**”), to be filed with the Commission within 60 days after the Closing Date.

Notwithstanding the registration obligations set forth in this Section 2(a), in the event the Commission informs the Company that all of the Registrable Securities cannot, as a result of the application of Rule 415, be registered for resale as a secondary offering on a single Registration Statement, the Company agrees to promptly (i) inform each of the Investors thereof and use its

commercially reasonable efforts to file amendments to the Initial Registration Statement as required by the Commission and/or (ii) withdraw the Initial Registration Statement and file a new Registration Statement (a "**New Registration Statement**"), in either case covering the maximum number of Registrable Securities permitted to be registered by the Commission, on Form S-3 or such other form available to register for resale the Registrable Securities as a secondary offering; provided, however, that prior to filing such amendment or New Registration Statement, the Company shall be obligated to use its commercially reasonable efforts to advocate with the Commission for the registration of all of the Registrable Securities in accordance with any publicly-available written or oral guidance, comment, requirements or requests of the Commission staff and the Securities Act (collectively, the "**SEC Guidance**"), including without limitation, the Manual of Publicly Available Telephone Interpretations D.29. Notwithstanding any other provision of this Agreement, if any SEC Guidance sets forth a limitation of the number of Registrable Securities permitted to be registered on a particular Registration Statement as a secondary offering (and notwithstanding that the Company used diligent efforts to advocate with the Commission for the registration of all or a greater number of Registrable Securities), unless otherwise directed in writing by an Investor as to its Registrable Securities, the number of Registrable Securities to be registered on such Registration Statement will first be reduced by Registrable Securities not acquired pursuant to the Transaction Agreements (whether pursuant to registration rights or otherwise), and second by Registrable Securities represented by Shares (applied, in the case that some Shares may be registered, to the Investors on a pro rata basis based on the total number of unregistered Shares held by such Investors, subject to a determination by the Commission that certain Investors must be reduced first based on the number of Shares held by such Investors). In the event the Company amends the Initial Registration Statement or files a New Registration Statement, as the case may be, under clauses (i) or (ii) above, the Company will use its commercially reasonable efforts to file with the Commission, as promptly as allowed by Commission or SEC Guidance provided to the Company or to registrants of securities in general, one or more Registration Statements on Form S-3 or such other form available to register for resale those Registrable Securities that were not registered for resale on the Initial Registration Statement, both as amended, or the New Registration Statement (the "**Remainder Registration Statements**").

Subject to this Section 2(a), the Company will include in such registration (and any related qualifications including compliance with blue sky laws), and in any underwriting involved therein, all Registrable Securities specified by any Investor in a written request or requests to the Company, made within ten days after the date of written notice of such registration from the Company to the Investors. Each Investor agrees that it shall not be entitled to be named as a selling securityholder in any Registration Statement or use a prospectus for offers and resales of Registrable Securities at any time, unless such Investor has returned to the Company a completed and signed Investor Suitability Questionnaire and a response to any requests for further information by the Company.

**(b) Effectiveness of Registration.** The Company shall use commercially reasonable efforts to cause any Registration Statement to be declared effective by the Commission no later than ninety (90) days after filing or one hundred twenty (120) days in the event of a review by the staff of the Commission, and (iii) use commercially reasonable efforts to keep such Registration Statement continuously effective until the earlier of (A) one (1) year from the date of the closing of the Transaction Agreements and (B) the date on which any Registrable Securities held by the Investors may be sold either pursuant to (x) Rule 144 or (y) in their entirety in a single transaction pursuant to Rule 144.

**(c) Expenses of Registration.** All Registration Expenses incurred in connection with the registration described in Section 2 shall be borne by the Company. All other registration expenses, if any, shall be borne by the Investors pro rata on the basis of the number of shares so registered or proposed to be so registered.

**(d) Registration Procedures.** The Company will keep each Investor advised in writing as to the initiation of the registration described in Section 2(a) and as to the completion thereof. The Company will:

**(i) Registration Statements.** Prepare and file with the Commission the Registration Statements with respect to such Registrable Securities and cause such Registration Statements to become effective and remain effective, in each case in accordance with the timeframes provided in Sections 2(a)-(b).

**(ii) Amendments and Supplements.** Prepare and file with the Commission such amendments and supplements to such Registration Statements and the prospectus used in connection with such Registration Statements as may be necessary to comply with the provisions of the Securities Act with respect to the disposition of all securities covered by such Registration Statements for the period set forth in Section 2(b) above.

**(iii) Prospectus.** Furnish to the Investors such number of copies of the Registration Statements, any amendments thereto, any documents incorporated by reference therein, a prospectus, including a preliminary prospectus, in conformity with the requirements of the Securities Act, and such other documents as they may reasonably request in order to facilitate the disposition of Registrable Securities owned by them, which disposition by the Investors shall be in compliance with the Registration Statement and applicable federal and state securities laws; provided that the Company shall have no obligation to provide any document pursuant to this clause that is available on the Commission's EDGAR system.

**(iv) Qualification.** Use commercially reasonable efforts to register and qualify the securities covered by such Registration Statements under such other securities or blue sky laws of such jurisdictions as shall be reasonably requested by the Investors; provided that the Company shall not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act.

**(v) Underwriting Obligations.** In the event of any underwritten public offering of Registrable Securities, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the managing underwriter(s) of such offering. Each Investor participating in such underwriting shall also enter into and perform its obligations under such an underwriting agreement. The Company shall, if requested by the managing underwriter or underwriters, if any, counsel to Investors, or any holder of Registrable Securities included in such offering, promptly incorporate in a prospectus supplement or post-effective

amendment such information as such managing underwriter or underwriters, counsel to Investors or any holder of Registrable Securities reasonably requests to be included therein, and which is reasonably related to the offering of such Registrable Securities, including, without limitation, with respect to the Registrable Securities being sold by such holder to such underwriter or underwriters, the purchase price being paid therefor by such underwriter or underwriters and any other terms of an underwritten offering of the Registrable Securities to be sold in such offering, and the Company shall promptly make all required filings of such prospectus supplement or post-effective amendment.

(vi) Notice. Immediately notify each Investor holding Registrable Securities covered by a Registration Statement at any time when a prospectus relating thereto is required to be delivered under the Securities Act of the happening of any event as a result of which the prospectus included in such Registration Statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein not misleading in light of the circumstances then existing (a “**Suspension Notice**”); provided, however, that (i) the Company shall not give more than two Suspension Notices during any period of twelve consecutive months, (ii) any such Suspension Notice shall not be given within 120 days of the end of the Suspension Notice period under the prior Suspension Notice and (iii) in no event shall the period from the date on which any holder of Registrable Securities receives a Suspension Notice until the date on which such holder receives copies of the supplemented or amended prospectus or is advised in writing by the Company that the use of the prospectus may be resumed exceed for all Suspension Notices in the aggregate, 60 days in any 365 day period. The Company will use commercially reasonable efforts to promptly amend or supplement such prospectus in order to cause such prospectus not to include any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading in the light of the circumstances then existing.

(vii) Listing. Cause all such Registrable Securities registered pursuant hereto to be listed on each securities exchange or automated quotation system on which similar securities issued by the Company are then listed.

(viii) Stop Orders. Use commercially reasonable efforts to prevent the issuance of any order suspending the effectiveness of a Registration Statement relating to Registrable Securities, and if one is issued, use commercially reasonable efforts to obtain the withdrawal of any order suspending the effectiveness of such Registration Statement at the earliest possible moment.

(ix) Company Records. Upon reasonable notice, make available to each Investor, any underwriter participating in any disposition pursuant to a Registration Statement relating to Registrable Securities, and any attorney, accountant or other agent or representative retained by any such Investor or underwriter (collectively, the “**Inspectors**”), all financial and other records, pertinent corporate documents and properties of the Company (collectively, the “**Records**”) reasonably necessary to enable them to exercise their due diligence responsibility, and cause the Company’s officers, directors and employees to supply all information requested by any such Inspector in connection with such Registration Statement, provided that each such Investor and Inspector has entered into a customary confidentiality agreement with respect to such Records.

(x) NASD Matters. Cooperate with each Investor and each underwriter participating in the disposition of Registrable Securities and their respective counsel in connection with any filings required to be made with the National Association of Securities Dealers, Inc. (“*NASD*”), including, if appropriate, the pre-filing of a prospectus as part of a Registration Statement in advance of an underwritten offering.

**(e) Indemnification**.

(i) Company Indemnification. The Company will indemnify each Investor who holds Registrable Securities (if Registrable Securities held by such Investor are included in the securities as to which such registration is being effected), each of its officers and directors and partners, and each person controlling such Investor within the meaning of Section 15 of the Securities Act, with respect to which registration has been effected pursuant to this Agreement, against all expenses, claims, losses, damages or liabilities (or actions in respect thereof), including any of the foregoing incurred in settlement of any litigation, commenced or threatened, arising out of or based on any untrue statement (or alleged untrue statement) of a material fact contained in any Registration Statement, prospectus, offering circular or other document, or any amendment or supplement thereto, incident to any such registration, or based on any omission (or alleged omission) to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances in which they were made, not misleading, or any violation by the Company of the Securities Act, the Exchange Act, state securities laws or any rule or regulation promulgated under such laws applicable to the Company in connection with any such registration, and the Company will reimburse each such Investor, each of its officers and directors, and each person controlling such Investor, for any legal and any other expenses reasonably incurred, as such expenses are incurred, in connection with investigating, preparing or defending any such claim, loss, damage, liability or action, *provided* that the Company will not be liable in any such case to the extent that any such claim, loss, damage, liability or expense arises out of or is based on (A) any untrue statement or omission or alleged untrue statement or omission made in reliance upon and in conformity with written information furnished to the Company by an instrument duly executed by such Investor or controlling person, and stated to be specifically for use therein, (B) the use by Investor of an outdated or defective prospectus after the Company has notified such Investor in writing that the prospectus is outdated or defective or (C) Investor’s (or any other indemnified person’s) failure to send or give a copy of the prospectus or supplement (as then amended or supplemented), if required, pursuant to Rule 172 under the Securities Act (or any successor rule) to the Persons asserting an untrue statement or alleged untrue statement or alleged untrue statement or omission or alleged omission at or prior to the written confirmation of the sale of Registrable Securities to such person if such statement or omission was corrected in such prospectus or supplement; *provided, further*, that the indemnity agreement contained in this subsection 2(e)(i) shall not apply to amounts paid in settlement of any such loss, claim, damage, liability or action if such settlement is effected without the consent of the Company (which consent shall not be unreasonably withheld).

**(ii) Investor Indemnification.** Each Investor holding Registrable Securities will, if Registrable Securities held by such Investor are included in the securities as to which such registration is being effected, severally and not jointly, indemnify the Company, each of its directors and officers, other holders of the Company's securities covered by such Registration Statement, each person who controls the Company within the meaning of Section 15 of the Securities Act, and each such holder, each of its officers and directors and each person controlling such holder within the meaning of Section 15 of the Securities Act, against all claims, losses, damages and liabilities (or actions in respect thereof) arising out of or based on any untrue statement (or alleged untrue statement) of a material fact contained in any such Registration Statement, prospectus, offering circular or other document, or any omission (or alleged omission) to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, or any violation by such holder of the Securities Act, the Exchange Act, state securities laws or any rule or regulation promulgated under such laws applicable to such Investor, and will reimburse the Company, each other holder, and directors, officers, persons, underwriters or control persons of the Company and the other holders for any legal or any other expenses reasonably incurred, as such expenses are incurred, in connection with investigating or defending any such claim, loss, damage, liability or action, but in the case of the Company or such other holders or their officers, directors or controlling persons, only to the extent that such untrue statement (or alleged untrue statement) or omission (or alleged omission) is made in such Registration Statement, prospectus, offering circular or other document in reliance upon and in conformity with written information furnished to the Company by an instrument duly executed by such Investor and stated to be specifically for use therein; provided, further, that the indemnity agreement contained in this Subsection 2(e)(ii) shall not apply to amounts paid in settlement of any such loss, claim, damage, liability or action if such settlement is effected without the consent of such indemnifying Investor (which consent shall not be unreasonably withheld or delayed). The liability of any Investor for indemnification under this Section 2(e) in its capacity as a seller of Registrable Securities shall not exceed the amount of net proceeds to such Investor of the securities sold in any such registration.

**(iii) Notice and Procedure.** Each party entitled to indemnification under this Section 2(e) (the "**Indemnified Party**") shall give written notice to the party required to provide indemnification (the "**Indemnifying Party**") promptly after such Indemnified Party has actual knowledge of any claim as to which indemnity may be sought, and shall permit the Indemnifying Party to assume the defense of any such claim or any litigation resulting therefrom, provided that counsel for the Indemnifying Party, who shall conduct the defense of such claim or litigation, shall be approved by the Indemnified Party (whose approval shall not unreasonably be withheld), and the Indemnified Party may participate in such defense at such party's expense, and provided further that the failure of any Indemnified Party to give notice as provided herein shall not relieve the Indemnifying Party of its obligations under this Agreement unless the failure to give such notice is materially prejudicial to an Indemnifying Party's ability to defend such action and provided further, that the Indemnifying Party shall not assume the defense for matters as to which there is a conflict of interest or there are separate and different defenses. No Indemnifying Party, in the defense of any such claim or litigation, shall, except with the consent of each Indemnified Party (whose consent shall not be unreasonably withheld), consent to entry of any judgment or enter into any settlement which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party of a release from all liability in respect to such claim or litigation.

**(iv) Contribution.** If the indemnification provided for in this Section 2(e) is held by a court of competent jurisdiction to be unavailable to an Indemnified Party with respect to any losses, claims, damages or liabilities referred to herein, the Indemnifying Party, in lieu of indemnifying such Indemnified Party thereunder, shall to the extent permitted by applicable law contribute to the amount paid or payable by such Indemnified Party as a result of such loss, claim, damage or liability in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party on the one hand and of the Indemnified Party on the other in connection with the untrue statement or omission that resulted in such loss, claim, damage or liability, as well as any other relevant equitable considerations. The relative fault of the Indemnifying Party and of the Indemnified Party shall be determined by a court of law by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission to state a material fact relates to information supplied by the Indemnifying Party or by the Indemnified Party and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission; *provided*, that in no event shall any contribution by an Investor hereunder exceed the proceeds from the offering received by such Investor. The amount paid or payable by a party as a result of any loss, claim, damage or liability shall be deemed to include, subject to the limitations set forth in this Agreement, any reasonable attorneys' or other reasonable fees or expenses incurred by such party in connection with any proceeding to the extent such party would have been indemnified for such fees or expenses if the indemnification provided for in this Section 2(e) was available to such party in accordance with its terms.

**(v) Survival.** The obligations of the Company and the Investors under this Section 2(e) shall survive completion of any offering of Registrable Securities in a Registration Statement and the termination of this Agreement. The indemnity and contribution agreements contained in this Section 2(e) are in addition to any liability that the Indemnifying Parties may have to the Indemnified Parties and are not in diminution or limitation of the indemnification provisions under the Purchase Agreements.

**(f) Information by Investor.** Any Investor holding Registrable Securities included in any Registration Statement shall furnish to the Company such information regarding such Investor, the Registrable Securities held by such Investor and the distribution proposed by such Investor as the Company may request in writing and as shall be required in connection with any registration referred to in this Agreement.

**(g) Confidentiality.** Each Investor agrees that any and all material, non-public information received in connection with this Agreement shall remain confidential to each Investor until such information otherwise becomes public, unless disclosure by an Investor is required by law; and provided, further, that notwithstanding each Investor's agreement to keep such information confidential, each such Investor makes no acknowledgement that any such information is material, non-public information.

**(h) Compliance.** Each Investor covenants and agrees that it will (i) comply with the prospectus delivery requirements of the Securities Act as applicable to it (unless an exemption therefrom is available) in connection with sales of Registrable Securities pursuant to the Registration Statement and shall sell the Registrable Securities only in accordance with a method of distribution described in the Registration Statement and will not transfer the

Registrable Securities without registration under the Securities Act or applicable state securities laws or an exemption therefrom and (ii) shall not use an outdated or defective prospectus after the Company has notified such Investor in writing that the prospectus is outdated or defective.

**3. Amendment.** Except as otherwise provided herein, any provision of this Agreement may be amended or the observance thereof may be waived (either generally or in a particular instance and either retroactively or prospectively), only with the written consent of the Company and Investors holding a majority of the then-outstanding Registrable Securities. Any amendment or waiver effected in accordance with this Section 3 shall be binding upon each Investor, any transferee thereof and the Company.

**4. Governing Law.** This Agreement shall be governed in all respects by the internal laws of the State of Delaware without regard to conflict of laws provisions.

**5. Entire Agreement.** This Agreement constitutes the full and entire understanding and Agreement among the parties regarding the matters set forth herein. Except as otherwise expressly provided herein, the provisions hereof shall inure to the benefit of, and be binding upon the successors, assigns, heirs, executors and administrators of the parties hereto.

**6. Severability.** If any provision of this Agreement is held to be invalid or unenforceable in any respect, the validity and enforceability of the remaining terms and provisions of this Agreement shall not in any way be affected or impaired thereby and the parties will attempt to agree upon a valid and enforceable provision that is a reasonable substitute therefor, and upon so agreeing, shall incorporate such substitute provision in this Agreement.

**7. Successors and Assigns.** Except as otherwise expressly provided herein, the provisions hereof shall inure to the benefit of, and be binding upon, the Company's and each Investor's successors, assigns and transferees, including, without limitation and without the need for an express assignment, subsequent holders of Registrable Securities. If any assignee or transferee of any Investor shall acquire Registrable Securities in any manner, whether by operation of law or otherwise, such Registrable Securities shall be held subject to all of the terms of this Agreement, and by taking and holding such Registrable Securities such person shall be deemed to have agreed to be bound by and to perform all of the terms and provisions of this Agreement and such person shall be entitled to receive the benefits hereof.

**8. Notices.** All notices and other communications required or permitted hereunder shall be in writing and shall be mailed by registered or certified mail, postage prepaid, or otherwise delivered by facsimile transmission, by hand or by messenger, addressed:

**(a) Investor.** If to an Investor, at such Investor's address as set forth in the Purchase Agreement, or at such other address as such Investor shall have furnished to the Company.

**(b) Company.** If to the Company, to:

Arrowhead Research Corporation  
201 South Lake Avenue, Suite 703  
Pasadena, California 91101  
Attention: President;  
Facsimile number 626-792-5554

or at such other address as the Company shall have furnished to the Investors, with a copy (which shall not constitute notice) to Goodwin Procter LLP, Three Embarcadero Center, 24<sup>th</sup> Floor, Attn.: Ryan Murr.

Each such notice or other communication shall for all purposes of this Agreement be treated as effective or having been given when delivered if delivered personally, if sent by facsimile, the first business day after the date of confirmation that the facsimile has been successfully transmitted to the facsimile number for the party notified, or, if sent by mail, at the earlier of its receipt or 72 hours after the same has been deposited in a regularly maintained receptacle for the deposit of the United States mail, addressed and mailed as aforesaid.

**9. Counterparts.** This Agreement may be executed by facsimile, in any number of counterparts, each of which shall be an original and all of which together shall constitute one instrument.

**10. Specific Performance.** The parties hereto specifically acknowledge that monetary damages are not an adequate remedy for violations of this Agreement, and that any party hereto may, in its sole discretion, apply to a court of competent jurisdiction for specific performance or injunctive or such other relief as such court may deem just and proper in order to enforce this Agreement or prevent any violation hereof and, to the extent permitted by applicable law and to the extent the party seeking such relief would be entitled to the merits to obtain such relief, each party waives any objection to the imposition of such relief.

**11. Designation of Forum and Consent to Jurisdiction.** The parties hereto (i) designate the courts of the State of Delaware as the forum where all matters pertaining to this Agreement may be adjudicated, and (ii) by the foregoing designation, consent to the exclusive jurisdiction and venue of such courts for the purpose of adjudicating all matters pertaining to this Agreement.

**12. Stock Split.** All references to numbers of shares in this Agreement shall be appropriately adjusted to reflect any stock dividend, split, combination or other recapitalization of shares by the Company occurring after the date of this Agreement.

**13. Independent Nature of Investors' Obligations and Rights.** The obligations of each Investor hereunder are several and not joint with the obligations of any other Investor hereunder, and no Investor shall be responsible in any way for the performance of the obligations of any other Investor hereunder. The decision of each Investor to purchase Units pursuant to the Purchase Agreements has been made independently of any other Investor. Nothing contained

herein or in any other agreement or document delivered at any closing, and no action taken by any Investor pursuant hereto or thereto, shall be deemed to constitute the Investors as a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Investors are in any way acting in concert with respect to such obligations or the transactions contemplated by this Agreement. Each Investor shall be entitled to protect and enforce its rights, including without limitation the rights arising out of this Agreement, and it shall not be necessary for any other Investor to be joined as an additional party in any proceeding for such purpose. The Company acknowledges that each of the Investors has been provided with the same Registration Rights Agreement for the purpose of closing a transaction with multiple Investors and not because it was required to do so by any Investor.

*[Signature Page to follow]*

IN WITNESS WHEREOF, the parties hereto have executed this Registration Rights Agreement as of the date first set forth above.

**ARROWHEAD RESEARCH CORPORATION**

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

IN WITNESS WHEREOF, the parties hereto have executed this Registration Rights Agreement as of the date first set forth above.

**INVESTOR**

\_\_\_\_\_  
Name of Investor:

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

No. \_\_\_\_\_

\_\_\_\_\_ Shares

THE SECURITIES PRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED. NO SALE, GIFT, TRANSFER OR OTHER DISPOSITION THEREOF OR OF ANY INTEREST THEREIN SHALL BE VALID OR EFFECTIVE UNLESS AND UNTIL SUCH SECURITIES ARE (I) REGISTERED PURSUANT TO THE PROVISIONS OF SUCH ACT AND REGISTERED OR QUALIFIED UNDER APPLICABLE STATE SECURITIES OR 'BLUE SKY' LAWS OR (II) EXEMPT FROM SUCH REGISTRATION.

Void after December 11, 2014

WARRANT TO PURCHASE SHARES  
OF  
CAPITAL STOCK  
OF  
ARROWHEAD RESEARCH CORPORATION,  
A Delaware corporation

This certifies that \_\_\_\_\_ (the "**Holder**"), or assigns, for value received, is entitled to purchase from Arrowhead Research Corporation (the "**Company**"), subject to the terms set forth below, including the terms and conditions set forth in Section \_\_, a maximum of \_\_\_\_\_ fully-paid and non-assessable shares (subject to adjustment as provided herein) of the Company's Common Stock, \$0.001 par value ("**Common Stock**"), for cash at a price of \$0.509 per share (the "**Exercise Price**") (subject to adjustment as provided herein) at any time or from time to time on or after December 12, 2010, (the "**Initial Exercise Date**"), and up to and including 5:00 p.m. (New York City Time) on December 11, 2014] (the "**Expiration Date**") upon surrender to the Company at its principal office (or at such other location as the Company may advise the Holder in writing) of this Warrant properly endorsed with the Notice of Subscription attached hereto duly completed and signed and upon payment in cash or by check of the aggregate Exercise Price for the number of shares for which this Warrant is being exercised determined in accordance with the provisions hereof. The Exercise Price is subject to adjustment as provided in Section 4 of this Warrant. This Warrant is issued subject to the following terms and conditions:

1. Exercise, Limitations on Exercise.

1.1 Exercise. The Holder may exercise this Warrant at any time or from time to time on or after the Initial Exercise Date and on or prior to the Expiration Date, for all or any part of the Warrant Shares (but not for a fraction of a share of Common Stock) which may be purchased hereunder, as that number may be adjusted pursuant to Section 4 of this Warrant. Except as set forth below, the Company agrees that the Warrant Shares purchased under this Warrant shall be and are deemed to be issued to the Holder hereof as the record owner of such Warrant Shares as of the close of business on the date on which this Warrant shall have been surrendered, properly endorsed, the completed and executed Notice of Subscription delivered, and payment in cash made for such Warrant Shares (such date, a "**Date of Exercise**"). Certificates for the Warrant Shares so purchased, together with any other securities or property to which the Holder hereof is entitled upon such exercise, shall be delivered to the Holder hereof by the Company at the Company's expense as soon as practicable after the rights represented by this Warrant have been so exercised, but in any event not later than the third trading day following the Date of

Exercise. In case of a purchase of less than all the Warrant Shares which may be purchased under this Warrant, the Company shall cancel this Warrant and execute and deliver to the Holder hereof within a reasonable time a new Warrant or Warrants of like tenor for the balance of the Warrant Shares purchasable under the Warrant surrendered upon such purchase. Each stock certificate so delivered shall be registered in the name of such Holder and issued with legends in accordance with the Subscription Agreement pursuant to which this Warrant was originally issued (the "**Subscription Agreement**").

1.2 Limitations on Exercise. If, at the Date of Exercise, the Company has an insufficient number of shares of Common Stock authorized and available for issuance under its Certificate of Incorporation to permit the issuance of the underlying shares, then the Warrant shall be exercised for Common Stock only to the extent that shares are available and, with respect to the remaining shares of Common Stock that cannot be issued, the attempted exercise shall be deemed not made and the Company shall promptly provide written notice of the limitation to the Holder, informing the Holder of the portion of the Warrant that cannot then be exercised and returning the unused portion of the exercise price. The shares of Common Stock that may be issued under this Warrant are hereinafter referred to as the "**Warrant Shares**."

## 2. Cashless Exercise during Restrictive Event.

2.1 Cashless Exercise. If a "Restrictive Event" (as defined below) exists at a time when this Warrant is exercised, then the Warrant shall be exercised at such time only by means of a "cashless exercise" in which the Holder shall be entitled to receive a certificate for the number of Warrant Shares equal to the quotient obtained by dividing [(A-B) (X)] by (A), where:

(A) = the closing price of the Company's Common Stock on the business day immediately prior to the Exercise Date (the "**Fair Market Value**");

(B) = the Exercise Price of the Warrants, as adjusted; and

(X) = the number of Warrant Shares issuable upon exercise of the Warrants in accordance with the terms of this Warrant.

2.2 Company-Elected Conversion. The Company shall provide to the Holder prompt written notice of any time that the Company is unable to issue Warrant Shares because (a) the Securities and Exchange Commission (the "**Commission**") has either not declared effective the Registration Statement (as defined in the Subscription Agreement) or has issued a stop order with respect to the Registration Statement, (b) the Commission otherwise has suspended or withdrawn the effectiveness of the Registration Statement, either temporarily or permanently, (c) the Company has suspended or withdrawn the effectiveness of the Registration Statement, either temporarily or permanently or (d) for any other reason (each, a "**Restrictive Event**"). To the extent that a Restrictive Event occurs after the Holder has exercised this Warrant in accordance with Section 1 but prior to the delivery of the Warrant Shares, the Company shall (i) if the Fair Market Value of the Warrant Shares is greater than the Exercise Price, provide written notice to the Holder that the Company will deliver that number of Warrant Shares to the Holder as should be delivered in a "cashless exercise" in accordance with Section 2.1, and return to the Holder all consideration paid to the Company in connection with the Holder's attempted exercise of this Warrant pursuant to Section 1 (a "**Company-Elected Conversion**"), or (ii) at the election of the Holder to be given within five (5) days of receipt of notice of a Company-Elected Conversion, the Holder shall be entitled to rescind the previously submitted Notice of Exercise and the Company shall return all consideration paid by Holder for such shares upon such rescission.

3. **Shares to be Fully Paid.** The Company covenants and agrees that all Warrant Shares, will, upon issuance and, if applicable, payment of the applicable Exercise Price, be duly authorized, validly issued, fully paid and non-assessable, and free of all preemptive rights, liens and encumbrances, except for restrictions on transfer provided for herein.

4. **Adjustment of Exercise Price and Number of Shares.** The Exercise Price and the total number of Warrant Shares shall be subject to adjustment from time to time upon the occurrence of certain events described in this Section 4. Upon each adjustment of the Exercise Price, the Holder of this Warrant shall thereafter be entitled to purchase, at the Exercise Price resulting from such adjustment, the number of shares obtained by multiplying the Exercise Price in effect immediately prior to such adjustment by the number of shares purchasable pursuant hereto immediately prior to such adjustment, and dividing the product thereof by the Exercise Price resulting from such adjustment.

a. **Subdivision or Combination of Stock.** In the event the outstanding shares of the Company's Common Stock shall be increased by a stock dividend payable in Common Stock, stock split, subdivision, or other similar transaction occurring after the date hereof (an "**Upward Adjustment Event**") into a greater number of shares of Common Stock, the Exercise Price in effect immediately prior to such subdivision shall be proportionately reduced and the number of Common Stock issuable hereunder proportionately increased. Conversely, in the event the outstanding shares of the Company's Common Stock shall be decreased by reverse stock split, combination, consolidation, or other similar transaction occurring after the date hereof into a lesser number of shares of Common Stock, the Exercise Price in effect immediately prior to such combination shall be proportionately increased and the number of Common Stock issuable hereunder proportionately decreased.

b. **Reclassification.** If any reclassification of the capital stock of the Company or any reorganization, consolidation, merger, or any sale, lease, license, exchange or other transfer (in one transaction or a series of related transactions) of all or substantially all, of the business and/or assets of the Company (each, a "**Reclassification Event**") shall be effected in such a way that holders of Common Stock shall be entitled to receive stock, securities, or other assets or property, then, as a condition of such Reclassification Event lawful and adequate provisions shall be made whereby the Holder hereof shall thereafter have the right to purchase and receive (in lieu of the shares of Common Stock of the Company immediately theretofore purchasable and receivable upon the exercise of the rights represented hereby) such shares of stock, securities, or other assets or property as may be issued or payable with respect to or in exchange for a number of outstanding shares of such Common Stock equal to the number of shares of such stock immediately theretofore purchasable and receivable upon the exercise of the rights represented hereby. In any Reclassification Event, appropriate provision shall be made with respect to the rights and interests of the Holder of this Warrant to the end that the provisions hereof (including, without limitation, provisions for adjustments of the Exercise Price and of the number of Warrant Shares), shall thereafter be applicable, as nearly as may be, in relation to any shares of stock, securities, or assets thereafter deliverable upon the exercise hereof.

c. **Notice of Adjustment.** Upon any adjustment of the Exercise Price or any increase or decrease in the number of Warrant Shares, the Company shall give written notice thereof at the address of such Holder as shown on the books of the Company. The notice shall be prepared and signed by the Company's Chief Executive Officer or Chief Financial Officer and shall state the Exercise Price resulting from such adjustment and the increase or decrease, if any, in the number of shares purchasable at such price upon the exercise of this Warrant, setting forth in reasonable detail the method of calculation and the facts upon which such calculation is based.

#### 5. Redemption.

a. Subject to the provisions of this Section 5, at any time after the Initial Exercise Date, if (i) a period of at least twelve (12) months and one day has elapsed since the Closing Date; (ii) the last reported sale price of the Common Stock on the principal stock exchange or quotation service on which the Common Stock trades is greater than \$1.20 (subject to adjustment pursuant to Section 4 hereof) for at least thirty (30) trading days during any consecutive sixty (60)-day period and (iii) the Company has fully honored, in accordance with the terms of this Warrant, all Notices of Subscription delivered prior to 5:00 p.m. (New York City time) on the Call Date (as defined below), then the Company may redeem this Warrant at a price of \$1.00 (the "**Redemption Price**"). To exercise this right, the Company shall, not less than thirty (30) days prior to the Call Date, deliver to the Holder an irrevocable written notice (the "**Call Notice**") informing the Holder that the Common Stock has traded at the required levels for the specified time periods and specifying the date on which the Company shall redeem this Warrant in accordance with this Section 5 (the "**Call Date**"). If the Warrant is not exercised on or before the Call Date, then this Warrant shall be cancelled at 5:00 p.m. (New York City time) on the Call Date, and the Company shall thereafter deliver the Redemption Price to such Holder at its address of record. The Company covenants and agrees that it will honor all Notices of Subscription with respect to Warrant Shares that are tendered from the time of delivery of the Call Notice through 5:00 p.m. (New York City time) on the Call Date. For the avoidance of doubt, the Company's delivery to Holder of the Redemption Price of \$1.00 shall be effective to redeem this Warrant in its entirety pursuant to this Section 5, without regard to the number of Warrant Shares then potentially issuable upon exercise of the Warrant.

b. If (A) the Holder timely delivers to the Company a notice of exercise and tenders the applicable purchase price on or before the Call Date, and (B) the Company is unable to issue the full number of Warrant Shares potentially issuable as of the Call Date solely due to the limitations in Section 6.1 regarding the Holder's acquisition of more than the Maximum Percentage (as may have been adjusted prior to the Call Date pursuant to Section 6(c), but in any event not to be lower than 4.999%), then in such instance and subject to the foregoing limitation, the Company shall honor the exercise only to the extent allowed under Section 6.1 based on the total shares outstanding at the close of business on the Call Date and shall promptly return that portion of the exercise price not applied to the purchase of Warrant Shares. The Warrant Shares that cannot be acquired as of the Call Date shall remain issuable hereunder and the Warrant shall not be redeemed with respect to those Warrant Shares.

#### 6. Limitation on Exercise.

a. Holder's 20% Restrictions. The Company shall not effect any exercise of this Warrant, and the Holder shall not have the right to exercise any portion of this Warrant, to the extent that as a result of giving effect to such exercise, such Holder (together with such Holder's affiliates, and any other person or entity acting as a group together with such Holder or any of such Holder's affiliates) would beneficially own in excess of 19.99% (the "**Maximum Percentage**") of the shares of Common Stock outstanding immediately after giving effect to such exercise. For purposes of the foregoing sentence, the aggregate number of shares of Common Stock beneficially owned (directly or indirectly through Warrant Shares or otherwise) by such Holder and its affiliates shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which the determination of such sentence is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (A) exercise of the remaining, unexercised portion of this Warrant beneficially owned by such Holder or any of its affiliates and (B) exercise or conversion of the unexercised or unconverted portion of any other securities of the Company (including, without limitation, any other preferred stock or warrants) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by such Holder or any of its affiliates. The limitations contained in this Section shall apply only to the extent required under NASDAQ Marketplace Rule 5635(b). The provisions of this paragraph shall be implemented in a manner otherwise than in strict conformity with the terms of this

Section a to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Maximum Percentage herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this Section shall apply to a successor Holder of this Warrant.

b. Calculation of Ownership. Except as set forth in the preceding Section, for purposes of this Section 6, beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to such Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and such Holder is solely responsible for any schedules required to be filed in accordance therewith. To the extent that the limitation contained in this Section 6 applies, the determination of whether this Warrant is exercisable (in relation to other securities owned by such Holder) and of which a portion of this Warrant is exercisable shall be in the sole discretion of the Holder, and the submission of a Notice of Subscription shall be deemed to be such Holder's determination of whether this Warrant is exercisable (in relation to other securities owned by such Holder) and of which portion of this Warrant is exercisable, in each case subject to such aggregate percentage limitation, and the Company shall have no obligation to verify or confirm the accuracy of such determination. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 6, in determining the number of outstanding shares of Common Stock, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (x) the Company's most recent Form 10-Q or Form 10-K, as the case may be, (y) a more recent public announcement by the Company or (z) any other notice by the Company or the Company's transfer agent setting forth the number of shares of Common Stock outstanding. Upon the written or oral request of the Holder, the Company shall within two trading days confirm orally and in writing to such Holder the number of shares of Common Stock then outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by such Holder or its affiliates since the date as of which such number of outstanding shares of Common Stock was reported.

c. Reductions to Maximum Percentage. The Holder may, at any time and upon providing the Company with written notice, lower the Maximum Percentage to any percentage below 19.99% (such amount being the "**Adjusted Maximum Percentage**"). Upon providing the Company with at least 61 days prior written notice, the Holder may increase the Adjusted Maximum Percentage, up to 19.99% of the shares of Common Stock outstanding immediately after giving effect to such exercise.

d. Liquidation Event. Notwithstanding the limitations set forth in this Section 6, but subject to NASDAQ Marketplace Rule 5635(b), this Warrant shall be fully exercisable upon a Liquidation Event (defined below). For purposes of this Section 6.4, "**Liquidation Event**" shall mean the consummation of any of the following transactions: (a) a merger or consolidation in which the Company is not the surviving corporation (other than a merger or consolidation with a wholly-owned subsidiary, a reincorporation of the Company in a different jurisdiction, or other transaction in which there is no substantial change in the shareholders of the Company), (b) the sale of all or substantially all of the assets of the Company, or (c) the acquisition, sale, or transfer of more than 50% of the outstanding shares of the Company by tender offer or similar transaction.

7. No Voting or Dividend Rights. Nothing contained in this Warrant shall be construed as conferring upon the holder hereof the right to vote or to consent to receive notice as a shareholder of the Company on any other matters or any rights whatsoever as a shareholder of the Company. No dividends or interest shall be payable or accrued in respect of this Warrant or the interest represented hereby or the shares purchasable hereunder until, and only to the extent that, this Warrant shall have been exercised.

8. Compliance with Securities Act. The Holder of this Warrant, by acceptance hereof, agrees that this Warrant is being acquired for Holder's own account and not for any other person or persons, for investment purposes and that it will not offer, sell, or otherwise dispose of this Warrant except under circumstances which will not result in a violation of the Securities Act of 1933 or any applicable state securities laws.

9. Modification and Waiver. This Warrant and any provision hereof may be changed, waived, discharged, or terminated only by an instrument in writing signed by the party against whom enforcement of the same is sought.

10. Notices. Any notice, request, or other document required or permitted to be given or delivered to the Holder hereof or the Company shall be delivered by hand or messenger or shall be sent by certified mail, postage prepaid, or by overnight courier to each such Holder at its address as shown on the books of the Company or to the Company at its principal place of business or such other address as either may from time to time provide to the other. Each such notice or other communication shall be treated as effective or having been given: (i) when delivered if delivered personally, (ii) if sent by registered or certified mail, at the earlier of its receipt or three business days after the same has been registered or certified as aforesaid, (iii) if sent by overnight courier, on the next business day after the same has been deposited with a nationally recognized courier service, or (iv) the date of transmission, if such notice or communication is delivered via facsimile prior to 5:00 p.m. (New York City time) on a trading day at a facsimile number as either may from time to time provide to the other and a confirming copy of such notice is sent the same day by first class mail.

11. Governing Law. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be governed by and construed and enforced in accordance with the internal laws of the State of New York, without regard to the principles of conflicts of law thereof. Each party agrees that all legal proceedings concerning the interpretations, enforcement and defense of this Warrant and the transactions herein contemplated ("**Proceedings**") (whether brought against a party hereto or its respective Affiliates, employees or agents) shall be commenced exclusively in the state and federal courts sitting in the City of New York (the "**Courts**"). Each party hereto hereby irrevocably submits to the exclusive jurisdiction of the Courts for the adjudication of any dispute hereunder or in connection herewith or with any transaction contemplated hereby or discussed herein, and hereby irrevocably waives, and agrees not to assert in any Proceeding, any claim that it is not personally subject to the jurisdiction of any Court, or that such Proceeding has been commenced in an improper or inconvenient forum. Each party hereto hereby irrevocably waives personal service of process and consents to process being served in any such Proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Warrant and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law. Each party hereto hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Warrant or the transactions contemplated hereby. If either party shall commence a Proceeding to enforce any provisions of this Warrant, then the prevailing party in such Proceeding shall be reimbursed by the other party for its reasonable attorney's fees and other costs and expenses incurred with the investigation, preparation and prosecution of such Proceeding.

12. Lost or Stolen Warrant. Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction, or mutilation of this Warrant and, in the case of any such loss, theft or destruction, upon receipt of an indemnity reasonably satisfactory to the Company, or in the case of any such mutilation, upon surrender and cancellation of such Warrant, the Company, at its expense, will make and deliver a new Warrant, of like tenor, in lieu of the lost, stolen, destroyed or mutilated Warrant.

13. Fractional Shares. No fractional shares of Common Stock shall be issued upon exercise of this Warrant. The Company shall, in lieu of issuing any fractional share of Common Stock, pay the Holder entitled to such fraction a sum in cash equal to such fraction (calculated to the nearest 1/100th of a share) multiplied by the then effective Exercise Price on the date the Notice of Subscription is received by the Company.

14. Acknowledgement. Upon the request of the Holder, the Company will at any time during the period this Warrant is outstanding acknowledge in writing, in form satisfactory to Holder, the continued validity of this Warrant and the Company's obligations hereunder.

15. Successors and Assigns. This Warrant and the rights evidenced hereby shall inure to the benefit of and be binding upon the successors of the Company and the successors and assigns of the Holder. The provisions of this Warrant are intended to be for the benefit of all Holders from time to time of this Warrant, and shall be enforceable by any such Holder.

16. Severability of Provisions. In case any one or more of the provisions of this Warrant shall be invalid or unenforceable in any respect, the validity and enforceability of the remaining terms and provisions of this Warrant shall not in any way be affected or impaired thereby and the parties will attempt in good faith to agree upon a valid and enforceable provision which shall be a commercially reasonable substitute therefor, and upon so agreeing, shall incorporate such substitute provision in this Warrant.

No. \_\_\_\_\_

\_\_\_\_\_ Shares

IN WITNESS WHEREOF, the Company has caused this Warrant to be duly executed by its officer, thereunto duly authorized on this \_\_ day of November 2009.

**“Company”**

**ARROWHEAD RESEARCH CORPORATION,**  
a Delaware corporation

By: \_\_\_\_\_

**“Holder”**

Name  
Address

No. \_\_\_\_

\_\_\_\_ Shares

**NOTICE OF SUBSCRIPTION**

(To be signed only upon exercise of Warrant)

To: Arrowhead Research Corporation

The undersigned, the holder of the attached Common Stock Warrant, hereby elects to exercise the purchase right represented by such Warrant for, and to purchase thereunder, \_\_\_\_\_<sup>1</sup> shares of Common Stock of Arrowhead Research Corporation and makes payment of \$\_\_\_\_\_ therefore.

By its delivery of this Notice of Subscription, the undersigned represents and warrants to the Company that in giving effect to the exercise evidenced hereby the Holder will not beneficially own in excess of the number of shares of Common Stock (determined in accordance with Section 13(d) of the Securities Exchange Act of 1934) permitted to be owned under Warrant to which this notice relates.

The undersigned requests that certificates for such shares be issued in the name of, and delivered to: \_\_\_\_\_  
whose address is: \_\_\_\_\_

DATED: \_\_\_\_\_

\_\_\_\_\_  
(Signature must conform in all respects to name of Holder as specified on the face of the Warrant)

Name: \_\_\_\_\_  
Title: \_\_\_\_\_

<sup>1</sup> Insert here the number of shares called for on the face of the Warrant (or, in the case of a partial exercise, the portion thereof as to which the Warrant is being exercised), in either case without making any adjustment for any stock or other securities or property or cash which, pursuant to the adjustment provisions of the Warrant, may be deliverable upon exercise.

**AMENDMENT TO SEVERANCE AGREEMENT**

This Amendment (“Amendment”) to the Severance Agreement dated May 24, 2007 (“Agreement”) between R. Bruce Stewart (“Executive”) and Arrowhead Research Corporation (“Company”), a Delaware corporation located at 201 S. Lake Avenue, Suite 703, Pasadena, CA 91101, is made and entered into as May 12, 2009 (“Effective Date”).

WHEREAS, the Company and the Executive seek to amend the Agreement;

NOW THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto, such parties intending to be legally bound, agree as follows:

Section 3 of the Agreement shall be discharged and rendered moot in its entirety; and shall be replaced with the following Section 3:

**3. Retirement or Termination of Employment**

The following shall govern Executive’s retirement or termination (except in the case of Section 5 below): Should Executive voluntarily retire or voluntarily terminate from Arrowhead Research Corporation or its successor for any reason or should Executive be terminated from Arrowhead Research Corporation or its successor for any reason, Executive will be paid a single lump sum amount equivalent to one (1) month of his highest monthly salary while at Arrowhead Research Corporation.

IN WITNESSETH WHEREOF, each of the parties has duly executed the Amendment effective as of the Effective Date.

Dated: May 12, 2009

**ARROWHEAD RESEARCH CORPORATION**

/s/ Paul C. McDonnel

Paul C. McDonnel  
Chief Financial Officer

Dated: May 12, 2009

**EXECUTIVE**

/s/ R. Bruce Stewart

R. Bruce Stewart  
Executive Chairman

**AMENDMENT TO EMPLOYMENT AGREEMENT**

This Amendment ("Amendment") to the Employment Agreement dated June 11, 2008 ("Agreement") between Dr. Christopher Anzalone ("Executive") and Arrowhead Research Corporation ("Company"), a Delaware corporation located at 201 S. Lake Avenue, Suite 703, Pasadena, CA 91101, is made and entered into as May 12, 2009 ("Effective Date").

WHEREAS, the Company and the Executive seek to amend the Agreement;

NOW THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto, such parties intending to be legally bound, agree as follows:

Section 5(b) of the Agreement shall be discharged and rendered moot in its entirety; and replaced with the following replacement Section 5(b):

(b) **Termination of Employment.** If the Employment Period is terminated by the Company without Cause or by Executive with Good Reason, Executive shall be entitled to receive (i) a one-time lump sum payment of an amount equal to one month's Base Salary payable as a special severance payment on the date of termination; and (ii) a one time lump sum payment of an amount equal to the premiums for thirty (30) days' of medical and dental benefits on the date of termination. Notwithstanding anything herein to the contrary, no amounts shall be payable pursuant to this Section 5(b) unless and until Executive has executed and delivered to the Company a general release in favor of the Company in form and substance reasonably satisfactory to the Board and only so long as Executive has not breached the provisions of Sections 7, 8 and 9 hereof. Except as provided in this Section 5(b), Executive shall not be entitled to any other salary, compensation or benefits after termination of the Employment Period.

IN WITNESSETH WHEREOF, each of the parties has duly executed the Amendment effective as of the Effective Date.

Dated: May 12, 2009

**ARROWHEAD RESEARCH CORPORATION**

/s/ Paul C. McDonnel

Paul C. McDonnel  
Chief Financial Officer

Dated: May 12, 2009

**EXECUTIVE**

/s/ Christopher Anzalone

Dr. Christopher Anzalone  
Chief Executive Officer

**SUBSCRIPTION AGREEMENT**

THIS SUBSCRIPTION AGREEMENT (this "**Agreement**") is made as of the last date indicated on the signature pages hereto between Unidym, Inc., a Delaware corporation (the "**Company**"), and the undersigned investors parties hereto (each an "**Investor**" and collectively, the "**Investors**").

**RECITALS**

WHEREAS, the Company wishes to sell up to an aggregate of \_\_\_\_\_ shares of the Company's Series D Preferred Stock ("**Shares**") to the Investors, at a purchase price of \$0.30 per Share, and the Investors wish to purchase Shares from the Company.

NOW, THEREFORE, in consideration of the mutual covenants, agreements and conditions, and upon acknowledgement of each of the parties of the receipt of valuable consideration, the parties herein agree as follows:

1. **Purchase and Sale of Shares and Warrants.** At the Closing (as defined below), the Company shall issue and sell to each Investor (i) such number of Shares as is set forth immediately below such Investor's name on the signature pages hereto, and (ii) a warrant, in the form attached hereto as Exhibit E (the "**Warrant**"), to purchase such number of shares of Common Stock of the Company as is set forth immediately below such Investor's name on the signature pages hereto, against delivery to the Company by such Investor of an amount equal to \$0.30 times the number of Shares to be purchased by such Investor (the "**Purchase Price**"), paid by (a) cash (by check or wire transfer) in United States Dollars to the Company or (b) cancellation of indebtedness of the Company to such Investor. Promptly after the Closing, the Company shall deliver to each Investor a duly executed certificate representing the Shares which such Investor is purchasing hereunder. The purchase and sale transaction contemplated hereby will close on the first business day immediately following the satisfaction of the closing conditions set forth herein, which is targeted to be no later than 5:00 p.m., Pacific Time on September 30, 2009, as such date and time may be modified by the Company in its sole discretion (such day, the "**Closing**").

2. **Representations and Warranties of the Company.** The Company hereby represents and warrants to Investor, that the statements in the following paragraphs of this Section 2 are all true and complete as of the date hereof:

2.1 **Organization, Good Standing and Qualification.** The Company is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware. The Company is duly qualified to transact business and is in good standing in each jurisdiction in which the failure to so qualify would reasonably be expected to have a material adverse effect on (a) the present or future business, assets, or operations, of the Company, taken as a whole or (b) the Company's ability to perform this Agreement or its obligations under the Warrant, the Investors' Rights Agreement, the ROFR Agreement or the Voting Agreement, each as defined below, (collectively, the "**Related Agreements**") (a "**Material Adverse Effect**").

2.2 **Capitalization and Voting Rights.**

(a) **Authorized Stock.** There are authorized for issuance (i) 80,000,000 shares of Common Stock, \$0.0001 par value per share ("**Common Stock**"), and (ii) 49,673,250 shares of Preferred Stock, \$0.0001 par value per share ("**Preferred Stock**"), of which 5,000,000 shares are designated as Series A Convertible Preferred Stock ("**Series A Preferred Stock**"), 5,673,252 shares are designated as Series B Senior Convertible Preferred Stock ("**Series B Preferred Stock**"), 8,500,000 shares are designated as Series C Senior Convertible Preferred Stock ("**Series C Preferred Stock**"), and 30,499,998 shares are designated as Series D Preferred Stock ("**Series D Preferred Stock**"). Immediately prior to the Closing, the outstanding stock of the Company consists of the following:

- (i) Three Million Seven Hundred Fifty Five Thousand (3,780,100) shares of issued and outstanding Common Stock.

(ii) Five Million (5,000,000) shares of issued and outstanding Series A Preferred Stock, which shares of Series A Preferred Stock are convertible into 1.680096462 shares of Common Stock upon (x) an involuntary or voluntary liquidation, dissolution and winding up of the Company, (y) a Deemed Liquidation Event (as such term is defined in the Restated Certificate (as defined below)) or (z) a Qualified IPO (as such term is defined in the Restated Certificate).

(iii) Five Million Six Hundred Seventy Three Thousand Two Hundred and Fifty Two (5,673,252) shares of issued and outstanding Series B Preferred Stock, which shares of Series B Preferred Stock are convertible into 1.000042304 shares of Common Stock.

(iv) Eight Million One Hundred Twenty Five Thousand Eight Hundred Eighty-Nine (8,125,889) shares of issued and outstanding Series C Preferred Stock.

(v) 15,583,398 shares of issued and outstanding Series D Preferred Stock, all of which shares were issued upon the conversion of 2,597,233 shares of Series C-1 Preferred Stock, none of which remains outstanding or authorized for issuance.

Upon the Closing, the rights, preferences and privileges of each series of Preferred Stock will be as stated in the Restated Certificate and as provided by law.

(b) Valid Issuance. The outstanding shares of Common Stock and Preferred Stock are all duly and validly authorized and issued, fully paid and nonassessable.

(c) Rights to Acquire. Except for (i) the conversion privileges of the Preferred Stock, (ii) the rights of first refusal provided in Section 4 of the Investors' Rights Agreement, (iii) the Five Million (5,000,000) shares of Common Stock reserved for issuance to employees, consultants and/or directors pursuant to the Company's 2006 Stock Option/Stock Issuance Plan (the "**Option Plan**"), of which options to purchase an aggregate of 2,226,250 shares of Common Stock are currently outstanding, (iv) outstanding warrants to purchase Three Million Six Hundred Seventy Four Thousand Two Hundred and Eight (3,674,208) shares of Common Stock and (v) outstanding restricted stock units for the issuance of One Million One Hundred and Four Thousand and Ten (1,104,010) shares of Common Stock, there are not outstanding any options, warrants, rights (including conversion or preemptive rights) or agreements for the purchase or acquisition from the Company of any shares of its capital stock.

(d) Voting of Shares. Other than the Voting Agreement, the Company is not a party or subject to any agreement or understanding and, to the Company's knowledge, there is no agreement or understanding between any persons and/or entities which affects or relates to the voting or giving of written consents with respect to any security or by a director of the Company.

(e) Market Stand-Off. To the Company's best knowledge, all outstanding shares of Preferred Stock of the Company and all capital stock of the Company issuable upon the exercise of outstanding employee incentive stock options are subject to a one hundred eighty (180) day "market stand-off" restriction upon an initial public offering by the Company resulting in at least \$20 Million in gross proceeds pursuant to a registration statement filed with the Securities and Exchange Commission ("**SEC**") pursuant to the Securities Act of 1933, as amended (the "**Act**").

2.3 Subsidiaries. Except for (i) the minority ownership position in Nexeon MedSystems pursuant to the license agreement with Nanotech Catheter Solutions, and (ii) the 100% ownership position in Nanoconduction, Inc., the Company does not presently own or control, directly or indirectly, any interest in any other corporation, association, or other business entity. The Company is not a participant in any joint venture, partnership, or similar arrangement.

2.4 Authorization. All corporate action on the part of the Company, its officers, directors and stockholders necessary for the authorization, execution and delivery of this Agreement, the Related Agreements, the performance of all obligations of the Company hereunder and thereunder, and the authorization, sale and issuance of the Shares being sold hereunder, and the Common Stock issuable upon conversion of the Shares, has been taken or will be taken prior to the Closing. As of the Closing, this Agreement and the Related Agreements constitute valid and legally binding obligations of the Company, enforceable in accordance with their respective terms, except (i) as limited by applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies, and (iii) to the extent the indemnification provisions contained in the Related Agreements may be limited by applicable federal or state securities laws.

2.5 Valid Issuance of Preferred and Common Stock. The Shares that are being purchased by Investor hereunder, when issued, sold and delivered in accordance with the terms of this Agreement for the consideration expressed herein, will be duly and validly issued, fully paid and nonassessable and will be free of restrictions on transfer, other than restrictions on transfer, if any, (i) under this Agreement, the Investor's Rights Agreement and the ROFR Agreement, (ii) under applicable state and federal securities laws and (iii) otherwise imposed as a result of actions taken by Investor. The Common Stock issuable upon conversion of the Shares purchased under this Agreement has been duly and validly reserved for issuance and, upon issuance in accordance with the terms of the Company's Third Amended and Restated Certificate of Incorporation in the form attached hereto as Exhibit D (the "**Restated Certificate**"), will be duly and validly issued, fully paid and nonassessable and will be free of restrictions on transfer, other than restrictions on transfer, if any (i) under this Agreement, the Investor's Rights Agreement and the ROFR Agreement, (ii) under applicable state and federal securities laws and (iii) otherwise imposed as a result of actions taken by Investor.

2.6 Governmental Consents. No consent, approval, order or authorization of, or registration, qualification, designation, declaration or filing with, any federal, state or local governmental authority on the part of the Company is required in connection with the consummation of the transactions contemplated by this Agreement and the Related Agreements, except for such consents, approvals, orders, authorizations, registrations, qualifications, designations, declarations or filings which are not required to be obtained prior to the Closing, and such filings as are required pursuant to applicable federal and state securities laws and blue sky laws, which filings will be effected within the required statutory period.

2.7 Offering. Subject in part to the truth and accuracy of Investor's representations set forth in Section 3 of this Agreement, the offer, sale and issuance of the Shares as contemplated by this Agreement are exempt from the registration requirements of the Act, and the qualification or registration requirements of applicable state blue sky laws, as such registration requirements and laws currently exist.

2.8 Litigation. There is no action, suit, proceeding or investigation pending or, to the Company's knowledge, currently threatened in writing against the Company that questions the validity of this Agreement or the Related Agreements, or the right of the Company to enter into such agreements or

to consummate the transactions contemplated hereby and thereby, or that would reasonably be expected to result in a Material Adverse Effect. The Company is not a party or subject to the provisions of any order, writ, injunction, judgment or decree of any court or government agency or instrumentality.

2.9 Proprietary Information Agreements. Each current employee of the Company has executed a Proprietary Information and Inventions Agreement in substantially the form provided to the Investors upon request by the Investors. The Company is not aware that any such employee is in violation thereof.

2.10 Compliance with Other Instruments. The Company is not in violation of any provision of its Restated Certificate or Bylaws nor, to its knowledge, of any instrument, judgment, order, writ, decree or contract, statute, rule or regulation to which the Company is subject and a violation of which would reasonably be expected to have a Material Adverse Effect. The execution, delivery and performance of this Agreement and the Related Agreements, and the consummation of the transactions contemplated hereby and thereby will not result in any such violation, or be in conflict with or constitute, with or without the passage of time and giving of notice, either a default under any such provision or an event that results in the creation of any lien, charge or encumbrance upon any assets of the Company or the suspension, revocation, impairment, forfeiture or nonrenewal of any material permit, license, authorization or approval applicable to the Company, its business or operations or any of its assets or properties.

2.11 Agreements; Action. Except for agreements explicitly contemplated hereby, there are no agreements or understandings between the Company and any of its officers, directors, affiliates or any affiliate thereof (except for quarterly allocations for services performed by Arrowhead (as defined below)),

(a) there are no agreements, understandings, instruments, contracts, judgments, orders, writs or decrees to which the Company is a party or by which it is bound that may involve (i) obligations (contingent or otherwise) of, or payments to the Company, in excess of \$10,000, other than obligations of, or payments to, the Company arising from purchase or sale agreements entered into in the ordinary course of business, or (ii) provisions materially restricting the development, manufacture or distribution of the Company's products or services, and

(b) The Company has not (i) declared or paid any dividends or authorized or made any distribution upon or with respect to any class or series of its capital stock, (ii) made any loans or advances to any person, other than ordinary advances for travel expenses, or (iii) sold, exchanged or otherwise disposed of any of its assets or rights.

For the purposes of subsections (a) and (b) above, all indebtedness, liabilities, agreements, understandings, instruments and contracts involving the same person or entity (including persons or entities the Company has reason to believe are affiliated therewith) shall be aggregated for the purpose of meeting the individual minimum dollar amounts of such subsections.

2.12 Related-Party Transactions. No employee, officer or director of the Company or member of his or her immediate family is indebted to the Company, nor is the Company indebted (or committed to make loans or extend or guarantee credit) to any of them. To the best of the Company's knowledge, other than in Arrowhead Research Corporation, a Delaware corporation ("**Arrowhead**") or in any of Arrowhead's subsidiaries, none of such persons has any direct or indirect ownership interest in any firm or corporation with which the Company is affiliated or with which the Company has a business relationship, or any firm or corporation that competes with the Company, except that employees, officers or directors of the Company and members of their immediate families may own stock in publicly traded companies that may compete with the Company. No member of the immediate family of any officer or director of the Company is directly or indirectly interested in any material contract with the Company.

2.13 No Undisclosed Liabilities. Except as set forth in the Financial Statements, the Company does not have any liabilities (whether accrued, absolute, unliquidated, contingent or otherwise, whether or not known to the Company, whether due or to become due and regardless of when asserted) arising out of transactions entered into at or prior to the Closing, or any action or inaction at or prior to the Closing or any state of facts existing at or prior to the Closing other than (i) liabilities and obligations that have arisen after June 30, 2009 in the ordinary course of business (none of which is material and none of which is a liability resulting from breach of contract, breach of warranty, tort, infringement, claim or lawsuit), or (ii) obligations under contracts and commitments incurred in the ordinary course of business that would not be required to be reflected in financial statements prepared in accordance with generally accepted accounting principles. The Company is not a guarantor or indemnitor of any indebtedness of any other person, firm or corporation.

2.14 Permits. The Company has all franchises, permits, licenses and any similar authority necessary for the conduct of its business as now being conducted by it, except to the extent the lack of which would not reasonably be expected to have a Material Adversely Effect. The Company is not in default under any of such franchises, permits, licenses or other similar authority which would be reasonably expected to have a Material Adverse Effect.

2.15 Environmental and Safety Laws.

(a) Except as set forth in Section 2.16(b), to its knowledge, the Company is not in violation of any applicable statute, law or regulation relating to the environment or occupational health and safety, and, to its knowledge, no material expenditures are or will be required in order to comply with any such existing statute, law or regulation.

(b) The US Environmental Protection Agency (the “EPA”) has issued recent guidance regarding the classification of carbon nanotubes under the Toxic Substances Control Act. The EPA has stated that it now considers carbon nanotubes to be “new chemicals” rather than materials previously listed on the TSCA Inventory, such as synthetic graphite or other carbon compounds. The Company is in the process of reviewing its compliance with this guidance and has filed paperwork with the EPA. Accordingly, the Company withholds any representation or warranty regarding the matters disclosed in this Section 2.16(b), including its compliance with the new EPA guidance.

2.16 Disclosure. The Company has fully provided Investor with all the information that Investor has requested in writing for deciding whether to purchase the Shares. Neither this Agreement (including all the exhibits and schedules hereto) nor any other statements or certificates made or delivered in connection herewith contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements herein or therein not misleading in light of the circumstances under which they were made.

2.17 Registration Rights. Except as provided in the Investors’ Rights Agreement, the Company has not granted or agreed to grant any registration rights, including piggyback rights, to any person or entity.

2.18 Title to Property and Assets. The property and assets used by the Company in its business are owned by the Company free and clear of all mortgages, liens, loans and encumbrances, except for (i) statutory liens for the payment of current taxes that are not yet delinquent and (ii) for liens, encumbrances and security interests that arise in the ordinary course of business and/or pursuant to

applicable law, and minor defects in title, none of which, individually or in the aggregate, would reasonably be expected to have a Material Adverse Effect. With respect to the property and assets it leases, the Company is in compliance with such leases and, to its knowledge, holds a valid leasehold interest free of any liens, claims or encumbrances, subject to clauses (i)-(ii) of the foregoing sentence, except to the extent the failure to be in compliance or hold a valid leasehold interest would not reasonably be expected to have a Material Adverse Effect.

2.19 Labor Agreements and Actions. The Company is not bound by or subject to any contract, commitment or arrangement with any labor union, and no labor union has requested or, to the Company's knowledge, has sought to represent any of the employees, representatives or agents of the Company. There is no strike or other labor dispute involving the Company pending, or to the Company's knowledge, threatened in writing, that would reasonably be expected to have a Material Adverse Effect, nor is the Company aware of any labor organization activity involving its employees. The Company is not aware that any officer or key employee, or that any group of key employees, intends to terminate their employment with the Company, nor does the Company have a present intention to terminate the employment of any of the foregoing. The employment of each officer and employee of the Company is terminable at the will of the Company. The Company is not a party to or bound by any currently effective employment contract, deferred compensation agreement, bonus plan, incentive plan, profit sharing plan, retirement agreement or other employee compensation agreement, except that pursuant to his employment arrangement, the Chief Executive Officer of the Company is entitled to certain severance payments and acceleration of options if he is terminated or constructively terminated without cause. To its knowledge, the Company has complied in all material respects with all applicable state and federal equal employment opportunity and other laws related to employment.

2.20 Brokers Fees. The Company expects to pay third-party finders or advisors finder's fees (in cash and/or equity) for Shares placed by such third party. For the sake of clarity, no finder's fees will be paid for Shares not placed by a third-party finder or advisor.

2.21 Intellectual Property. To its knowledge, the Company has rights to all patents, patent applications, trademarks, service marks, trade names, copyrights, trade secrets, licenses, inventions, information and proprietary rights and processes (collectively, "**Intellectual Property**") it needs to operate its business as currently conducted, other than Intellectual Property that it reasonable believes is invalid or it can obtain rights to through a license or cross-licensing arrangement.

2.22 Tax Returns and Payments. There are no federal, state, county, local or foreign taxes dues and payable by the Company which have not been timely paid. There are no accrued and unpaid federal, state, county, local or foreign taxes of the Company which are due, whether or not assessed or disputed. There have been no examinations or audits of any tax returns or reports by any applicable federal, state, local or foreign governmental agency. The Company has duly and timely filed all federal, state, county, local and foreign tax returns required to have been filed by it and there are in effect no waivers of applicable statutes of limitations with respect to taxes for any year.

2.23 Insurance. The Company has in full force and effect fire and casualty insurance policies with extended coverage, sufficient in amount (subject to reasonable deductions) to allow it to replace any of its properties that might be damaged or destroyed.

2.24 ERISA. The Company has made all required contributions and has no liability to any such employee benefit plan, other than liability for health plan continuation coverage described in Part 6 of Title I(B) of Employee Retirement Income Security Act of 1974, as amended, and has complied in all material respects with all applicable laws for any such employee benefit plan.

3. Representations and Warranties of Investor. Each Investor hereby, severally and not jointly, represents, warrants and covenants to the Company that:

3.1 Authorization. Such Investor has full power and authority to enter into this Agreement and the Related Agreements to which it is a party, and each such agreement constitutes its valid and legally binding obligation, enforceable in accordance with its terms except (i) as limited by applicable bankruptcy, insolvency, reorganization, moratorium and other laws of general application affecting enforcement of creditors' rights generally, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies, and (iii) to the extent the indemnification provisions contained in the Related Agreements may be limited by applicable federal or state securities laws.

3.2 Purchase Entirely for Own Account. This Agreement is made with such Investor in reliance upon such Investor's representation to the Company, which by such Investor's execution of this Agreement, such Investor hereby confirms that the Shares will be acquired for investment for Investor's own account, not as a nominee or agent, and not with a view to the resale or distribution of any part thereof, and that such Investor has no present intention of selling, granting any participation in or otherwise distributing the same. By executing this Agreement, such Investor further represents that such Investor does not have any contract, undertaking, agreement or arrangement with any person to sell, transfer or grant participations to such person or to any third person, with respect to any of the Shares.

3.3 Disclosure of Information. Such Investor believes it has received all the information it considers necessary or appropriate for deciding whether to purchase the Shares. Such Investor further represents that it has had an opportunity to ask questions and receive answers from the Company regarding the terms and conditions of the offering of the Shares and the business, properties, prospects and financial condition of the Company. The foregoing, however, does not limit or modify the representations and warranties of the Company in Section 2 of this Agreement or the right of such Investor to rely thereon.

3.4 Investment Experience. Such Investor is an investor in securities of companies in the development stage and acknowledges that he/she/it is able to bear the economic risk of its investment, and has such knowledge and experience in financial or business matters that it is capable of evaluating the merits and risks of the investment in the Shares. If other than an individual, such Investor also represents it has not been organized for the purpose of acquiring the Shares.

3.5 Accredited Investor. Such Investor is an "accredited investor" within the meaning of SEC Rule 501 of Regulation D and has reviewed Schedule 3.5 before making this representation to the Company. All of the information in the Investor Questionnaire delivered by such Investor to the Company in connection with such Investor's purchase of the Shares remains complete, true and correct as of the Closing.

3.6 Restricted Securities. Such Investor understands that the Shares it is purchasing are characterized as "restricted securities" under the federal securities laws inasmuch as they are being acquired from the Company in a transaction not involving a public offering, and that under such laws and applicable regulations, such Shares may be resold without registration under the Act only in certain limited circumstances. In the absence of an effective registration statement covering the Shares or an available exemption from registration under the Act, the Shares (and any Common Stock issued on conversion of the Shares) must be held indefinitely.

3.7 No Brokers. Such Investor has not taken any action which would give rise to any claim by any person for brokerage commissions, finder's fees or similar payments relating to this Agreement or the transactions contemplated hereby.

3.8 Legends. It is understood that the certificates evidencing the Shares and the Warrants may bear one or all of the following legends:

(a) “These securities have not been registered under the Securities Act of 1933, as amended. They may not be sold, offered for sale, pledged or hypothecated in the absence of a registration statement in effect with respect to the securities under such Act or an opinion of counsel satisfactory to the Company that such registration is not required or unless sold pursuant to Rule 144 of such Act.”

(b) Legends required to indicate that the Shares and the shares of common stock underlying the Warrants are subject to the terms of the Investors Rights Agreement and ROFR Agreement.

(c) Any other legend required by applicable laws.

4. Conditions to Investor’s Obligations at Closing. The following conditions must be satisfied by the Company, unless waived by each Investor, in such Investor’s sole and absolute discretion.

4.1 Representations and Warranties. The representations and warranties of the Company contained in Section 2 shall be true and correct in all material respects (except that the representations and warranties that are qualified by materiality or Material Adverse Effect shall be true and correct in all respects) on and as of the Closing with the same effect as though such representations and warranties had been made on and as of the date of the Closing.

4.2 Performance. The Company shall have performed and complied in all material respects with all agreements, obligations and conditions contained in this Agreement that are required to be performed or complied with by it on or before the Closing.

4.3 Qualifications. All authorizations, approvals or permits, if any, of any governmental authority or regulatory body of the United States or of any state that are required in connection with the lawful issuance and sale of the Shares pursuant to this Agreement shall be duly obtained and effective, other than such authorizations, approvals or permits or other filings which may be timely made after such issuance and sale of the Shares.

4.4 Restated Certificate. The Restated Certificate shall have been duly adopted by the Company by all necessary corporate action of its Board of Directors and stockholders, and shall have been filed with and accepted by the Delaware Secretary of State.

4.5 Proceedings and Documents. All corporate and other proceedings in connection with the transactions contemplated at the Closing and all documents incident thereto shall be reasonably satisfactory in form and substance to Investor, and Investor shall have received all such counterpart original and certified or other copies of such documents as may be reasonably requested.

4.6 Investors’ Rights Agreement. The Company and certain of the Company’s existing stockholders shall have executed and delivered the Second Amended and Restated Investors’ Rights Agreement in the form attached hereto as Exhibit A (the “**Investors’ Rights Agreement**”).

4.7 ROFR Agreement. The Company and certain of the Company’s existing stockholders shall have executed and delivered the Second Amended and Restated Right of First Refusal and Co-Sale Agreement in the form attached hereto as Exhibit B (the “**ROFR Agreement**”).

4.8 Voting Agreement. The Company and certain of the Company's existing stockholders shall have executed and delivered the Second Amended and Restated Voting Agreement in the form attached hereto as Exhibit C (the "**Voting Agreement**").

4.9 General. The holders of Common Stock and/or Preferred Stock shall have amended any other agreement or arrangement, or given any further consent required to allow the Company to execute and perform this Agreement and the Related Agreements.

5. Conditions to the Company's Obligations at Closing. The following conditions must be satisfied by each Investor, unless waived in writing by the Company, in the Company's sole and absolute discretion.

5.1 Representations and Warranties. The representations and warranties of such Investor contained in Section 3 shall be true and correct in all material respects (except that the representations and warranties that are qualified by materiality or Material Adverse Effect shall be true and correct in all respects) on and as of the Closing with the same effect as though such representations and warranties had been made on and as of the date of the Closing.

5.2 Payment of the Purchase Price. Each Investor shall have delivered to the Company the purchase price for the Shares.

5.3 Restated Certificate. The Restated Certificate shall have been duly adopted by the Company by all necessary corporate action of its Board of Directors and stockholders, and shall have been filed with and accepted by the Delaware Secretary of State.

5.4 Securities Exemptions. The offer and sale of the Shares to Investor pursuant to this Agreement shall be exempt from the registration requirements of the Act, the qualification requirements of the California General Corporation Law and the registration and/or qualification requirements of all other applicable state securities laws.

5.5 Proceedings and Documents. All corporate and other proceedings in connection with the transactions contemplated at the Closing and all documents incident thereto shall be reasonably satisfactory in form and substance to the Company, and the Company shall have received all such counterpart original and certified or other copies of such documents as may be reasonably requested.

5.6 Investors' Rights Agreement. Each Investor shall have executed and delivered a counterpart signature page to the Investors' Rights Agreement in the form attached hereto as Exhibit A.

5.7 ROFR Agreement. Each Investor shall have executed and delivered a counterpart signature page to the ROFR Agreement in the form attached hereto as Exhibit B.

5.8 Voting Agreement. Each Investor shall have executed and delivered a counterpart signature page to the Voting Agreement in the form attached hereto as Exhibit C.

5.9 General. Each Investor shall have amended any other agreement or arrangement, or given any further consent required to allow the Company to execute and perform this Agreement and the Related Agreements.

## 6. Miscellaneous.

6.1 Survival. The warranties, representations and covenants of the Company and the Investors contained in or made pursuant to this Agreement shall survive the execution and delivery of this Agreement and the Closing and shall in no way be affected by any investigation of the subject matter thereof made by or on behalf of the Investors or the Company.

6.2 Successors and Assigns. Except as otherwise provided herein, the terms and conditions of this Agreement shall inure to the benefit of, and be binding upon, the respective successors and assigns of the parties (including transferees of any Shares). Nothing in this Agreement, express or implied, is intended to confer upon any party, other than the parties hereto or their respective successors and assigns, any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement.

6.3 Governing Law. This Agreement shall be governed by and construed under the laws of the State of California as applied to agreements among California residents entered into and to be performed entirely within California, except with respect to conflict of laws.

6.4 Titles and Subtitles. The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 Notices. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (i) upon personal delivery to the party to be notified, (ii) when sent by confirmed telex or facsimile if sent during normal business hours of the recipient, if not, then on the next business day; (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the address as set forth on the signature page hereof or at such other address as such party may designate by ten (10) days' advance written notice to the other parties hereto.

6.6 Responsibility for Brokers Fees. Each Investor indemnifies and holds harmless the Company from any liability for any commission or compensation in the nature of a finders' fee (and the costs and expenses of defending against such liability or asserted liability) for which such Investor or any of its officers, partners, employees or representatives is responsible. The Company indemnifies and holds harmless each Investor from any liability for any commission or compensation in the nature of a finders' fee (and the costs and expenses of defending against such liability or asserted liability) for which the Company or any of its officers, employees or representatives is responsible.

6.7 Aggregation of Stock. All issued and outstanding shares of the Series D Preferred Stock and Common Stock issued upon conversion thereof held or acquired by affiliated entities or persons shall be aggregated together for the purpose of determining the availability of any rights under this Agreement.

6.8 Amendments and Waivers. Any term of this Agreement may be amended, and the observance of any term of this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively), only with the written consent of the Company and the holders of Shares and/or Common Stock issued upon conversion thereof representing at least a majority of the aggregate number of shares of Common Stock into which the Shares then are convertible and/or have been converted (excluding any of such shares that have been sold to the public or pursuant to SEC Rule 144).

6.9 Severability. If one or more provisions of this Agreement are held to be unenforceable under applicable law, such provision shall be excluded from this Agreement and the balance of the Agreement shall be interpreted as if such provision were so excluded and shall be enforceable in accordance with its terms.

6.10 Entire Agreement. This Agreement and the documents referred to herein constitute the entire agreement among the parties, and this Agreement supersedes all prior and contemporaneous written and oral agreements, relating to the subject matter hereof.

6.11 Counterparts; Facsimile/PDF Signatures. This Agreement may be executed in two or more counterparts, and by facsimile signatures or portable document format (.pdf or similar format), each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

[SIGNATURE PAGE FOLLOWS]

Dated: SEPTEMBER 30, 2009

**COMPANY:**

UNIDYM, INC.  
a Delaware corporation

By: \_\_\_\_\_

Address: 1244 Reamwood Drive  
Sunnyvale, CA

**I HEREBY REPRESENT THAT I HAVE READ AND UNDERSTOOD THE SUBSCRIPTION AGREEMENT.**

Dated:

**Subscription:** I hereby subscribe for the following number of Shares at the Purchase Price indicated:

Total Number of Shares: \_\_\_\_\_ shares

Total Purchase Price (\$0.30 Per Share): \$\_\_\_\_\_

\_\_\_\_\_  
Please print the exact name(s) in which the Shares will be issued

Print Name of Signer: \_\_\_\_\_

Signature: \_\_\_\_\_

Title of Signer (if purchaser is an entity): \_\_\_\_\_

Social Security # or Tax Id#: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

City, State & Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

Facsimile: \_\_\_\_\_

Email: \_\_\_\_\_

**SECOND AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT**

This Second Amended and Restated Investors' Rights Agreement (the "**Agreement**") is made as of the September 30, 2009, by and between **Unidym, Inc.**, a Delaware corporation (the "**Company**"), each of the investors listed on Schedule A hereto (each of which is referred to in this Agreement as an "**Investor**") and each of the stockholders listed on Schedule B hereto (each of which is referred to in this Agreement as a "**Stockholder**").

**RECITALS**

**WHEREAS**, the Company, certain of the Investors, and certain of the Stockholders entered into that certain Amended and Restated Investors' Rights Agreement dated as of October 29, 2007, as amended by that certain Amendment No. 1 to the Amended and Restated Investors' Rights Agreement dated as of November 13, 2008 (as amended, the "**Prior Agreement**");

**WHEREAS**, certain of the Investors (the "**Series D Investors**") have acquired shares of the Company's Series D Preferred Stock (the "**Series D Preferred Stock**") upon the conversion of the Company's previously outstanding Series C-1 Preferred Stock and/or pursuant to that certain Series D Preferred Stock Subscription Agreement between the Company and each such Series D Investor dated of even date herewith or hereafter (each a "**Series D Agreement**"); the Series D Agreement provides that, as a condition to the Series D Investor's purchase of Series D Stock thereunder, the Company will enter into this Agreement and the Series D Investor will be granted the rights set forth herein;

**WHEREAS**, the Company and the parties to the Prior Agreement desire to enter into this Agreement in order to amend, restate and replace their rights and obligations under the Prior Agreement with the rights and obligations set forth in this Agreement. Section 6.9 of the Prior Agreement provides that the Prior Agreement may be amended by the written consent of (i) the Company, (ii) the holders of at least a majority of the Registrable Securities then outstanding and held by the Stockholders and (iii) the holders of at least a majority of the Registrable Securities then outstanding and held by the Investors;

**WHEREAS**, the Investors, Stockholders and the Company hereby agree that this Agreement shall govern, among other things, the rights of the Investors to cause the Company to register shares of the Company's Common Stock issuable to the Investors, to participate in future equity offerings by the Company and certain other matters as set forth in this Agreement; and

**WHEREAS**, the Company has provided its written consent to amend the Prior Agreement, the undersigned Stockholders to this Agreement hold a majority of the Registrable Securities outstanding and the undersigned Investors to this Agreement hold a majority of the Registrable Securities outstanding.

**NOW, THEREFORE**, in consideration of the foregoing and the promises and covenants contained herein, the sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Definitions. For purposes of this Agreement:

1.1. The term "**Affiliate**" means with respect to any individual, corporation, partnership, association, trust, or any other entity (in each case, a "**Person**"), any Person which, directly or indirectly, controls, is controlled by or is under common control with such Person, including, without limitation, any general partner, officer or director of such Person and any venture capital fund now or hereafter existing which is controlled by or under common control with one or more general partners or shares the same management company with such Person.

- 1.2. “**Arrowhead**” means to Arrowhead Research Corporation, a Delaware corporation.
- 1.3. The term “**Board**” means the Board of Directors of the Company.
- 1.4. The term “**Certificate of Incorporation**” means the Certificate of Incorporation of the Company, as amended to date.
- 1.5. The term “**Common Stock**” means shares of the Company’s common stock, par value \$0.0001 per share.
- 1.6. The term “**Exchange Act**” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.
- 1.7. The term “**Form S-3**” means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC which permits inclusion or incorporation of substantial information by reference to other documents filed by the Company with the SEC.
- 1.8. The term “**GAAP**” means generally accepted accounting principles.
- 1.9. The term “**Holder**” means any Person owning or having the right to acquire Registrable Securities or any assignee thereof in accordance with Section 6.2 hereof.
- 1.10. The term “**Initiating Holders**” means, collectively, any Holders who properly initiate a registration request under this Agreement.
- 1.11. The term “**Investor**” means the Investors listed on Schedule A hereto.
- 1.12. The term “**Investor-Designated Director**” means any Arrowhead Director (as defined in the Voting Agreement).
- 1.13. The term “**IPO**” means the Company’s first underwritten public offering of its Common Stock pursuant to an effective registration statement under the Securities Act, resulting in at least Twenty Million (\$20,000,000) of gross proceeds to the Company.
- 1.14. The term “**New Securities**” means equity or debt securities of the Company, whether now authorized or not, or rights, options, or warrants to purchase said equity securities, or securities of any type whatsoever that are, or may become, convertible into or exchangeable into or exercisable for said equity securities.
- 1.15. The term “**Qualified Public Offering**” means the Company’s firm commitment underwritten public offering of its Common Stock pursuant to an effective registration statement under the Securities Act, resulting in a per share price to the public of at least Three Dollars (\$3.00) (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock).
- 1.16. The term “**register,**” “**registered,**” and “**registration**” refer to a registration effected by preparing and filing a registration statement or similar document in compliance with the Securities Act, and the declaration or ordering of effectiveness of such registration statement or document.

1.17. The term “**Registrable Securities**” means (i) the Common Stock issuable or issued upon conversion of the Series A Preferred Stock, the Series B Preferred Stock, the Series C Preferred Stock or the Series D Preferred Stock (ii) shares of Common Stock issued to George Gruner (provided, however, that such shares of Common Stock shall not be deemed Registrable Securities and the holders of such Common Stock shall not be deemed Holders for the purposes of the first paragraph of Sections 2.1 or 2.11 or Sections 2.12 and 6.8), (iii) any Common Stock of the Company issued as (or issuable upon the conversion or exercise of any warrant, right or other security which is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of the shares referenced in clauses (i) and (ii) above, and (iv) any Common Stock of the Company held by Arrowhead, excluding in all cases, however, (a) any Registrable Securities sold by a Holder in a transaction in which such Holder’s rights under Section 2 hereof are not assigned, (b) any shares for which registration rights have terminated pursuant to Section 2.15 of this Agreement, or (c) any Registrable Securities registered or sold to the public either pursuant to a registration statement or SEC Rule 144.

1.18. The term “**Registrable Securities then outstanding**” means the number of shares determined by adding the number of shares of Common Stock outstanding which are, and the number of shares of Common Stock issuable pursuant to then exercisable or convertible securities which are, Registrable Securities.

1.19. The term “**Sale of the Company**” means (A) a transaction or series of related transactions in which a Person, or a group of related Persons, acquires from stockholders of the Company shares representing fifty percent (50%) or more of the outstanding voting power of the Company, (B) a merger or consolidation in which (a) the Company is a constituent party or (b) a subsidiary of the Company is a constituent party and the Company issues shares of its capital stock pursuant to such merger or consolidation, *except* any such merger or consolidation involving the Company or a subsidiary in which the shares of capital stock of the Company outstanding immediately prior to such merger or consolidation continue to represent, or are converted or exchanged for shares of capital stock which represent, immediately following such merger or consolidation at least a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or (C) the sale, lease, exclusive license, transfer or other disposition, in a single transaction or series of related transactions, by the Company or any subsidiary of the Company of all or substantially all the assets of the Company and its subsidiaries taken as a whole except where such sale, lease, transfer or other disposition is to a wholly owned subsidiary of the Company.

1.20. The term “**SEC**” means the Securities and Exchange Commission.

1.21. The term “**SEC Rule 144**” means Rule 144 promulgated by the SEC under the Securities Act.

1.22. The term “**SEC Rule 144(k)**” means Rule 144(k) promulgated by the SEC under the Securities Act.

1.23. The term “**SEC Rule 145**” means Rule 145 promulgated by the SEC under the Securities Act.

1.24. The term “**Securities Act**” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.25. The term “**Series A Preferred Stock**” means shares of the Company’s Series A Preferred Stock, par value \$0.0001 per share.

1.26. The term “**Series B Preferred Stock**” means shares of the Company’s Series B Preferred Stock, par value \$0.0001 per share.

1.27. The term “**Series C Preferred Stock**” means shares of the Company’s Series C Preferred Stock, par value \$0.0001 per share.

1.28. The term “**Series D Preferred Stock**” means shares of the Company’s Series D Preferred Stock, par value \$0.0001 per share.

1.29. The term “**Violation**” means losses, claims, damages, or liabilities (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages, or liabilities (or actions in respect thereof) arise out of or are based upon any of the following statements, omissions or violations: (i) any untrue statement or alleged untrue statement of a material fact contained in such registration statement, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto, (ii) the omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading, or (iii) any violation or alleged violation by any other party hereto, of the Securities Act, the Exchange Act, any state securities law or any rule or regulation promulgated under the Securities Act, the Exchange Act or any state securities law.

1.30. The term “**Voting Agreement**” means the Second Amended and Restated Voting Agreement dated of even date herewith by and among the Company, the Investors and Stockholders, as such agreement may be amended from time to time.

2. **Registration Rights.** The Company covenants and agrees as follows: Request for Registration.

(a) If the Company shall receive at any time after the earlier of (i) 5 years after the date of this Agreement or (ii) 180 days after the effective date of the first registration statement for a public offering of securities of the Company (other than a registration statement relating either to the sale of securities to employees of the Company pursuant to a stock option, stock purchase or similar plan or a SEC Rule 145 transaction), a written request from the Holders who hold in excess of thirty percent (30%) of the Registrable Securities then outstanding that the Company file a registration statement under the Securities Act covering the registration of the Registrable Securities then outstanding with an anticipated aggregate offering price (net of underwriting discounts and commissions) of at least Ten Million Dollars (\$10,000,000), then the Company shall:

(i) within ten (10) days of the receipt thereof, give written notice of such request to all Holders;

(ii) as soon as practicable, and in any event within sixty (60) days of the receipt of such request, file a registration statement under the Securities Act covering all Registrable Securities which the Holders request to be registered, subject to the limitations of subsection 2.1(b), within twenty (20) days of the mailing of such notice by the Company in accordance with Section 6.5; and

(iii) use its best efforts to cause such registration statement to be declared effective by the SEC as soon as practicable.

(b) If the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to subsection 2.1(a) and the Company shall include such information in the written notice referred to in subsection 2.1(a). The underwriter will be selected by the Company and shall be reasonably acceptable to a majority in interest of the Initiating Holders. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in subsection 2.3(e)) enter into an underwriting agreement in customary form with the underwriter or underwriters selected for such underwriting. Notwithstanding any other provision of this Section 2.1, if the underwriter advises the Initiating Holders in writing that marketing factors require a limitation of the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities which would otherwise be underwritten pursuant hereto, and the number of shares of Registrable Securities that may be included in the underwriting shall be allocated among all Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as practicable) to the number of Registrable Securities of the Company owned by each Holder; provided, however, that the number of shares of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest 100 shares.

(c) The Company shall not be obligated to effect, or to take any action to effect, any registration

(i) pursuant to this Section 2.1:

(i) In any particular jurisdiction in which the Company would be required to execute a general consent to service of process in effecting such registration, unless the Company is already subject to service in such jurisdiction and except as may be required under the Securities Act;

(ii) After the Company has effected two (2) registrations pursuant to this Section 2.1 and such registrations have been declared or ordered effective;

(iii) If the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Section 2.11, below; or

(iv) If the Registrable Securities to be included in the registration statement could be sold without restriction under SEC Rule 144(k) within a ninety (90) day period and the Company is currently subject to the periodic reporting requirements of Sections 12(g) or 15(d) of the Exchange Act, or

(ii) pursuant to any other provision of this Agreement:

(i) In any particular jurisdiction in which the Company would be required to execute a general consent to service of process in effecting such registration, unless the Company is already subject to service in such jurisdiction and except as may be required under the Securities Act; or

(ii) If the Registrable Securities to be included in the registration statement could be sold without restriction under SEC Rule 144(k) within a ninety (90) day period and the Company is currently subject to the periodic reporting requirements of Sections 12(g) or 15(d) of the Exchange Act.

(d) Notwithstanding the foregoing, if the Company shall furnish to Holders requesting a registration statement pursuant to this Section 2.1 a certificate signed by the Chief Executive Officer of the Company stating that in the good faith judgment of the Board it would be materially detrimental to the Company and its stockholders for such registration statement to be filed and it is therefore necessary to defer the filing of such registration statement, the Company shall have the right to defer taking action with respect to such filing for a period of not more than ninety (90) days after receipt of the request of the Initiating Holders; provided, however, that the Company may not utilize this right more than once in any twelve-month period.

A registration statement shall not be counted until such time as such registration statement has been declared effective by the SEC (unless the Initiating Holders withdraw their request for such registration (other than as a result of information concerning the business or financial condition of the Company which is made known to the Investors after the date on which such registration was requested) and elect not to pay the registration expenses therefor pursuant to Section 2.5). A registration statement shall not be counted if, as a result of an exercise of the underwriter's cut-back provisions, fewer than seventy-five percent (75%) of the total number of Registrable Securities that Holders have requested to be included in such registration statement are actually included.

2.2. Company Registration. If the Company proposes to register (including for this purpose a registration effected by the Company for stockholders other than the Holders) any of its stock or other securities under the Securities Act in connection with the public offering of such securities solely for cash (other than a registration statement relating either to the sale of securities to employees of the Company pursuant to a stock option, stock purchase or similar plan or an SEC Rule 145 transaction, a registration on any form which does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities or a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities which are also being registered), the Company shall, at such time, promptly give each Holder written notice of such registration. Upon the written request of each Holder given within twenty (20) days after mailing of such notice by the Company in accordance with Section 6.6, the Company shall, subject to the provisions of Section 2.7, cause to be registered under the Securities Act all of the Registrable Securities that each such Holder has requested to be registered. The Company shall have the right to terminate or withdraw any registration initiated by it under this Section 2.2 prior to the effectiveness of such registration whether or not any Holder has elected to include securities in such registration. The expenses of such withdrawn registration shall be borne by the Company in accordance with Section 2.6, hereof.

2.3. Obligations of the Company. Whenever required under this Section 2 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible,

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use its reasonable best efforts to cause such registration statement to become effective, and, upon the request of the Holders of a majority of the Registrable Securities registered thereunder, keep such registration statement effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the Registration Statement has been completed; provided, however, that (i) such 120-day period shall be extended for a period of time equal to the period the Holder refrains from selling any securities included in such registration at the request of an

underwriter of Common Stock (or other securities) of the Company; and (ii) in the case of any registration of Registrable Securities on Form S-3 which are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, such 120-day period shall be extended, if necessary, to keep the registration statement effective until all such Registrable Securities are sold;

(b) prepare and file with the SEC such amendments and supplements to such registration statement and the prospectus used in connection with such registration statement as may be necessary to comply with the provisions of the Securities Act with respect to the disposition of all securities covered by such registration statement;

(c) furnish to the Holders such numbers of copies of a prospectus, including a preliminary prospectus, in conformity with the requirements of the Securities Act, and such other documents as they may reasonably request in order to facilitate the disposition of Registrable Securities owned by them;

(d) use its reasonable best efforts to register and qualify the securities covered by such registration statement under such other securities or Blue Sky laws of such jurisdictions as shall be reasonably requested by the Holders; provided that the Company shall not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the managing underwriter of such offering. Each Holder participating in such underwriting shall also enter into and perform its obligations under such an agreement;

(f) cause all such Registrable Securities registered pursuant to this Agreement hereunder to be listed on a national securities exchange or trading system and each securities exchange and trading system on which similar securities issued by the Company are then listed;

(g) provide a transfer agent and registrar for all Registrable Securities registered pursuant hereunder and a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(h) use its reasonable best efforts to furnish, at the request of any Holder requesting registration of Registrable Securities pursuant to this Section 2, on the date on which such Registrable Securities are sold to the underwriter, (i) an opinion, dated such date, of the counsel representing the Company for the purposes of such registration, in form and substance as is customarily given to underwriters in an underwritten public offering, addressed to the underwriters, if any, and (ii) a "comfort" letter dated such date, from the independent certified public accountants of the Company, in form and substance as is customarily given by independent certified public accountants to underwriters in an underwritten public offering, addressed to the underwriters, if any.

**2.4. Furnish Information.** It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 2 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as shall be reasonably required to effect the registration of such Holder's Registrable Securities.

2.5. Expenses of Demand Registration. All expenses, other than underwriting discounts and commissions, incurred in connection with registrations, filings or qualifications pursuant to Section 2.1, including (without limitation) all registration, filing and qualification fees, printers' and accounting fees, fees and disbursements of counsel for the Company and the reasonable fees and disbursements of one counsel for the selling Holders, shall be borne by the Company; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Section 2.1 if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities to be registered (in which case all participating Holders shall bear such expenses pro rata based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Holders of a majority of the Registrable Securities agree to forfeit their right to one demand registration pursuant to Section 2.

2.6. Expenses of Company Registration. The Company shall bear and pay all expenses incurred in connection with any registration, filing or qualification of Registrable Securities with respect to the registrations pursuant to Section 2.2 hereof for each Holder (which right may be assigned as provided in Section 6.2 hereof), including (without limitation) all registration, filing, and qualification fees, printers and accounting fees relating or apportionable thereto and the fees and disbursements of one counsel for the selling Holders selected by them, but excluding underwriting discounts and commissions relating to Registrable Securities.

2.7. Underwriting Requirements. In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant to Section 2.2, the Company shall not be required to include any of the Holders' securities in such underwriting unless they accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters determine in their sole discretion will not jeopardize the success of the offering by the Company subject to the limitations set forth below. If the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the amount of securities to be sold other than by the Company that the underwriters determine in their reasonable discretion is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company determine in their sole discretion will not jeopardize the success of the offering. In no event shall any Registrable Securities be excluded from such offering unless all other stockholders' securities have been first excluded. In the event that the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering, then the Registrable Securities that are included in such offering shall be apportioned pro rata among the selling Holders based on the number of Registrable Securities held by all selling Holders or in such other proportions as shall mutually be agreed to by all such selling Holders. Notwithstanding the foregoing, in no event shall the amount of securities of the selling Holders included in the offering be reduced below thirty percent (30%) of the total amount of securities included in such offering, unless such offering is the Company's IPO in which case the selling Holders may be excluded beyond this amount if the underwriters make the determination described above and no other stockholder's securities are included in such offering. For purposes of the preceding parenthetical concerning apportionment, for any selling stockholder which is a Holder of Registrable Securities and which is an investment fund, partnership, limited liability company or corporation, the partners, members, retired partners, retired members, stockholders and Affiliates of such Holder, or the estates and family members of any such partners, retired partners, members and retired members and any trusts for the benefit of any of the foregoing persons shall be deemed to be a single "selling Holder", and any pro-rata reduction with respect to such "selling Holder" shall be based upon the aggregate amount of shares carrying registration rights owned by all entities and individuals included in such "selling Holder," as defined in this sentence.

2.8. Delay of Registration. No Holder shall have any right to obtain or seek an injunction or restraining order or otherwise delay any registration pursuant to this Agreement as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 2.

2.9. Indemnification. In the event any Registrable Securities are included in a registration statement under this Section 2:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each Holder, the partners, members, officers, directors and stockholders of each Holder, legal counsel and accountants for each Holder, any underwriter (as defined in the Securities Act) for such Holder and each person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Violation and the Company will pay to each such Holder, underwriter, controlling person or other aforementioned person, any legal or other expenses reasonably incurred by them in connection with investigating or defending any such loss, claim, damage, liability, or action as such expenses are incurred; provided, however, that the indemnity agreement contained in this subsection 2.9(a) shall not apply to amounts paid in settlement of any such loss, claim, damage, liability, or action if such settlement is effected without the consent of the Company (which consent shall not be unreasonably withheld), nor shall the Company be liable in any such case for any such loss, claim, damage, liability, or action to the extent that it arises out of or is based upon a Violation which occurs in reliance upon and in conformity with written information furnished expressly for use in connection with such registration by any such Holder, underwriter, controlling person or other aforementioned person.

(b) To the extent, permitted by law, each selling Holder will severally and not jointly indemnify and hold harmless the Company, each of its directors, each of its officers who has signed the registration statement, each person, if any, who controls the Company within the meaning of the Securities Act, legal counsel and accountants for the Company, any underwriter, any other Holder selling securities in such registration statement and any controlling person of any such underwriter or other Holder, against any losses, claims, damages, or liabilities (joint or several) to which any of the foregoing persons may become subject, under the Securities Act, the Exchange Act or other federal or state law, insofar as such losses, claims, damages, or liabilities (or actions in respect thereto) arise out of or are based upon any Violation, in each case to the extent (and only to the extent) that such Violation occurs in reliance upon and in conformity with written information furnished by such Holder expressly for use in connection with such registration; and each such Holder will pay any legal or other expenses reasonably incurred by any person intended to be indemnified pursuant to this subsection 2.9(b), in connection with investigating or defending any such loss, claim, damage, liability, or action; provided, however, that the indemnity agreement contained in this subsection 2.9(b) shall not apply to amounts paid in settlement of any such loss, claim, damage, liability or action if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld; provided, further, that, in no event shall any indemnity under this subsection 2.9(b) exceed the net proceeds from the offering received by such Holder, except in the case of fraud or willful misconduct by such Holder.

(c) Promptly after receipt by an indemnified party under this Section 2.9 of notice of the commencement of any action (including any governmental action), such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Section 2.9, deliver to the indemnifying party a written notice of the commencement thereof and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party (together with all other indemnified parties which may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual

or potential differing interests between such indemnified party and any other party represented by such counsel in such proceeding. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action, if prejudicial to its ability to defend such action, shall relieve such indemnifying party of any liability to the indemnified party under this Section 2.9, but the omission so to deliver written notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Section 2.9.

(d) In order to provide for just and equitable contribution to joint liability under the Securities Act in any case in which either (i) any Holder exercising rights under this Agreement, or any controlling person of any such Holder, makes a claim for indemnification pursuant to this Section 2.9 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case notwithstanding the fact that this Section 2.9 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any such selling Holder or any such controlling person in circumstances for which indemnification is provided under this Section 2.9, then, and in each such case, the Company and such Holder will contribute to the aggregate losses, claims, damages or liabilities to which they may be subject (after contribution from others) in such proportion as is appropriate to reflect the relative fault of the indemnifying party on the one hand and of the indemnified party on the other in connection with the statements or omissions that resulted in such loss, liability, claim, damage, or expense as well as any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or the omission or alleged omission to state a material fact relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission; provided however, that, in any such case, (I) no such Holder will be required to contribute any amount in excess of the public offering price of all such Registrable Securities offered and sold by such Holder pursuant to such registration statement, and (II) no person or entity guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any person or entity who was not guilty of such fraudulent misrepresentation; provided further, that in no event shall a Holder's liability pursuant to this Section 2.9(d), when combined with the amounts paid or payable by such holder pursuant to Section 2.9(b), exceed the proceeds from the offering (net of any underwriting discounts or commissions) received by such Holder, except in the case of willful fraud by such Holder.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

(f) Unless otherwise superseded by an underwriting agreement entered into in connection with the underwritten public offering, the obligations of the Company and Holders under this Section 2.9 shall survive the completion of any offering of Registrable Securities in a registration statement under this Section 2, and otherwise and shall survive the termination of this Agreement.

2.10. Reports Under Exchange Act. With a view to making available to the Holders the benefits of Sec Rule 144 promulgated under the Securities Act and any other rule or regulation of the SEC that may at any time permits a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company agrees to:

(a) make and keep public information available, as those terms are understood and defined in SEC Rule 144, at all times after the effective date of the first registration statement filed by the Company for the offering of its securities to the general public so long as the Company is subject to the periodic reporting requirements under Sections 13 or 15(d) of the Exchange Act;

(b) file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act; and

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144, the Securities Act and the Exchange Act (at any time after it has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after it so qualifies), (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company, and (iii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC which permits the selling of any such securities without registration or pursuant to such form.

2.11. Form S-3 Registration. In case the Company shall receive from Holders of Registrable Securities then outstanding a written request or requests that the Company effect a registration on Form S-3 and any related qualification or compliance with respect to all or a part of the Registrable Securities owned by such Holder or Holders, the Company will:

(a) promptly give written notice of the proposed registration, and any related qualification or compliance, to all other Holders; and

(b) as soon as practicable, effect such registration and all such qualifications and compliances as may be so requested and as would permit or facilitate the sale and distribution of all or such portion of such Holder's or Holders' Registrable Securities as are specified in such request, together with all or such portion of the Registrable Securities of any other Holder or Holders joining in such request as are specified in a written request given within 15 days after receipt of such written notice from the Company; provided, however, that the Company shall not be obligated to effect any such registration, qualification or compliance, pursuant to this Section 2.11: (1) if Form S-3 is not then available for such offering by the Holders; (2) if the Holders, together with the holders of any other securities of the Company entitled to inclusion in such registration, propose to sell Registrable Securities and such other securities (if any) at an aggregate price to the public (net of any underwriters' discounts or commissions) of less than One Million Dollars (\$1,000,000); (3) if the Company shall furnish to the Holders a certificate signed by the President of the Company stating that in the good faith judgment of the Board, it would be materially detrimental to the Company and its stockholders for such Form S-3 Registration to be effected at such time, in which event the Company shall have the right to defer the filing of the Form S-3 registration statement for a period of not more than ninety (90) days after receipt of the request of the Holder or Holders under this Section 2.11; provided, however, that the Company shall not utilize this right more than once in any twelve month period, and, provided further that the Company shall not register any securities for the account of itself or any other stockholder during such ninety day period (other than a registration relating solely to the sale of securities of participants in a Company stock plan, a registration relating to a corporate reorganization or transaction under SEC Rule 145, a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities, or a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered); (4) if the Company has, within the twelve (12) month period preceding the date of such request, already effected two (2) registrations on Form S-3 for the Holders pursuant to this Section 2.11; or (5) in any particular jurisdiction in which the Company would be required to qualify to do business or to execute a general consent to service of process in effecting such registration, qualification or compliance; or (6) during the period ending one hundred eighty (180) days after the effective date of a registration statement subject to Section 2.2 hereof.

(c) Subject to the foregoing, the Company shall file a registration statement covering the Registrable Securities and other securities so requested to be registered as soon as practicable after receipt of the request or requests of the Holders. All expenses incurred in connection with a registration requested pursuant to Section 2.11, including (without limitation) all registration, filing, qualification, printer's and accounting fees and the reasonable fees and disbursements of counsel for the selling Holder or Holders and counsel for the Company, but excluding any underwriters' discounts or commissions associated with Registrable Securities, shall be borne by the Company. Registrations effected pursuant to this Section 2.11 shall not be counted as demands for registration or registrations effected pursuant to Sections 2.1.

(d) If the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as part of their request made pursuant to this Section 2.11 and the Company shall include such information in the written notice referred to in Section 2.11(a). The provisions of Section 2.1(b) shall be applicable to such request (with the substitution of Section 2.11, for references to Section 2.1).

2.12. Limitations on Subsequent Registration Rights. From and after the date of this Agreement, the Company shall not, without the prior written consent of the Holders of a majority of the Registrable Securities then outstanding, enter into any agreement with any holder or prospective holder of any securities of the Company which would allow such holder or prospective holder (a) to include such securities in any registration unless under the terms of such agreement, such holder or prospective holder may include such securities in any such registration only to the extent that the inclusion of such securities will not reduce the amount of the Registrable Securities of the Holders that are included or (b) to demand registration of any securities held by such holder or prospective holder.

2.13. "Market Stand-Off" Agreement. Each Holder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the Company's IPO and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days which period may be extended upon the request of the managing underwriter for an additional period of up to fifteen (15) days if the Company issues or proposes to issue an earnings or other public release within fifteen (15) days of the expiration of the 180-day lockup period) (i) lend, offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock held immediately prior to the effectiveness of the Registration Statement for such offering, or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the Common Stock, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash or otherwise. The foregoing provisions of this Section 2.13 shall apply only to the Company's IPO, shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, and shall only be applicable to the Holders if all officers, directors and greater than one percent (1%) stockholders of the Company enter into similar agreements. The underwriters in connection with the Company's IPO are intended third-party beneficiaries of this Section 2.13 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in the Company's IPO that are consistent with this Section 2.13 or that are necessary to give further effect thereto. Any discretionary waiver or termination of the restrictions of any or all of such agreements by the Company or the underwriters shall apply to all Holders

subject to such agreements pro rata based on the number of shares subject to such agreements, except that, notwithstanding the foregoing, the Company and the underwriters may, in their sole discretion, waive or terminate these restrictions with respect to up to 100,000 shares of the Company's Common Stock.

In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to the Registrable Securities of each Holder (and the shares or securities of every other person subject to the foregoing restriction) until the end of such period.

2.14. Termination of Registration Rights. No Holder shall be entitled to exercise any right provided for in this Section 2, after five (5) years following the consummation of a Qualified Public Offering.

(b) In addition, the right of any Holder to exercise any right provided for in this Section 2, including the right to request registration or inclusion in a registration, shall terminate when all shares of Registrable Securities held by such Holder can be sold without restriction under SEC Rule 144(k).

### 3. Inspection Rights and Confidentiality.

3.1. Inspection. The Company shall permit an Investor or Stockholder, at such Investor's or Stockholder's expense, to visit and inspect the Company's properties, to examine its books of account and records and to discuss the Company's affairs, finances and accounts with its officers, all at such reasonable times as may be reasonably requested by the Investor or Stockholder; provided, however, that the Company shall not be obligated pursuant to this Section 3.1, to provide access to any information which it reasonably considers to be a trade secret or similar confidential information or would adversely affect the attorney-client privilege between the Company and its counsel. The covenant set forth in this Section 3.1 shall terminate and be of no further force or effect (i) immediately prior to the consummation of an IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Sections 12(g) or 15(d) of the Exchange Act; or (iii) upon a Sale of the Company, whichever event shall first occur.

3.2. Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge or use for any purpose, other than to monitor its investment in the Company, any confidential information obtained from the Company pursuant to the terms of this Agreement, unless such confidential information (i) is known or becomes known to the public in general (other than as a result of a breach of this Section 3.2 by such Investor), (ii) is or has been independently developed or conceived by the Investor without use of the Company's confidential information or (iii) is or has been made known or disclosed to the Investor by a third party without a breach of any obligation of confidentiality such third party may have to the Company; provided, however, that an Investor may disclose confidential information (a) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its investment in the Company, (b) to any prospective investor of any Registrable Securities from such Investor as long as such prospective investor agrees to be bound by the provisions of this Section 3.2 or executes a similar confidentiality agreement, (c) to any Affiliate, partner, member, stockholder, prospective investor or acquirer or wholly owned subsidiary of such Investor or such other person with whom Investor is considering entering into a strategic relationship as long as such person agrees to be bound by the provisions of this Section 3.2 or executes a similar confidentiality agreement or (d) as may otherwise be required by law (including without limitation disclosure of financial and other information required to be made in regulatory filings by Arrowhead), provided that the Investor takes reasonable steps to minimize the extent of any such

required disclosure. The Company acknowledges that the Investors may be in the business of venture capital investing and therefore review the business plans and related proprietary information of many enterprises, including enterprises which may have products or services which compete directly or indirectly with those of the Company. Nothing in this Agreement shall preclude or in any way restrict the Investors from investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company.

4. Right of First Offer; First Refusal Right on Future Rounds: Directed Shares Right of First Offer. Subject to the terms and conditions specified in this Section 4.1, and applicable securities laws, in the event the Company proposes to offer or sell any New Securities, the Company shall first make an offering of such New Securities to each Investor and Stockholder (for purposes of this Section 4.1 only, each a “**Major Investor**,” and collectively, “**Major Investors**”) in accordance with the following provisions of this Section 4.1. A Major Investor shall be entitled to apportion the right of first offer hereby granted it among itself and its partners, members and Affiliates in such proportions as it deems appropriate.

(a) The Company shall deliver a notice, in accordance with the provisions of Section 6.6 hereof (the “**Offer Notice**”), to each of the Major Investors stating (i) its bona fide intention to offer such New Securities, (ii) the number of such New Securities to be offered, and (iii) the price and terms, if any, upon which it proposes to offer such New Securities.

(b) By written notification received by the Company, within twenty (20) calendar days after mailing of the Offer Notice, each of the Major Investors may elect to purchase or obtain, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the number of shares of Common Stock issued and held (and any other securities convertible into, or otherwise exercisable or exchangeable for, shares of Common Stock) by such Major Investor bears to the total number of shares of Common Stock of the Company then outstanding (assuming full conversion and exercise of all convertible or exercisable securities). The Company shall promptly, in writing, inform each Major Investor that elects to purchase all the shares available to it (each, a “**Fully-Exercising Investor**”) of any other Major Investor’s failure to do likewise. During the ten (10) day period commencing after receipt of such information, each Fully-Exercising Investor shall be entitled to obtain that portion of the New Securities for which Major Investors were entitled to subscribe but which were not subscribed for by the Major Investors which is equal to the proportion that the number of shares of Common Stock issued and held by such Fully-Exercising Investor bears to the total number of shares of Common Stock issued and held by all Fully-Exercising Investors who wish to purchase such unsubscribed shares.

(c) If all New Securities referred to in the Offer Notice are not elected to be purchased or obtained as provided in Section 4.1(b) hereof, the Company may, during the ninety (90) day period following the expiration of the period provided in Section 4.1(b) hereof, offer the remaining unsubscribed portion of such New Securities (collectively, the “**Refused Securities**”) to any person or persons at a price not less than, and upon terms no more favorable to the offeree than, those specified in the Offer Notice. If the Company does not enter into an agreement for the sale of the New Securities within such period, or if such agreement is not consummated within thirty (30) days of the execution thereof, the right provided hereunder shall be deemed to be revived and such New Securities shall not be offered unless first reoffered to the Major Investors in accordance with this Section 4.1.

(d) The right of first offer in this Section 4.1 shall not be applicable to: (i) shares of Common Stock issued or deemed issued to employees or directors of, or consultants to, the Company or any of its subsidiaries pursuant to a plan, agreement, or arrangement approved by the Board; (ii) shares of Series C Preferred Stock or Series D Preferred Stock issued in a transaction or series of transactions in a

bona fide private financing transaction of the Company; (iii) shares of Common Stock issued in an IPO; (iii) the issuance of securities pursuant to the conversion or exercise of convertible or exercisable securities outstanding on the date hereof; (iv) securities issued in connection with any stock split or stock dividend of the Company; (v) the issuance of securities in connection with a bona fide business acquisition of or by the Company, whether by merger, consolidation, sale of assets, sale or exchange of stock or otherwise unanimously approved by the Board; (vi) the issuance of stock, warrants or other securities or rights to persons or entities with which the Company has business relationships provided such issuances are for other than primarily capital raising purposes and provided that at the time of any such issuance, the aggregate of such issuance and similar issuances in the preceding twelve month period do not exceed one percent (1%) of the then outstanding Common Stock of the Company (assuming full conversion and exercise of all convertible and exercisable securities); or (vii) the issuance of up to an aggregate of 250,000 shares of Common Stock, or the grant of options or warrants therefor, in connection with any present or future borrowing, line of credit, leasing or similar financing arrangement approved by the Board, including at least one Investor-Designated Director and by a majority of the members of the Board who are not employees of the Company or any subsidiary.

(e) In lieu of complying with the provisions of this Section 4.1, the Company may elect to give notice to the Major Investors within thirty (30) days after the issuance of New Securities. Such notice shall describe the type, price and terms of the New Securities: Each Major Investor shall have twenty (20) days from the date of receipt of such notice to elect to purchase up to the number of New Securities that would, if purchased by such Major Investor, maintain such Major Investor's percentage ownership position, calculated as set forth in Section 4.1(b) prior to giving effect to the issuance of such New Securities. The closing of such sale shall occur within sixty (60) days of the date of notice to the Major Investors.

4.2. Directed IPO Shares. In the event of an IPO, the Company will use its reasonable best efforts to cause the managing underwriter(s) of such IPO to designate a number of shares equal to ten percent (10%) of the Company's shares of Common Stock to be offered in such IPO for sale under a "directed shares program" and shall instruct such underwriter(s) to allocate no less than fifty percent (50%) of such directed shares program to be sold to persons or entities designated by the Investor, pro rata on the basis of the number of shares held by each such holder. The shares designated by the underwriter(s) for sale under a directed shares program are referred to herein as "directed shares." The Investors acknowledge that, despite the Company's use of its reasonable best efforts, the underwriter(s) may determine in their sole discretion that it is not advisable to designate all such shares as directed shares in the IPO, in which case the number of designated shares may be reduced or no directed shares may be designated, as applicable. The Investors also acknowledge that notwithstanding the terms of this Agreement, the sale of any directed shares to any person or entity pursuant to this Agreement will only be made in compliance with Rule 2110 of the National Association of Securities Dealers, Inc. Conduct Rules, IM-21 10-1 and federal, state and local laws, rules and regulations.

4.3. Termination. The provisions of Section 4.1 shall terminate (i) immediately prior to the consummation of a Qualified Public Offering, (ii) when the Company first becomes subject to the periodic reporting requirements of Sections 12(g) or 15(d) of the Exchange Act; or (iii) upon a Sale of the Company, whichever event shall first occur. The provisions of Section 4.2 shall terminate upon a Sale of the Company.

5. Additional Covenants Insurance; Director Indemnification. The Company shall maintain its existing policy of Directors and Officers Errors and Omissions insurance. The Company shall provide indemnification to the former directors of Carbon Nanotechnologies, Inc., a Delaware corporation ("CNI") as and to the same extent that the Company provides indemnification to directors of the Company under the Certificate of Incorporation or bylaws of the Company.

5.2. Employee Agreements. The Company will cause each person now or hereafter employed by it or any subsidiary (or engaged by the Company or any subsidiary as a consultant/independent contractor) with access to confidential information and/or trade secrets to enter into a non-disclosure and proprietary rights assignment agreement substantially in the form approved by the Board. In addition, the Company shall not amend, modify, terminate, waive or otherwise alter, in whole or in part, any of the above-referenced agreements or any restricted stock agreement between the Company and any employee without the consent of those members of the Board elected solely by the Investors pursuant to the Voting Agreement.

5.3. Vesting of Option, Stock Grants. Unless approved by the Board, including any Investor-Designated Director, all future employees and consultants of the Company, who shall purchase, or receive options to purchase, shares of the Company's capital stock following the date hereof shall be required to execute stock purchase or option agreements providing for (i) vesting of shares over a four (4) year period, with twenty-five percent (25%) of the shares subject to such option vesting one (1) year after the applicable vesting commencement date and the balance of the shares subject to such option vesting in a series of thirty-six (36) successive equal monthly installments over the thirty-six (36)-month period measured from the first anniversary of the vesting commencement date, and (ii) a 180-day lockup period in connection with the Company's IPO. The Company shall retain a "right of first refusal" on employee transfers until the Company's IPO and the right to repurchase unvested shares at cost.

5.4. Meetings of the Board. Unless otherwise determined by the vote of a majority of the directors then in office, the Board shall meet at least quarterly in accordance with an agreed upon schedule.

5.5. Successor Indemnification. In the event that the Company or any of its successors or assigns (i) consolidates with or merges into any other entity and shall not be the continuing or surviving corporation or entity of such consolidation or merger or (ii) transfers or conveys all or substantially all of its properties and assets to any person or entity, then, and in each such case, to the extent necessary, proper provision shall be made so that the successors and assigns of the Company assume the obligations of the Company with respect to indemnification of members of the Board as in effect immediately prior to such transaction, whether in the Company's bylaws, Certificate of Incorporation, or elsewhere, as the case may be.

5.6. Termination of Covenants. The covenants set forth in this Section 5, except for Section 5.5, shall terminate and be of no further force or effect (i) immediately prior to the consummation of the sale of shares of Common Stock in the Company's IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Sections 12(g) or 15(d) of the Exchange Act; or (iii) upon a Sale of the Company, whichever event shall first occur.

## 6. Miscellaneous.

6.1. Successors and Assigns. The terms and conditions of this Agreement shall inure to the benefit of and be binding upon the respective successors and assigns of the parties. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and assigns any rights, remedies, obligations, or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement.

6.2. Transfers of Rights. Except as otherwise expressly provided herein, the provisions hereof shall inure to the benefit of, and be binding upon, the successors, permitted assigns, heirs, executors and administrators of the parties hereto. The registration rights under Section 2 hereof, the information rights under Section 3 hereof, and the rights of first refusal under Section 4 hereof, may only be transferred to transferees or assignees acquiring the greater of (a) at least 300,000 shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and/or Series D Preferred Stock (on an as-converted basis and subject to appropriate adjustment for stock splits, stock dividends, combinations, and other recapitalizations) or (b) all shares of Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and Series D Preferred Stock (or Common Stock issued upon conversion thereof), then held by the transferor; provided that each transferee or assignee of rights under this Agreement shall continue to be subject to the terms hereof, and, as a condition to the Company's recognizing such transfer, each transferee or assignee shall agree in writing to be subject to each of the terms of this Agreement by executing and delivering an Adoption Agreement substantially in the form attached hereto as Exhibit A. Upon the execution and delivery of an Adoption Agreement by any transferee, such transferee shall be deemed to be a party hereto as if such transferee's signature appeared on the signature pages of this Agreement. By execution of this Agreement or of any Adoption Agreement, each of the parties appoints the Company as its attorney in fact for the purpose of executing any Adoption Agreement that may be required to be delivered under the terms of this Agreement. The Company shall not permit the transfer of the Registrable Securities subject to this Agreement on its books or issue a new certificate representing any such Registrable Securities unless and until such transferee shall have complied with the terms of this Section 6.2. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties or their respective executors, administrators, heirs, successors and assigns any rights, remedies, obligations, or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement. Notwithstanding the foregoing, the rights of first refusal contained in Section 4 may be transferred or assigned only to a Person that is an "accredited" investor as defined in Rule 501 of the Securities Act.

### 6.3. RESERVED.

6.4. Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, without regard to its principles of conflicts of laws.

6.5. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. This Agreement may also be executed and delivered by facsimile signature and in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

6.6. Titles and Subtitles. The titles and subtitles used in this Agreement are used for convenience only and are not to be considered in construing or interpreting this Agreement.

6.7. Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient, and if not so confirmed, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent to the respective parties at their address as set forth on the signature page or Schedule A hereto, or to such email address, facsimile number or address as subsequently modified by written notice given in accordance with this Section 6.6.

6.8. Costs of Enforcement. If any party to this Agreement seeks to enforce its rights under this Agreement by legal proceedings, the non-prevailing party shall pay all costs and expenses incurred by the prevailing party, including, without limitation, all reasonable attorneys' fees.

6.9. Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance and either retroactively or prospectively), only with the written consent of (i) the Company, (ii) the holders of at least a majority of the Registrable Securities then outstanding and held by the Stockholders and (iii) the holders of at least a majority of the Registrable Securities then outstanding and held by the Investors. Any amendment or waiver effected in accordance with this paragraph shall be binding upon each holder of any Registrable Securities then outstanding, each future holder of all such Registrable Securities, and the Company. Notwithstanding the foregoing, this Agreement may not be amended or terminated and the observance of any term hereunder may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, termination or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Investors may nonetheless, by agreement with the Company, purchase securities in such transaction). The Company shall give prompt written notice of any amendment or termination hereof or waiver hereunder to any party hereto that did not consent in writing to such amendment, termination or waiver. Any amendment, termination or waiver effected in accordance with this Section 6.8 shall be binding on all parties hereto, even if they do not execute such consent. No waivers of or exceptions to any term, condition or provision of this Agreement, in any one or more instances, shall be deemed to be, or construed as, a further or continuing waiver of any such term, condition or provision. Any party may agree to waive or amend its own rights hereunder with respect to the Company or another party without the necessity of obtaining the consent or agreement of any other party.

6.10. Severability. The invalidity or unenforceability of any provision hereof shall in no way affect the validity or enforceability of any other provision.

6.11. Aggregation of Stock. All shares of Registrable Securities held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement.

6.12. Entire Agreement. This Agreement (including the Schedules hereto) constitutes the full and entire understanding and agreement between the parties with respect to the subject matter hereof, and any other prior written or oral agreement, or contemporaneous written or oral agreement, relating to the subject matter hereof existing between the parties are expressly canceled.

6.13. Delays or Omissions. No delay or omission to exercise any right, power or remedy accruing to any party under this Agreement, upon any breach or default of any other party under this

Agreement, shall impair any such right, power or remedy of such nonbreaching or non-defaulting party nor shall it be construed to be a waiver of any such breach or default, or an acquiescence therein, or of or in any similar breach or default thereafter occurring; nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. Any waiver, permit, consent or approval of any kind or character on the part of any party of any breach or default under this Agreement, or any waiver on the part of any party of any provisions or conditions of this Agreement, must be in writing and shall be effective only to the extent specifically set forth in such writing. All remedies, either under this Agreement or by law or otherwise afforded to any party, shall be cumulative and not alternative.

6.14. Prior Agreement Superseded. Pursuant to Section 6.9 of the Prior Agreement, the undersigned parties who are parties to such Prior Agreement hereby amend and restate the Prior Agreement to read in its entirety as set forth in this Agreement, all with the intent and effect that the Prior Agreement shall hereby be terminated and entirely replaced and superseded by this Agreement.

**[SIGNATURE PAGE FOLLOWS]**



IN WITNESS WHEREOF, the parties have executed this Second Amended and Restated Investors' Rights Agreement as of the date first above written.

**INVESTORS:**

ARROWHEAD RESEARCH CORPORATION  
a Delaware corporation

By:           /s/ Christopher Anzalone          

Name: Christopher Anzalone

Title: Chief Executive Officer

Address: 201 South Lake Avenue  
Suite 703

Pasadena, CA 91101-3074

IN WITNESS WHEREOF, the parties have executed this Second Amended and Restated Investors' Rights Agreement as of the date first above written.

**INVESTORS:**

Name: \_\_\_\_\_  
(Print Name of Investor)

By: \_\_\_\_\_  
(Print name of signatory, if signing on behalf of entity)

Title: \_\_\_\_\_  
(Print title of signatory, if signing on behalf of an entity)

Signature: \_\_\_\_\_

## ARROWHEAD RESEARCH CORPORATION

## SUBSCRIPTION AGREEMENT

Ladies and Gentlemen:

1. Subscription; Payment. The undersigned (referred to herein as “**Investor**”), intending to be legally bound under this Subscription Agreement (the “**Agreement**”), hereby irrevocably agrees to purchase from Arrowhead Research Corporation, a Delaware corporation (the “**Company**”), this subscription (the “**Subscription**”) in the amount of \$\_\_\_\_\_ (the “**Capital Commitment**”) for \$0.634 per Unit (as defined below) (the “**Unit Price**”), for a total of \_\_\_\_\_ Units. Each Unit shall consist of one (1) share of the Company’s common stock, \$0.001 par value per share (the “**Common Stock**,” and such shares of Common Stock under the Units collectively referred to herein as the “**Shares**”) and a warrant, in substantially the form attached hereto as Exhibit A, to purchase a number of Shares to the number of Units purchased pursuant to the Subscription (the Common Stock issuable upon exercise of the Warrants, the “**Warrant Shares**”). Each Share and Warrant shall be referred to herein as a “**Unit**” and collectively, the “**Units**”. This Subscription is submitted to Investor in accordance with and subject to the terms and conditions described in this Subscription Agreement.

Investor shall either: (i) enclose herewith a certified or official bank check payable to the Company or (ii) transmit by wire transfer the amount of the Capital Commitment. The Company shall deposit all proceeds received for the Subscription in an account at Citizens Business Bank, pending acceptance of the Subscription.

Contemporaneously with the execution and delivery of this Agreement, Investor is executing and delivering a registration rights agreement, in substantially the form attached hereto as Exhibit B (the “**Registration Rights Agreement**”), pursuant to which, among other things, the Company will agree to provide certain registration rights with respect to the Shares and the Warrant Shares under the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder (the “**Securities Act**”) and applicable state securities laws. This Agreement, the Warrant, the Registration Rights Agreement and any documents, certificates or instruments executed and delivered by the Company pursuant hereto are collectively referred to herein as the “**Transaction Agreements**.”

2. Acceptance of Subscription; Closing. The Investor understands and agrees that the Company in its sole discretion reserves the right to accept or reject this or any other subscription in whole or in part, notwithstanding prior receipt by Investor of notice of acceptance. If this Subscription is rejected by the Company in whole or in part, the Company shall promptly return all funds received from the Investor without interest or deduction and this Subscription Agreement shall thereafter be of no further force or effect. If the Subscription is accepted in whole or in part, the Company shall notify the Investor of the date(s) of the closing of the purchase and sale of Units (each, a “**Closing**”), which Closing shall occur after the close of market at the offices of the Company.

The Company shall deliver to the Investor one or more stock certificates and Warrants evidencing the number of Units the Investor is purchasing pursuant to the Subscription promptly after the Closing.

3. Representations and Warranties of the Company. The Company hereby represents and warrants to the Investor as of the date of Closing as follows:

(a) The Company is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware. The Company has all required corporate power and authority to carry on its business as presently conducted, to enter into and perform the Transaction Agreements and to carry out the transactions contemplated hereby.

(b) The Transaction Agreements (including the sale and delivery of the Units and the reservation for issuance and the subsequent issuance of Warrant Shares upon exercise of the Warrants) are, or will be upon stockholder approval, if necessary to increase the number of authorized shares of Common Stock of the Company (the “**Stockholder Approval**”), valid and binding obligations of the Company enforceable against the Company in accordance with their respective terms, except (i) as such enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium, liquidation or similar laws relating to, or affecting generally the enforcement of, creditors’ rights and remedies or by other principles of general application, (ii) as limited by laws relating to the availability of specific performance, injunctive relief or other equitable remedies and (iii) insofar as indemnification and contribution provisions may be limited by applicable law. The execution, delivery and performance of the Transaction Agreements executed and delivered by the Company pursuant hereto and the issuance and delivery of the Units and the issuance of the Warrant Shares upon exercise of the Warrants have been duly authorized by all necessary corporate or other action of the Company, provided that the Company shall obtain the Stockholder Approval, if necessary. When issued and paid for in accordance with the terms of the Transaction Agreements, the Shares and the issuance of Warrant Shares upon exercise of the Warrants will be duly and validly issued, fully paid and non-assessable and free and clear of all liens and encumbrances, other than restrictions on transfer provided for in the Transaction Agreements or imposed by applicable securities laws, and shall not be subject to preemptive or similar rights.

(c) The execution and delivery of the Transaction Agreements by the Company pursuant hereto, and the issuance and delivery of the Units and the Warrant Shares upon exercise of the Warrants, do not and will not: (i) violate, conflict with, or result in a violation of, or constitute or result in a default or loss of any benefit under, any provision of the Certificate of Incorporation, as amended (the “**Charter**”), or bylaws of the Company, or cause the creation of any encumbrance upon any of its assets; (ii) violate, conflict with, or result in a violation of, or constitute a default under, any provision of any applicable law, regulation or rule, or any order of, or any restriction imposed by, any court or governmental agency of competent jurisdiction; (iii) require from the Company any notice to, declaration or filing with, or consent or approval of, any governmental authority or other third party; or (iv) violate, conflict with, or result in a violation of, or constitute or result in a default under, accelerate any obligation under, or give rise to a right of termination of, any contract, agreement, permit, license, authorization or other obligation to which the Company is a party or by which the Company or any of its assets are bound.

(d) Assuming the accuracy of the representations and warranties of Investor in this Agreement, the Shares and the Warrant Shares will be issued in compliance with all applicable federal and state securities laws. As of the date of Closing, the Company shall have reserved from its duly authorized capital stock the number of shares of Common Stock or Preferred Stock issuable upon exercise of the Warrants (without taking into account any limitations on the exercise of the Warrants set forth in the Warrants). The Company shall, so long as any of the Warrants are outstanding, take all action necessary to reserve and keep available out of its authorized and unissued capital stock, solely for the purpose of effecting the exercise of the Warrants, the number of shares of Common Stock or Preferred Stock issuable upon exercise of the Warrants (without taking into account any limitations on the exercise of the Warrants set forth in the Warrants).

(e) The number of shares and type of all authorized, issued and outstanding capital stock, options and other securities of the Company (whether or not presently convertible into or exercisable or exchangeable for shares of capital stock of the Company) is set forth in Schedule 3(e) hereto. The Company has not issued any capital stock since the date of its most recently filed SEC Report (as defined below) except as set forth in Schedule 3(e).

(f) The Company has filed all reports, schedules, forms, statements and other documents required to be filed by it under the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder (the “**Exchange Act**”), including pursuant to Section 13(a) or 15(d) thereof, for the two years preceding the date hereof (or such shorter period as the Company was required by law or regulation to file such material) (the foregoing materials, including the exhibits thereto and documents incorporated by reference therein, being collectively referred to herein as the “**SEC Reports**”) on a timely basis or has received a valid extension of such time of filing and has filed any such SEC Reports prior to the expiration of any such extension, except where the failure to file on a timely basis would not have or reasonably be expected to result in a Material Adverse Effect (as defined below). As of their respective filing dates, or to the extent corrected by a subsequent restatement, the SEC Reports complied in all material respects with the requirements of the Securities Act and the Exchange Act and the rules and regulations of the United States Securities and Exchange Commission (the “**Commission**”) promulgated thereunder. “**Material Adverse Effect**” means a material adverse effect on the results of operations, assets, prospects, business or financial condition of the Company and its consolidated subsidiaries, taken as a whole, except that any of the following, either alone or in combination, shall not be deemed a Material Adverse Effect: (i) effects caused by changes or circumstances affecting general market conditions in the U.S. economy or which are generally applicable to the industry in which the Company operates, provided that such effects are not borne disproportionately by the Company, (ii) effects resulting from or relating to the announcement or disclosure of the sale of the Units or other transactions contemplated by this Agreement, or (iii) effects caused by any event, occurrence or condition resulting from or relating to the taking of any action in accordance with this Agreement.

(g) The financial statements of the Company included in the SEC Reports comply in all material respects with applicable accounting requirements and the rules and regulations of the Commission with respect thereto as in effect at the time of filing (or to the extent corrected by a subsequent restatement). Such financial statements have been prepared in accordance with U.S. generally accepted accounting principles (“**GAAP**”) applied on a

consistent basis during the periods involved, except as may be otherwise specified in such financial statements or the notes thereto and except that unaudited financial statements may not contain all footnotes required by GAAP, and fairly present in all material respects the financial position of the Company and its consolidated subsidiaries taken as a whole as of and for the dates thereof and the results of operations and cash flows for the periods then ended, subject, in the case of unaudited statements, to normal, immaterial year-end audit adjustments.

(h) Since the date of the latest audited financial statements included within the SEC Reports, except as specifically disclosed in a subsequent SEC Report filed prior to the date hereof, (i) there have been no events, occurrences or developments that have had or would reasonably be expected to have, either individually or in the aggregate, a Material Adverse Effect, (ii) the Company has not incurred any material liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the Company's financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered materially its method of accounting or the manner in which it keeps its accounting books and records, and (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock (other than in connection with repurchases of unvested stock issued to employees of the Company).

(i) Assuming the accuracy of Investor's representations and warranties set forth in Section 4 of this Agreement, no registration under the Securities Act is required for the offer and sale of the Units by the Company to Investor under the Transaction Agreements. The issuance and sale of the Units hereunder does not contravene the rules and regulations of the NASDAQ Capital Market.

4. Representations and Warranties. Investor hereby acknowledges, represents and warrants to, and agrees with, the Company as follows:

(a) Investor understands that the offering and sale of the Units are intended to be exempt from registration under the Securities Act, by virtue of Section 4(2) of the Securities Act, and in accordance therewith and in furtherance thereof, Investor represents and warrants and agrees as follows:

(i) Investor has been afforded an opportunity to review information relating to the Company, the Company's business and finances, the offering by the Company of the Units and any and all other information deemed relevant by Investor in order to make an informed investment decision regarding the Units (collectively, the "**Information**"), and has reviewed and received such Information and understands the Information and the Transaction Agreements;

(ii) Investor acknowledges that all documents, records and books pertaining to this investment (including, without limitation, the Information) have been made available for inspection by Investor, Investor's attorney, accountant or advisor(s);

(iii) Investor and/or Investor's advisor(s) has/have had a reasonable opportunity to ask questions of and receive answers from a person or persons on behalf of the Company concerning the offering of the Units and all such questions have been answered to the full satisfaction of Investor;

(iv) No oral or written representations have been made other than as stated, or in addition to those stated, in the Information, and no oral or written information furnished to Investor or Investor's advisors in connection with the offering of the Units was in any way inconsistent with the information stated in the Information;

(v) Investor is not subscribing for the Units as a result of or subsequent to any advertisement, article, notice, other communication published in any newspaper, magazine or similar media or broadcast over television or radio, or presented at any seminar or meeting, or any solicitation of a subscription by a person other than a representative of the Company;

(vi) If Investor is a natural person, Investor has reached the age of majority in the state in which Investor resides;

(vii) The address set forth below is Investor's true and correct domicile;

(viii) Investor has adequate means of providing for Investor's current financial needs and contingencies, is able to bear the substantial economic risks of an investment in the Units for an indefinite period of time, has no need for liquidity in such investment, and, at the present time, could afford a complete loss of such investment;

(ix) Investor has such knowledge and experience in financial, tax and business matters so as to enable Investor to utilize the information made available to Investor in connection with the offering of the Units to evaluate the merits and risks of an investment in the Company and to make an informed investment decision with respect thereto;

(x) Investor is not relying on the Company with respect to the legal, tax and other economic considerations of an investment and has obtained, or had the opportunity to obtain the advice of Investor's own legal, tax and other advisors;

(xi) Investor will not sell or otherwise transfer the Units without registration under the Securities Act or applicable state securities laws or an exemption therefrom. The Units have not been registered under the Securities Act or under the securities laws of any other jurisdiction. Investor represents that Investor is purchasing the Units for Investor's own account, for investment and not with a view to resale or distribution except in compliance with the Securities Act. Investor has not offered or sold any portion of the Units being acquired nor does Investor have any present intention of selling, distributing or otherwise disposing of any portion of the Units, either currently or after the passage of a

fixed or determinable period of time or upon the occurrence or nonoccurrence of any predetermined event or circumstance in violation of the Securities Act. Investor is aware that an exemption from the registration requirements of the Securities Act pursuant to Rule 144 promulgated thereunder is not presently available; that the Company has no obligation to register Investor's Units (except as provided in the Registration Rights Agreement) or to make available an exemption from the registration requirements pursuant to such Rule 144 or any successor rule for resale of Investor's Units;

(xii) Investor (A) was not organized or reorganized for the specific purpose of acquiring the Units, (B) has made investments prior to the date hereof, and each beneficial owner thereof has and will share the same proportion in each investment and (C) Investor's investment in the Company will not constitute more than forty percent (40%) of Investor's total capital;

(xiii) INVESTOR UNDERSTANDS AND ACKNOWLEDGES THAT HIS OR HER INVESTMENT IN THE COMPANY INVOLVES A HIGH DEGREE OF RISK AND IS SUITABLE ONLY FOR INVESTORS OF SUBSTANTIAL MEANS WHO HAVE NO IMMEDIATE NEED FOR LIQUIDITY OF THE AMOUNT INVESTED, AND THAT SUCH INVESTMENT INVOLVES A RISK OF LOSS OF ALL OR A SUBSTANTIAL PART OF SUCH INVESTMENT; and

(xiv) Investor is an "accredited investor" within the meaning of Rule 501 of Regulation D promulgated under the Securities Act.

(b) Investor's overall commitment to investments which are not readily marketable is reasonable in relation to Investor's net worth.

(c) Investor hereby agrees to provide such information and to execute and deliver such documents as may reasonably be necessary to comply with any and all laws and ordinances to which the Company is subject, including, without limitation, such additional information as the Company may deem appropriate with regard to Investor's suitability.

(d) Investor acknowledges:

(i) In making an investment decision Investor has relied on Investor's own examination of the Company and the terms of the offering of the Units, including the merits and risks involved. THE UNITS OFFERED IN THIS SUBSCRIPTION AGREEMENT HAVE NOT BEEN RECOMMENDED BY ANY FEDERAL OR STATE SECURITIES COMMISSION OR REGULATORY AUTHORITY. FURTHERMORE, THE FOREGOING AUTHORITIES HAVE NOT CONFIRMED THE ACCURACY OR DETERMINED THE ADEQUACY OF THE INFORMATION OR THIS DOCUMENT. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE;

(ii) Investor, if executing the Transaction Agreements in a representative or fiduciary capacity, has full power and authority to execute and deliver the Transaction Agreements in such capacity and on behalf of the subscribing individual, ward, partnership, trust, estate, corporation, limited liability company or other entity for whom Investor is executing the Transaction Agreements, and such individual, ward, partnership, trust, estate, corporation, limited liability company or other entity has full right and power to perform pursuant to the Transaction Agreements and make an investment in the Company; and

(iii) The representations, warranties, and agreements of Investor contained herein and in any other writing delivered in connection with the transactions contemplated hereby shall be true and correct in all respects on and as of the date of the sale of the Units as if made on and as of such date and shall survive the execution and delivery of the Transaction Agreements and the purchase of the Units.

(e) Investor understands that the Units being offered and sold to it in reliance on specific exemptions from the registration requirements of United States federal and state securities laws and that the Company is relying in part upon the truth and accuracy of, and such Investor's compliance with, the representations, warranties, agreements, acknowledgements and understandings of such Investor set forth herein in order to determine the availability of such exemptions and the eligibility of such Investor to acquire the Units.

#### 5. Conditions to Closing.

(a) The obligation of Investor to acquire Units at the Closing is subject to the fulfillment of the following, on or prior to the date of Closing of the following (unless waived by Investor):

(i) The representations and warranties of the Company contained in Section 3 herein shall be true and correct in all material respects (except for those representations and warranties which are qualified as to materiality, in which case such representations and warranties shall be true and correct in all respects) as of the date of Closing, as though made on and as of such date, except for such representations and warranties that speak as of a specific date.

(ii) The Company shall have performed, satisfied and complied in all material respects with all covenants, agreements and conditions required by the Transaction Agreements to be performed, satisfied or complied with by it at or prior to the Closing and shall have obtained in a timely fashion any and all consents, permits, approvals, registrations and waivers necessary for consummation of the purchase and sale of the Units, all of which shall be and remain so long as necessary in full force and effect.

(iii) the Company shall deliver to the Investor this Agreement and the Registration Rights Agreement, duly executed by the Company;

(iv) the NASDAQ Capital Market shall have approved the listing of additional shares application for the Shares and Warrant Shares.

(b) On or prior to the Closing, the Investor shall issue, deliver or cause to be delivered to the Company the following:

(i) The representations and warranties of the Investor contained in Section 4 herein shall be true and correct in all material respects (except for those representations and warranties which are qualified as to materiality, in which case such representations and warranties shall be true and correct in all respects) as of the date when made and as of the date of Closing, as though made on and as of such date, except for such representations and warranties that speak as of a specific date.

(ii) Investor shall have performed, satisfied and complied in all material respects with all covenants, agreements and conditions required by the Transaction Agreements to be performed, satisfied or complied with by it at or prior to the Closing and shall have obtained in a timely fashion any and all consents, permits, approvals, registrations and waivers necessary for consummation of the purchase and sale of the Units, all of which shall be and remain so long as necessary in full force and effect.

(iii) Investor shall deliver to the Company:

(1) this Agreement and the Registration Rights Agreement, duly executed by Investor; and

(2) the Capital Commitment, in United States dollars and in immediately available funds, and completed Internal Revenue Service Form W-9.

#### 7. Transfer Restrictions.

(a) The Shares may only be disposed of in compliance with state and federal securities laws. In connection with any transfer of Shares, other than pursuant to an effective registration statement or Rule 144 under the Securities Act, to the Company or to an Affiliate of a Investor or in connection with a pledge as contemplated in Section 7 (b), the Company may require the transferor thereof to provide to the Company an opinion of counsel selected by the transferor and reasonably acceptable to the Company, the form and substance of which opinion shall be reasonably satisfactory to the Company, to the effect that such transfer does not require registration of such transferred Shares under the Securities Act. As a condition of transfer, any such transferee shall agree in writing to be bound by the terms of this Agreement and shall have the rights of a Investor under this Agreement and the Registration Rights Agreement.

(b) The Investors agree to the imprinting, so long as is required by this Section 7, of a legend on any of the Shares in the following form:

THIS SECURITY HAS NOT BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION OR THE SECURITIES COMMISSION OF ANY STATE IN RELIANCE UPON AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO AN AVAILABLE EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS AS EVIDENCED BY A LEGAL OPINION OF COUNSEL TO THE TRANSFEROR TO SUCH EFFECT, THE SUBSTANCE OF WHICH SHALL BE REASONABLY ACCEPTABLE TO THE COMPANY. THIS SECURITY MAY BE PLEDGED IN CONNECTION WITH A BONA FIDE MARGIN ACCOUNT WITH A REGISTERED BROKER-DEALER OR OTHER LOAN WITH A FINANCIAL INSTITUTION THAT IS AN "ACCREDITED INVESTOR" AS DEFINED IN RULE 501(a) UNDER THE SECURITIES ACT OR OTHER LOAN SECURED BY SUCH SECURITIES.

The Company acknowledges and agrees that a Investor may from time to time pledge pursuant to a bona fide margin agreement with a registered broker-dealer or grant a security interest in some or all of the Shares to a financial institution that is an "accredited investor" as defined in Rule 501(a) under the Securities Act and who agrees to be bound by the provisions of this Agreement and the Registration Rights Agreement and, if required under the terms of such arrangement, such Investor may transfer pledged or secured Shares to the pledgees or secured parties. Such a pledge or transfer would not be subject to approval of the Company and no legal opinion of legal counsel of the pledgee, secured party or pledgor shall be required in connection therewith. Further, no notice shall be required of such pledge. At the appropriate Investor's expense, the Company will execute and deliver such reasonable documentation as a pledgee or secured party of Shares may reasonably request in connection with a pledge or transfer of the Shares, including, if the Shares are subject to registration pursuant to the Registration Rights Agreement, the preparation and filing of any required prospectus supplement under Rule 424(b)(3) under the Securities Act or other applicable provision of the Securities Act to appropriately amend the list of Selling Stockholders thereunder.

(c) Certificates evidencing the Shares shall not contain any legend (including the legend set forth in Section 7(b)), (i) while a registration statement (including the Registration Statement) covering the resale of such security is effective under the Securities Act, or (ii) following any sale of such Shares pursuant to Rule 144, or (iii) if such Shares or Warrant Shares are eligible for sale without restriction under Rule 144, or (iv) if such legend is not required under applicable requirements of the Securities Act (including judicial interpretations and pronouncements issued by the staff of the Commission). The Company shall cause its counsel to issue a legal opinion to the Transfer Agent promptly after the Effective Date if required by the Transfer Agent to effect the removal of the legend hereunder. If any portion of a Warrant is exercised at a time when there is an effective registration statement to cover the resale of the Warrant Shares, such Warrant Shares shall be issued free of all legends. The Company agrees that following the Effective Date or at such time as such legend is no longer required under this Section 7(c), it will use reasonable efforts to, within three Business Days following the delivery by a Investor to the Company or the Transfer Agent of a certificate representing Shares or Warrant Shares, as the case may be, issued with a restrictive legend (such third Business Day, the "Legend Removal Date"), deliver or cause to be delivered to such Investor, a certificate representing such shares free from all restrictive legends. The Company may not make any notation on its records or give instructions to the Transfer Agent that enlarge the restrictions on transfer set forth in this Section. Certificates for Securities subject to legend removal hereunder shall be transmitted by the Transfer Agent to the Investor by crediting the account of the Investor's prime broker with the Depository Trust Company System as directed by such Investor.

(d) Each Investor, severally and not jointly with the other Investors, agrees that such Investor will sell any Securities pursuant to either the registration requirements of the Securities Act, including any applicable prospectus delivery requirements, or an exemption therefrom, and that if Securities are sold pursuant to a Registration Statement, they will be sold in compliance with the plan of distribution set forth therein, and acknowledges that the removal of the restrictive legend from certificates representing Shares as set forth in this Section 7 is predicated upon the Company's reliance upon this understanding.

8. Indemnification. Investor agrees to indemnify and hold harmless the Company its officers, members, directors, employees, consultants, advisors, attorneys, agents and affiliates against any and all loss, liability, claim, damage and expense whatsoever (including, without limitation, any and all expenses reasonably incurred in investigating, preparing, or defending against any litigation commenced or threatened or any claim whatsoever) arising out of or based upon any false representation or warranty or breach or failure by Investor to comply with any covenant or agreement made by Investor herein or in any other document furnished by Investor to any of the foregoing in connection with this transaction.

9. Irrevocability; Binding Effect; Entire Agreement. Investor hereby acknowledges and agrees that the Subscription hereunder is irrevocable by Investor, that, except as required by law, Investor is not entitled to cancel, terminate or revoke this Subscription Agreement or any agreements of Investor hereunder, and that this Subscription Agreement and such other agreements shall survive the death or disability of Investor and shall be binding upon and inure to the benefit of the parties and their heirs, executors, administrators, successors, legal representatives and permitted assigns. If Investor is more than one person, the obligations of Investor hereunder shall be joint and several and the agreements, representations, warranties and acknowledgments herein contained shall be deemed to be made by and be binding upon each such person and his/her heirs, executors, administrators, successors, legal representatives and permitted assigns. The Transaction Agreements sets forth the entire agreement and understanding among the parties hereto with respect to the transactions contemplated hereby and supersedes any and all prior agreements and understandings relating to the subject matter hereof.

10. Modification. Neither this Subscription Agreement nor any provisions hereof shall be waived, modified, discharged or terminated except by an instrument in writing signed by the party against whom any such waiver, modification, discharge or termination is sought.

11. Notices. All notices and other communications required or permitted hereunder shall be in writing and shall be mailed by registered or certified mail, postage prepaid, or otherwise delivered by facsimile transmission, by hand or by messenger, addressed:

(a) If to the Company, to:

Arrowhead Research Corporation  
201 South Lake Avenue, Suite 703  
Pasadena, California 91101  
Attention: President;  
Facsimile number 626-792-5554

or at such other address as the Company shall have furnished to the Investors, with a copy (which shall not constitute notice) to Goodwin Procter LLP, Three Embarcadero Center, 24<sup>th</sup> Floor, Attn.: Ryan Murr.

(b) If to Investor, at the address set forth on the signature page hereof (or, in either case, to such other address as the party shall have furnished in writing in accordance with the provisions of this Section 11).

Each such notice or other communication shall for all purposes of this Agreement be treated as effective or having been given when delivered if delivered personally, if sent by facsimile, the first business day after the date of confirmation that the facsimile has been successfully transmitted to the facsimile number for the party notified, or, if sent by mail, at the earlier of its receipt or 72 hours after the same has been deposited in a regularly maintained receptacle for the deposit of the United States mail, addressed and mailed as aforesaid.

12. Assignability. This Subscription Agreement and the rights and obligations hereunder are not transferable or assignable by the Investor.

13. Applicable Law; Jurisdiction. This Agreement shall be governed in all respects by the internal laws of the State of Delaware without regard to conflict of laws provisions. The parties hereto (i) designate the courts of the State of Delaware as the forum where all matters pertaining to this Agreement may be adjudicated, and (ii) by the foregoing designation, consent to the exclusive jurisdiction and venue of such courts for the purpose of adjudicating all matters pertaining to this Agreement.

14. Severability. If any provision of this Agreement is held to be invalid or unenforceable in any respect, the validity and enforceability of the remaining terms and provisions of this Agreement shall not in any way be affected or impaired thereby and the parties will attempt to agree upon a valid and enforceable provision that is a reasonable substitute therefor, and upon so agreeing, shall incorporate such substitute provision in this Agreement.

15. Counterparts. This Agreement may be executed by facsimile, in any number of counterparts, each of which shall be an original and all of which together shall constitute one instrument.

16. Nature of Subscriber. Investor is (check one):

- (a) One or more individuals  
 (b) A corporation

- (c) A partnership
- (d) A trust
- (e) Another entity or organization, namely

\_\_\_\_\_ (please specify)

17. Limitations on Investment in Investment Companies.

If Investor is not an individual, check the box below which correctly describes the application of the following statement to your situation: Investor would not, upon acquiring the Shares, have more than ten percent (10%) of its assets invested in one or more investment companies that rely solely on the exclusion from the definition of "investment company" provided in Section 3(c)(1)(A) of the Investment Company Act of 1940:\*

- True
- False

If the "False" box is checked, Investor will as of the Closing have \_\_\_\_\_ individual stockholders, partners or other record owners and non-individual stockholders, partners or other record owners. Those non-individual stockholders, partners or other record owners to whom application of the above statement would be "False" have an aggregate of \_\_\_\_\_ ultimate beneficial owners who are either individuals or to whom application of the above statement would be "True."

18. Matters Relating to the Undersigned's Ownership of the Shares.

(a) All correspondence relating to Investor's investment should be sent (check one):

- (i) to the address of Investor set forth on the signature page hereof

\* Section 3(c)(1)(A) provides, in pertinent part:

"[N]one of the following persons is an investment company. . .

(1) Any issuer whose outstanding securities (other than short-term paper) are beneficially owned by not more than one hundred persons and which is not making and does not presently propose to make a public offering of its securities. For purposes of this paragraph:

(A) Beneficial ownership by a company shall be deemed to be beneficial ownership by one person, except that, if such company owns 10 percent or more of the outstanding voting securities of the issuer, the beneficial ownership shall be deemed to be that of the holders of such company's outstanding securities (other than short-term paper) unless, as of the date of the most recent acquisition by such company of securities of that issuer, the value of all securities owned by such company of all issuers which are or would, but for the exception set forth in this subparagraph, be excluded from the definition of investment company solely by this paragraph, does not exceed 10 percent of the value of the company's total assets. . . ."

(ii) to the following address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(b) Investor may be contacted by telephone at the following telephone numbers:

(i) Home telephone: \_\_\_\_\_

(ii) Business telephone: \_\_\_\_\_

(iii) Facsimile telephone: \_\_\_\_\_

(c) Investor may be contacted by electronic mail at the following email address:

\_\_\_\_\_

**SUBSCRIPTION AGREEMENT SIGNATURE PAGE  
FOR INDIVIDUALS**

IN WITNESS WHEREOF, the undersigned executed this Agreement this \_\_\_ day of \_\_\_\_\_, 2009.

No. of Units Purchased:

\_\_\_\_\_

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Signature of Investor

\_\_\_\_\_  
Social Security Number

\_\_\_\_\_  
Residence Address

If the purchaser has indicated that the Shares will be held as JOINT TENANTS, as TENANTS IN COMMON, or as COMMUNITY PROPERTY, please complete the following:

\_\_\_\_\_  
Print Name of Spouse or Other Purchaser

\_\_\_\_\_  
Signature of Spouse or Other Purchaser

\_\_\_\_\_  
Social Security Number

ACCEPTED AND AGREED:

ARROWHEAD RESEARCH CORPORATION

By: \_\_\_\_\_

Name:

Title:

Dated: \_\_\_\_\_, 2009

**SUBSCRIPTION AGREEMENT SIGNATURE PAGE  
FOR PARTNERSHIPS, CORPORATIONS, TRUSTS, OR OTHER ENTITIES**

IN WITNESS WHEREOF, the undersigned has executed this Agreement this \_\_\_ day of \_\_\_\_\_, 2009.

No. of Units Purchased:

\_\_\_\_\_

\_\_\_\_\_  
Print Name of Partnership, Corporation,  
Trust or other Entity

By: \_\_\_\_\_  
(Signature of Authorized Signatory)

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Jurisdiction where organized: \_\_\_\_\_

Taxpayer Identification  
Number: \_\_\_\_\_

Date of Formation: \_\_\_\_\_

Address of Chief Executive Officer of Subscriber:

\_\_\_\_\_  
\_\_\_\_\_

ACCEPTED AND AGREED:

ARROWHEAD RESEARCH CORPORATION

By: \_\_\_\_\_

Name:

Title:

Dated: \_\_\_\_\_, 2009

List of Subsidiaries

- Calando Pharmaceuticals, Inc.
- Unidym, Inc.
- Tego Biosciences Corporation
- Agonn Systems, Inc.
- Masa Energy Inc.

**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We hereby consent to the incorporation by reference in this Annual Report on Form 10-K of Arrowhead Research Corporation for the year ended September 30, 2009 of our report dated December 21, 2009 included in its Registration Statements on Form S-1 (No. 333-161344), Forms S-3 (Nos. 333-113065, 333-124065, 333-132310, 333-137329, 333-144109, and 333-148218), and Forms S-8 (Nos. 333-136225, 333-124066, and 333-120072) relating to the consolidated financial statements of Arrowhead Research Corporation and Subsidiaries for the year ended September 30, 2009.

Rose, Snyder & Jacobs

A Corporation of Certified Public Accountants

Encino, California

December 21, 2009

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER  
PURSUANT TO RULE 13a-14(a) OR RULE 15d-14(a)  
OF THE SECURITIES EXCHANGE ACT OF 1934**

I, Christopher Anzalone, Chief Executive Officer of Arrowhead Research Corporation, certify that:

1. I have reviewed this Annual Report on Form 10-K of Arrowhead Research Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated Subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: December 22, 2009

/s/ CHRISTOPHER ANZALONE

**Christopher Anzalone**  
**Chief Executive Officer & Principal Executive Officer**

**CERTIFICATION OF CHIEF FINANCIAL OFFICER  
PURSUANT TO RULE 13a-14(a) OR RULE 15d-14(a)  
OF THE SECURITIES EXCHANGE ACT OF 1934**

I, Joseph T. Kingsley, Chief Financial Officer of Arrowhead Research Corporation, certify that:

1. I have reviewed this Annual Report on Form 10-K of Arrowhead Research Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated Subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: December 22, 2009

/s/ Joseph T. Kingsley

**Joseph T. Kingsley,  
Interim Chief Financial Officer  
(Principal Accounting Officer)**

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER  
PURSUANT TO RULE 13a-14(b) OR RULE 15d-14(b)  
OF THE SECURITIES EXCHANGE ACT OF 1934  
AND 18 U.S.C. SECTION 1350**

I, Christopher Anzalone, Chief Executive Officer of Arrowhead Research Corporation (the "Company"), certify, pursuant to Rule 13(a)-14(b) or Rule 15(d)-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, that (i) the Annual Report on Form 10-K of the Company for the fiscal year ended September 30, 2009, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and (ii) the information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of the Company.

Date: December 22, 2009

/s/ CHRISTOPHER ANZALONE

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**Christopher Anzalone**  
**Chief Executive Officer & Principal Executive Officer**

A signed original of these written statements required by 18 U.S.C. Section 1350 has been provided to Arrowhead Research Corporation and will be retained by Arrowhead Research Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

**CERTIFICATION OF CHIEF FINANCIAL OFFICER  
PURSUANT TO RULE 13a-14(b) OR RULE 15d-14(b)  
OF THE SECURITIES EXCHANGE ACT OF 1934  
AND 18 U.S.C. SECTION 1350**

I, Joseph T. Kingsley, Chief Financial Officer of Arrowhead Research Corporation (the "Company"), certify, pursuant to Rule 13(a)-14(b) or Rule 15(d)-14(b) of the Securities Exchange Act of 1934 and 18 U.S.C. Section 1350, that (i) the Annual Report on Form 10-K of the Company for the fiscal year ended September 30, 2009, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and (ii) the information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of the Company.

Date: December 22, 2009

/s/ Joseph T. Kingsley

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**Joseph T. Kingsley**  
**Interim Chief Financial Officer**  
**(Principal Accounting Officer)**

A signed original of these written statements required by 18 U.S.C. Section 1350 has been provided to Arrowhead Research Corporation and will be retained by Arrowhead Research Corporation and furnished to the Securities and Exchange Commission or its staff upon request.