ARROWHEAD RESEARCH CORP
Form 10-K
December 18, 2013

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

FORM 10-K

(Mark One)

x ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended September 30, 2013.

¨ 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

ARROWHEAD RESEARCH CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	46-0408024
(State of incorporation)	(I.R.S. Employer Identification No.)

225 S. Lake Avenue, Suite 1050

Pasadena, California 91101

(626) 304-3400

(Address and telephone number of principal executive offices)

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

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 x

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 x

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 x 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 x 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. x

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 x

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

The aggregate market value of issuer s outstanding Common Stock held by non-affiliates was approximately $38 million based upon the bid price of issuer s Common Stock on March 31, 2013. Shares of common stock held by each

officer and director and by each person who is known to own 10% or more of the outstanding Common Stock have been excluded in that such persons may be deemed to be affiliates of the Company. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of December 16, 2013, 38,700,363 shares of the issuer s Common Stock were outstanding.

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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 intend 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 disclaim any intent 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.

PART I

ITEM 1. BUSINESS

Description of Business

OVERVIEW

Arrowhead Research Corporation is a biopharmaceutical company developing targeted RNAi therapeutics. The Company is leveraging its proprietary drug delivery technologies to develop drugs based on the RNA interference mechanism that efficiently silences disease-causing genes. These platforms have yielded several drug candidates under internal and partnered development. Arrowhead technologies also enable partners to create peptide-drug conjugates that specifically home to cell types of interest while sparing off-target tissues. Arrowhead s pipeline includes clinical programs in chronic hepatitis B virus and partner-based programs in obesity and oncology.

Lead Product Candidate

- ARC-520 is an RNAi-based therapeutic designed to treat chronic hepatitis B virus (HBV) infection. It is the first drug candidate from Arrowhead s Dynamic Polyconjugate® siRNA delivery platform. It is designed to treat chronic HBV infection by reducing the expression and release of new viral particles and key viral proteins with the goal of achieving a functional cure. The Company completed its planned enrollment in a Phase 1 clinical trial in 2013 and expects to begin a Phase 2a trial in the first half of 2014 and a Phase 2b trial in the second half of 2014.

Platform Technologies

- The Dynamic Polyconjugate (DPC®) platform is a small RNA delivery system that may be targeted to address multiple organ systems and cell types. It is a modular system that may be optimized on a target-by-target basis and has been demonstrated to promote multi-log gene knockdown, induce efficient endosomal escape, and has a favorable safety profile using a variety of siRNA molecules.

- Arrowhead s Homing Peptides platform is a vast, proprietary library of short peptides that have demonstrated rapid and specific internalization into a wide variety of cell types. This library is being mined for the potential targeting of RNAi therapeutics using the DPC delivery system as well as to enable partners to target traditional small molecule or peptide drugs.

Pipeline Development Strategy

Arrowhead s internal drug pipeline is intended to drive value directly through the clinical development of novel therapeutics and to provide proof of concept for our platform technologies. Our core areas of focus for expanding our internal pipeline of RNAi therapeutics are: (1) develop intravenous (IV) administered liver-targeted candidates; (2) develop subcutaneously administered liver-targeted candidates; and (3) explore extra-hepatic targets, including oncology.

We actively seek collaboration and licensing agreements with leading biopharmaceutical companies to augment their pipelines through the application of our technologies and to advance the development and commercialization of our own technology platforms and drug candidates. Partnerships are intended to provide access to external expertise and capital to complement our internal development and create commercialization opportunities in areas outside of our core focus.

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Recent Events

Arrowhead made significant progress on product and platform development during fiscal 2013 and focused our resources on advancing targeted RNAi therapeutics based on the DPC delivery system. The following are highlights of this progress:

- Published data showing first ever cholesterol-siRNA mediated gene knockdown in primates using a novel DPC co-injection strategy;

- Strengthened our balance sheet and expanded our institutional shareholder base with equity financings totaling $107.5 million in gross proceeds since the period ended September 30, 2012;

- Signed a collaboration and license agreement with Shire AG providing them access to the Homing Peptide technology to develop peptide-targeted therapeutics for a rare disease target;

- Strategically focused internal resources on expanding our pipeline of DPC-enabled RNAi therapeutics, while terminating development of the RONDEL delivery platform and its clinical candidate, CALAA-01;

- Published preclinical data showing that a single injection of ARC-520 induces multi-log reductions of viral RNA, proteins, and viral DNA;

- Expanded patent protection of ARC-520 and DPC platform extending through 2032;

- Presented data on ARC-520 at the Annual Meeting of the American Association for the Study of Liver Diseases (AASLD) demonstrating reduction of key HBV antigens and DNA, and evidence of immune reactivation in a chimpanzee with chronic HBV infection;

- Completed planned enrollment in a Phase 1 clinical trial indicating ARC-520 is generally safe and well-tolerated at all six dose levels studied, enabling the company to proceed with its plans to initiate a Phase 2a clinical trial;

- Submitted for ethics and regulatory permission to initiate a Phase 2a pilot efficacy clinical trial in chronic HBV patients; and

- Advanced our preclinical pipeline of RNAi therapeutics to include a lead program against an orphan liver disease.

Acquisition of Roche RNAi business

The last few years have brought substantial change to Arrowhead s research and development (R&D) capabilities and strategy. We have transitioned from being a nanotechnology holding company in multiple industries to a focused biotech model. We are now a unified RNAi therapeutics company, developing novel drugs that silence disease causing genes based on our broad RNAi and peptide technology platforms.

The most significant step in this transition was our 2011 acquisition of Roche s RNAi therapeutics business, which included the Dynamic Polyconjugate, or DPC, delivery system that we use in our hepatitis B drug candidate, ARC-520. Roche built this business unit in a manner that only a large pharmaceutical company is capable of: backed by expansive capital resources, they systematically acquired technologies, licensed expansive IP, attracted leading scientists, developed new technologies internally, and built state-of-the-art facilities. At a time when the markets were questioning whether RNAi could become a viable therapeutic modality, we saw great promise in the technology broadly and the quality of what Roche built specifically. The acquisition provided us with three primary sources of value:

(1) Broad freedom to operate within three siRNA formats, canonical, meroduplex, and dicer substrate siRNA structures;

(2) Best-in-class small RNA delivery system, the targetable DPC platform; and

(3) A state-of-the-art R&D facility in Madison, Wisconsin, including a large team of scientists experienced in RNAi and siRNA delivery.

We see this as a powerful combination of intellectual property, R&D infrastructure, and RNAi delivery experts. It provided us with the tools we needed to build an independent and broad RNAi company. We believe we are the only company with access to all three siRNA structures and this enables us to optimize the RNAi trigger on a target-by-target basis. Our DPC delivery system enables us to deliver siRNA efficiently to hepatocytes and non-hepatic tissues in a highly specific manner. Our R&D team and facility enable rapid innovation and drive to the clinic, as evidenced by the speed at which we have advanced the ARC-520 program. As we look at the RNAi space, we do not see any company with as powerful and complete a combination of assets and capabilities as ours.

We have made great strides since the acquisition. We brought ARC-520 into the clinic, completed a Phase 1 trial, and we are in the process of initiating a Phase 2 trial. Additionally, we have made important advances in the DPC delivery technology. This includes new generations of DPCs capable of inducing deep and durable gene knockdown with various constructs designed for both IV and subcutaneous administration. A key to DPC s potency, and one of its differentiating qualities, is a polymer backbone designed to induce efficient endosomal escape. This allows more of the siRNA to get into the cytosol where it can engage the cell s RNAi machinery. We have also taken advantage of our DPC s targetable nature and have made substantial progress toward extra-hepatic delivery.

Delivering outside the liver is important for maximizing the value of DPCs and to continue to differentiate Arrowhead from its competitors. Toward those ends, we have active programs to identify and evaluate targeting ligands that may be used with DPCs. As part of this initiative, in April 2012 we acquired Alvos Therapeutics, a privately held company that licensed a large platform of proprietary human-derived homing peptides from MD Anderson Cancer Center. This library contains peptides discovered through screening in human patients, and we are actively determining whether we could use these peptides to target DPCs.

We have focused our resources behind the DPC platform and our focus is entirely on advancing ARC-520 through the clinic and developing additional DPC-enabled RNAi therapeutics. Additionally, Arrowhead now has the infrastructure, expertise, IP portfolio, and management that we believe is necessary to attract and support a broad range of partnerships and research collaborations with large biopharma companies from discovery stage through clinical trials.

Pipeline Overview

Our internal preclinical and clinical development programs are designed to create value directly through our proprietary candidates. These programs also drive value to the technology platforms as proof of concept for the power of the programs to enable innovative new therapies.

Internal Clinical Program

ARC-520 Hepatitis B Virus Infection

According to the World Health Organization, 360 million people worldwide are chronically infected with hepatitis B virus, of which 500,000 to 1,000,000 people die each year from HBV related liver disease. Chronic HBV infection is defined by the presence of hepatitis B surface antigen (HBsAg) for more than 6 months. In the immune tolerant phase of chronic infection, which can last for many years, the infected person typically produces very high levels of viral DNA and viral antigens. However, the infection is not cytotoxic and the carrier may have no symptoms of illness. Over time, the ongoing production of viral antigens causes inflammation and necrosis, leading to elevation of liver enzymes such as alanine and aspartate transaminases, hepatitis, fibrosis, and liver cancer (HCC). If untreated, as many as 25% to 40% of chronic carriers develop cirrhosis or HCC. Antiviral therapy is generally prescribed when liver enzymes become elevated.

The current standard of care for treatment of chronic HBV infection is a daily oral dose of nucleotide/nucleoside analogs (NUCs) or a regimen of interferon injections 2 to 7 times weekly for approximately one year. NUCs are generally well-tolerated, but patients may need lifetime treatment because viral replication often rebounds upon cessation of treatment. Interferon therapeutics can result in a functional cure in 10-20% of some patient types, but treatment is often associated with significant side effects, including severe flu-like symptoms, marrow suppression, and autoimmune disorders.

We see the need for a next generation HBV treatment with fewer side effects, that eliminates the need for interferon based treatment, has a finite treatment period and an attractive dosing regimen, and one that can be used at earlier stages of disease. We believe a novel therapeutic approach that can effectively treat or provide a functional cure (development of patient antibodies against HBsAg) has the potential to take significant market share and may expand the available market to include patients that are currently untreated.

ARC-520 is an siRNA therapeutic intended for delivery to the active site of infection using our proprietary Dynamic Polyconjugate (DPC) technology. ARC-520 consists of two siRNA duplexes, each conjugated to a cholesterol derivative to enhance liver delivery and cellular uptake. We have designed ARC-520 to be co-administered with an active excipient, a masked, hepatocyte targeted polymeric amine. Once the siRNAs and the active excipient are taken up by the hepatocytes, the polymeric amines are unmasked in the endosome and disrupt the endosomal membrane, releasing the siRNA to the cytoplasm where it can engage the RNAi machinery of the cell.

The siRNAs in ARC-520 are designed to target multiple components of HBV production including the pregenomic RNA that would be reverse transcribed to generate the viral DNA. The siRNAs intervene at the mRNA level, upstream of where NUCs act, and target the mRNAs that produce HBsAg proteins, the viral polymerase, the core protein that forms the capsid, the pre-genomic RNA and the HBeAg. NUCs are effective at reducing production of viral particles, but are ineffective at controlling production of viral antigens and other HBV gene products. A reduction of viral antigens is considered necessary to effective therapy because their presence is thought to be a major contributor to repression of the immune system and the persistence of liver disease secondary to HBV infection.

Chronic HBV Untreated:

ARC-520 Versus NUC Intervention:

Efficacy data in mouse models of HBV infection show that ARC-520 is capable of reducing HBsAg by greater than 3 log (99.9%), HBV DNA by approximately 3 logs, and HBeAg to the limit of detection. Pharmacologic effects persist for approximately one month after a single dose of ARC-520. Safety data in rodents and non-human primates indicate an acceptable safety margin.

Additional preclinical data in a chimpanzee chronically infected with HBV demonstrate that intravenous administration of two doses (2 mg/kg on day 1, and 3 mg/kg on day 15) of ARC-520, resulted in substantial and sustained reductions in HBV DNA, HBeAg, and HBsAg, which did not return to baseline until study day 43, 43, and 71, respectively. In addition, an increase in serum alanine transaminase (ALT) occurred 4 weeks after the second dose, coincident with the nadir of circulating HBsAg. This is suggestive of a therapeutic immunological flare, which is thought to be part of a cascade that under chronic therapy may lead to HBsAg seroconversion and functional cure. Observed increases in key chemokine/cytokine mRNAs are also consistent with a T-cell mediated immunological event.

Arrowhead completed its planned enrollment in a Phase 1 trial in the fall of 2013. The study was designed to characterize the safety profile of ARC-520 across a range of doses and evaluate pharmacokinetics. It was a single-center, randomized, double-blind, placebo-controlled, single dose-escalation, first-in-human study of ARC-520 administered intravenously to healthy adult volunteers. All subjects received either placebo or ARC-520 in doses ranging from 0.01 mg/kg to 2 mg/kg. The study was planned to enroll 36 subjects in six cohorts of six subjects each, with 2 subjects receiving placebo and 4 receiving ARC-520. The study successfully enrolled all 36 subjects (24 received ARC-520, 12 placebo) at a single center in Melbourne, Australia. All subjects received their full, assigned dose and there were no discontinuations for adverse events or otherwise.

Based on pre-clinical studies, including GLP toxicology, it is expected that if any clinically significant or dose-limiting toxicities were to occur, they would be observed within the first 24-48 hours after administration, and would be apparent in elevations in blood chemistries. The anticipated organs of interest for potential toxicity and the resultant chemistries are liver (ALT), kidney (creatinine, urea), and muscle (CK, AST, LDH, Troponin I). In the Phase 1 study, laboratory results have not indicated any organ toxicity involving the liver, kidney, or muscle in any subject.

There have been no serious or severe adverse events reported in any subject. Overall, adverse events have been consistent with those typically seen in normal volunteer studies, including in placebo subjects. The most common events reported were upper respiratory infection, (which were not unexpected as the trial was enrolled during the Australian winter), and headache. The only other event reported in more than one subject was mild lightheadedness. Neither occurrence was accompanied by any changes in vital signs, laboratories or physical examinations. Adverse events appear to have been randomly scattered across all six dosing groups with no apparent dose-related increases in occurrence rate or severity with the possible exception of mild lightheadedness. Both subjects with mild lightheadedness were in the 2 mg/kg group. Laboratory abnormalities have occurred sporadically across groups and time points pre- and post-dosing. None of these indicate any organ toxicity and the frequency and severity do not appear to be dose-related.

In the first half of 2014, Arrowhead plans to conduct a Phase 2a multicenter, randomized, double-blind, placebo-controlled, dose-escalation study to determine the depth and duration of hepatitis B surface antigen (HBsAg) reduction after a single intravenous dose of ARC-520 in combination with entecavir in patients with chronic HBV infection. The Company has conducted combination studies in mouse models of HBV, and ARC-520 appears to have at least additive and possibly a synergistic effect with entecavir. We also believe that a patient population with adequately controlled viral load, but uncontrolled antigenemia may provide us with a clear signal of ARC-520 s

activity.

Chronic dose GLP-toxicology studies are underway to support a Phase 2b study planned to begin in the second half of 2014. That study is planned to have clinical sites in the US, Western Europe, Asia, and potentially other regions.

Partner-based Pipeline

Adipotide Obesity and Metabolic Disorder

Adipotide has been developed by our majority-owned subsidiary, Ablaris Therapeutics, Inc. (Ablaris). Arrowhead owns 64% of the fully diluted shares of Ablaris. Adipotide is based on the Homing Peptide library developed at MD Anderson Cancer Center, the licensor, which is also funding and managing a Phase 1 clinical trial. Patient recruiting is on-going, and though internal resources are not being expended on this program, the Company continues to monitor its progress to determine whether it can be an attractive licensing candidate.

An Investigational New Drug Application (IND) for Adipotide was filed with the FDA, and patient enrollment began in 2012 as part of a Phase 1 clinical trial to test the safety of the compound in human patients. Our collaborator, MD Anderson Cancer Center in Houston, plans to enroll up to 39 obese prostate cancer patients in the Phase 1 study and has agreed to bear all direct costs of this trial. Up to five dose levels of the drug candidate will be tested in the trial. Three participants will be enrolled at each dose level, with the first group of participants receiving the lowest dose level by injection under the skin once per day for 28 days and each new group receiving a higher dose than the group before it, if no intolerable side effects are seen. This will continue until the highest tolerable dose is found or the study terminates.

Cyclosert and CRLX-101 (formerly IT-101)

The linear cyclodextrin-based drug delivery platform, Cyclosert, was designed for the delivery of small molecule drugs. In December 2008, we completed a Phase 1 trial with IT-101, a conjugate of the linear cyclodextrin polymer and Camptothecin, a potent anti-cancer drug, with a positive safety profile and indications of efficacy.

In June 2009, we entered into a transaction with Cerulean Pharmaceuticals, Inc., a privately held Boston, Massachusetts based company. Cerulean licensed rights to further research and commercialize IT-101 (now known as CRLX-101), and the Cyclosert platform for all products except for nucleic acids, tubulysin, cytolysin and second-generation epothilones. In connection with the transaction, we assigned certain patents to Cerulean and Cerulean granted back to us rights necessary to research and commercialize the excluded products.

We received an initial payment of $2.4 million, and may receive development and sales milestones, and royalty payments if CRLX-101 or other products based on the Cyclosert platform are successfully developed. Should Cerulean sublicense CRLX-101 to a third party, we are entitled to receive a percentage of any sublicensing income at rates between 10% and 40%, depending on the stage of the drug s development at the time of sublicensing.

Cerulean has multiple active Phase 2 trials ongoing to study CRLX-101 in several cancer types, including: metastatic stomach, gastroesophageal, esophageal, small cell lung, ovarian, tubal, peritoneal, and renal cell.

Alnylam Pharmaceuticals

In January 2012, Arrowhead granted Alnylam Pharmaceuticals, Inc., (Alnylam) a license to utilize the Dynamic Polyconjugate delivery technology for a single RNAi therapeutic product. Alnylam is collaborating with Arrowhead to develop this technology for an undisclosed target in its "Alnylam 5x15" pipeline, which is focused on genetically defined targets and diseases. Alnylam has not publically disclosed what progress, if any, it may have made with respect to this target. Arrowhead is eligible to receive milestone payments up to $18.1 million and royalties on sales from Alnylam.

Shire

In December 2012, Arrowhead signed a research collaboration and license agreement with Shire AG to develop and commercialize targeted peptide-drug conjugates (PDCs) utilizing Arrowhead s human-derived Homing Peptide platform and Shire s therapeutic payloads. Arrowhead may receive research funding and could be eligible for development, regulatory, and commercialization milestone payments of up to $32.8 million for each development candidate, plus additional milestone payments for a second indication, and royalties on worldwide sales.

Preclinical Programs

In addition to our clinical candidates and our partner-based programs, we are actively engaged in the discovery and development of additional pre-clinical stage products. Our lead preclinical program is a DPC-enabled RNAi therapeutic targeting an undisclosed orphan liver disease.

We have additional discovery and preclinical programs for intravenous and subcutaneous administered therapeutics targeting the liver,as well as programs targeting extra-hepatic tissues. We focus on disease targets that are well suited for intervention with targeted RNAi therapeutics using our DPC delivery platform. These may include liver disease, oncology, and other therapeutic areas.

RNAi Program

In October 2011, Arrowhead acquired Roche s RNAi business, including its RNA therapeutic assets, related intellectual property and research facility in Madison, Wisconsin. We believe that these assets position Arrowhead as one of the most advanced and broadest RNAi therapeutics companies in the world. Arrowhead possesses the following siRNA assets:

·Non-exclusive license from Alnylam to use canonical siRNAs in oncology, respiratory diseases, metabolic diseases and certain liver diseases. This includes a sub-license from Isis Pharmaceuticals granting Arrowhead a license for siRNA chemical modifications for these specific disease areas.

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Non-exclusive license from City of Hope Comprehensive Cancer Center to Dicer substrate and Meroduplex siRNAs. The Dicer technology may provide advantages over canonical siRNAs in certain circumstances. In addition, different siRNA formats may trigger RNAi more or less efficiently on a target-by-target basis.

· Patent estate covering the Dynamic Polyconjugate siRNA delivery system.

· Access to certain patents on targeting siRNA drugs with antibodies and small molecules.

· State-of-the-art laboratory facilities in Madison, Wisconsin, managed by long-term leaders in oligonucleotide therapeutics and delivery, including a small animal research facility and an offsite primate colony.

· Intellectual property covering Roche s internally developed liposomal nanoparticle drug delivery technology. We believe this represents one of the broadest siRNA drug technology and delivery portfolios in the field.

RNA Interference & the Benefits of siRNA Therapeutics

RNA interference (RNAi) is a mechanism present in living cells that inhibits the expression of a specific gene, thereby affecting the production of a specific protein. Deemed to be one of the most important recent discoveries in life science with the potential to transform medicine, the discoverers of RNAi were awarded a Nobel Prize in 2006 for their work. Mediated by small interfering RNAs (siRNA), RNAi-based therapeutics can leverage this natural pathway of gene silencing to potentially target and shut down specific disease causing genes.

Small molecule and antibody drugs have proven effective at inhibiting certain cell surface, intracellular, and extracellular targets. However, certain drug targets such as intranuclear genes and some proteins have proven difficult to inhibit with traditional drug-based and biologic therapeutics. Developing effective drugs for these targets would have the potential to address large underserved markets for the treatment of many diseases. Using the ability to specifically silence any gene, RNAi therapeutics may be able to address previously undruggable targets, unlocking the market potential of such targets.

Mechanism of RNA interference:

Advantages of RNAi as a Therapeutic Modality

·Silences the expression of disease causing genes;

·Potential to address any target in the transcriptome including previously "undruggable" targets;

·Rapid lead identification;

·High specificity;

·Opportunity to use multiple RNA sequences in one drug product for synergistic silencing of related targets; and

·siRNAs are uniquely suited for personalized medicine through target and cell specific delivery and gene knockdown.

Addressing the siRNA Delivery Challenge

To date, the primary challenge to the development of siRNA therapeutics has been delivering the fragile, often immunogenic and otherwise rapidly cleared siRNA molecules, into the cytoplasm of the cell, where RNAi activity occurs. This hurdle has prevented siRNA therapeutics from reaching full potential. Many companies have attempted to overcome the delivery challenge. Most early systems involved cholesterol conjugates or liposomes. However, development in humans has been limited due to toxicity and immunogenicity of these approaches when studied in clinical trials.

To address the delivery challenge, Arrowhead has a leading team of researchers with extensive siRNA therapeutic know-how and an advanced delivery system. The DPC system is modular and may be optimized on a target-by-target basis. Importantly, it also may be targeted to address a variety of tissues, including those outside of the liver.

The Dynamic Polyconjugate siRNA Delivery System

The DPC delivery system represents an innovative solution to the siRNA delivery problem, specifically designed to overcome barriers to systemic administration of siRNA. Developed by our scientists in Madison, Wisconsin, the inspiration for DPC technology came from the physical characteristics of viruses, nature s own nanoparticles for nucleic acid delivery. Viruses are efficient at finding their target cells and delivering their nucleic acid payload to the proper cellular compartment. Key features of viruses are their small size, their overall negative surface charge, their specificity for particular cell types based on receptors unique to that cell, and their ability to disassemble and release their nucleic acid cargo to the proper cell compartment in response to cellular triggers. All of these features are incorporated into DPC technology.

DPCs are small nanoparticles, 5-20 nanometers (nm) in size, with an amphipathic polymer backbone. Arrowhead has a library of polymers that may be employed with the system, enabling optimization based on factors such as preferred mode of administration, pharmacokinetics, and target tissue. Shielding agents such as polyethylene glycol and targeting ligands may be reversibly attached to the polymer backbone. In some constructs, the siRNA payload is attached to the DPC, while in other constructs, the siRNA circulates attached to a different carrier. When attached, the DPC construct protects the siRNA payload while allowing the polymer to circulate in the blood without creating undue toxicity. The targeting ligand guides it to the cell of interest where, together with the siRNA, it is taken up into a membrane-enclosed cellular compartment known as an endosome. The polymer is selected for its ability to disrupt the endosomal membrane, which allows the siRNA to be released into the cytoplasm. There, it engages the cell s RNAi machinery, ultimately resulting in knockdown of target gene expression. This lytic chemistry of the DPC polymeric backbone is modified, or masked , using proprietary chemistry. Masking of the polymer s lytic chemistry accomplishes two interrelated objectives that are critical to in vivo siRNA delivery:

·Reduction of toxicity by controlling when the membrane lytic property of the polymer is activated.

·Inhibition of non-specific interactions with blood components and non-targeted cell types.

Single Molecule DPCs:

DPCs using Co-injection Strategy

Arrowhead has developed multiple forms of the prototypical DPC delivery system. Our ARC-520 clinical candidate utilizes a formulation where the siRNA is conjugated to cholesterol and is not attached to the DPC. Pre-clinical studies have shown co-injection of liver-targeted DPC polymer together with siRNA conjugated to a lipophilic moiety, such as cholesterol, results in a >500-fold increase in the potency when compared to the siRNA-cholesterol alone. This formulation retains the potent endosomal escape capabilities of Arrowhead's DPC platform, simplifies drug manufacturing, and creates new targeting opportunities.

DPCs for Subcutaneous Administration

A DPC formulation for subcutaneous administration has also been developed using Arrowhead s latest proprietary polymer masking technology. Using DPCs to deliver siRNA, high-level target gene knockdown is observed at low siRNA doses with limited toxicity in rodents and non-human primates. Arrowhead studies have shown knockdown of 99% in monkeys after a single injection of 1 mg/kg, >90% at 0.5 mg/kg, and 80% in mice at 0.05 mg/kg, which represents greater knockdown at lower doses than reported results of other clinical candidates. PK and biodistribution studies indicate that the new masking technology is highly stable, allowing for maximal bioavailability and long circulation times. Arrowhead is developing this formulation for use in multiple therapeutic areas where chronic dosing may be required.

Homing Peptide Program

In April 2012, Arrowhead acquired Alvos Therapeutics, Inc. (Alvos). Alvos licensed a discovery platform and large library of proprietary human-derived Homing Peptides from the MD Anderson Cancer Center. This discovery platform is designed to identify targeting agents, such as peptides, that selectively accumulate in primary and metastatic tumors, associated vasculature, and to 30 normal tissue types. Such targeting agents are of interest for drug development because they hold the promise of shepherding drugs into specific cells while sparing others. This new platform was acquired because it fit well into our existing business. One of the key advantages of our DPC delivery systems is its ability to be targeted. With a vast proprietary targeting library of our own, we believe that we can enhance the value of our RNAi programs and differentiate our capabilities from those of our competitors.

In addition, we believe that the homing peptide sequences can be applied to non-RNA therapeutics almost as a by-product of our work targeting RNAi drugs and present attractive value to potential partners. The platform has the potential to allow partners to:

- Develop therapeutic agents that hunt down and destroy known tumors, as well as distant unidentified metastases;

- Convert cancer therapeutics that generally interact with most cells in the body to smart drugs that accumulate primarily at tumor sites and affect cancer cells preferentially, thereby improving the toxicity and side effects of currently used cancer drugs; and

- Selectively target non-cancer therapeutics to virtually any tissue type in the body where they can have the desired pharmacologic effect.

This platform is potentially powerful in the specificity of the large number of unique targeting sequences and in their origin from human screening. In addition, because of the human-based identification process, there is lower risk that animal model data will not translate. Our proprietary library of 42,000 unique targeting sequences can be used with our own delivery platforms, as well as with small molecule drugs. This platform has achieved clinical proof of concept in targeting metastatic prostate cancer with the first sequence tested in humans.

Importantly, the method used identifies peptides that are rapidly internalized into cells. These peptide-receptor pairs hold the promise of shuttling therapeutic payloads preferentially and directly into those cells. The ability to target and deliver cytotoxins would address some of the problems with current cancer therapeutics by limiting side effects and increasing efficacy.

In order to discover receptors and peptide sequences that target them, a technique called in vivo phage display is employed. Over the past several years, phage display screening has been conducted at MD Anderson Cancer Center in end-stage cancer patients with primary and metastatic tumors under rigorous ethical standards. To our knowledge, they are the only group in the world that is generating this type of human-derived data. Direct screening in human cancer patients has the potential to eliminate some of the uncertainty that has plagued current discovery methods with animal models. This strategy sought to map the human vasculature into zip codes and has discovered a large number of novel receptors that are expressed only on the cell surface of tumor sites and nowhere else. The library can be increased further through continuing work with MD Anderson to screen additional patients.

Arrowhead is working to apply this technology to targeting our proprietary siRNA delivery vehicles. Our DPC delivery platform is highly attractive in part because it has been shown to be well tolerated, effective, capable of delivering RNAs to multiple organ systems, and it is targetable. The Homing Peptide library provides our targeted RNAi therapeutic program with a powerful new source of flexibility. The library is also valuable to enable partners,

through license and collaboration deals, to create a new class of therapeutics, Peptide-Drug Conjugates, or PDCs. By linking the Homing Peptides to traditional small molecule drugs, potential partners may be able to transform a therapeutic that interacts with most cells in the body into one that interacts preferentially with the cell of choice. We believe that this transition from untargeted to targeted drugs is a paradigm shift for cancer therapeutics and that our new library puts us at the forefront of this transformation. We do not currently intend to build our own pipeline of PDCs, but do intend to work with partners to apply our targeting sequences to their drugs. We believe that this specific targeting will enable partners to make existing generics safer and more effective and help make their proprietary drugs better. Given the large number of approved APIs for oncology and the thousands of Homing Peptide sequences that we now have, there are many potential combinations of targeting sequence and drug molecules.

PDCs share the promise of the original class of guided therapeutics, antibody-drug conjugates or ADCs, in that they could increase efficacy and decrease toxicity relative to current standard of care oncology products. Benefits of PDCs as a class are as follows:

- They are potentially faster, cheaper, and simpler to make than ADCs, making them attractive development projects for biopharmaceutical companies;

- Their targets are expressed on a high percentage of multiple tumor types, giving them a larger potential commercial market than genetically targeted agents that are efficacious in only a small subset of patient populations; and

- The use of Homing Peptides that were discovered in human cancer patients as the targeting moieties for PDCs potentially increases clinical probability of success.

We believe this unique mix of benefits will be attractive to potential partners in the biopharmaceutical industry. This technology has the potential to facilitate the rapid development of multiple new product candidates, each of which could meet a critical unmet medical need. In addition, screening in man has broad applicability in other therapeutic areas of interest to the biopharmaceutical industry.

Intellectual Property

The Company controls approximately 51 issued patents (14 for DPCs; 9 for hydrodynamic gene delivery; 26 for Homing Peptides; and 2 from Calando), including European validations, and 29 patent applications (13 for DPCs; 8 for Homing Peptides; and 8 from Calando). The pending applications have been filed throughout the world, including, in the United States, Argentina, Australia, Brazil, Canada, Chile, China, Europe, the Arab States of the Gulf, Israel, India, Japan, Republic of Korea, Mexico, Peru, Philippines, Russian Federation, Singapore, Thailand, Taiwan and Venezuela.

siRNAs

The Company owns patents directed to siRNAs targeted to reduce expression of hepatitis B viral proteins as well the RRM2 gene. Calando owns a U.S. issued patent (in addition to a patent in Singapore) directed to siRNAs targeted to reduce expression of endothelial PAS domain protein 1 (EPAS1). Calando has also licensed patents from Alnylam relevant to siRNA therapeutics for its products.

Patent Group	Estimated Year of Expiration
siRNAs	
Patent directed to HIF-2 alpha (EPAS1) siRNAs	2030
Patent directed to HBV siRNAs	2032
Patent directed to RRM2 siRNAs	2031

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DPCs

The DPC related patents have issued in the United States, Australia, Canada, Europe (France, Germany, Italy, Spain, Switzerland, United Kingdom), India, Japan, Mexico, New Zealand, Philippines, Russia, South Korea, Singapore, and South Africa. The Company also controls a number of patents directed to hydrodynamic nucleic acid delivery, which issued in the United States, Australia and Europe (validated in Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, the United Kingdom, Hungary, Ireland, Italy, Netherlands and Sweden). The approximate year of expiration for each of these various groups of patents are set forth below:

Patent Group	Estimated Year of Expiration
Dynamic Polyconjugates® (DPC®)	
Membrane Active Polymers	2027
Membrane Active Polymers Additional Iterations	2024
Copolymer Systems	2024
Polynucleotide-Polymer Composition	2024
Polynucleotide-Polymer Composition Additional Iterations	2031
Polyampholyte Delivery	2017
pH Labile Molecules	2020
Endosomolytic Polymers	2020
Hydrodynamic delivery	
First iterations	2015
Second iteration	2020
Third iteration	2024

The RNAi and nanoparticle drug delivery patent landscapes are complex and rapidly evolving. As such, we may need to obtain additional patent licenses prior to commercialization of our candidates. You should review the factors identified in Risk Factors in Part I, Item 1A of this Annual Report on Form 10-K.

Homing Peptides

We also control patents related to our Homing Peptide platforms, related to Adipotide, our drug candidate for the treatment for obesity and related metabolic disorders. Approximately five of these patents are United States patents and the remaining patents are validated in Belgium, Switzerland, Germany, Spain, France, the United Kingdom, Ireland, Greece, Italy, Netherlands, Portugal, Sweden and Turkey.

Patent Group	Estimated Year of Expiration
Adipotide®	
Targeting moieties and conjugates	2021
Targeted Pharmaceutical Compositions	2021
Homing Peptides	
EphA5 Targeting Peptides	2027
IL-11R Targeting Peptides	2022

Non-Exclusively Licensed Patents

Hoffmann-La Roche, Inc. and F. Hoffmann-La Roche Ltd. (Roche) and the Company entered into a Stock and Asset Purchase Agreement on October 21, 2011 in which Roche assigned to Arrowhead its entire rights under certain licenses for example: the License and Collaboration Agreement between Roche and Alnylam Pharmaceuticals, Inc. (Alnylam) dated July 8, 2007 (the Alnylam License); the Non-Exclusive Patent License Agreement between Roche and MDRNA, Inc. dated February 12, 2009 (MDRNA License); and the Non-Exclusive License Agreement between Roche and City of Hope dated September 19, 2011 (the COH License) (Collectively the RNAi Licenses). The RNAi Licenses provide the Company with non-exclusive, worldwide, perpetual, irrevocable, royalty-bearing rights and the right to sublicense a broad portfolio of intellectual property relating to the discovery, development, manufacture, characterization, and use of therapeutic products that function through the mechanism of RNA interference for specified targets.

Core Patents relating to RNAi

The RNAi Licenses include patents relating to the general structure, architecture, and design of double-stranded oligonucleotide molecules, which engage RNA interference mechanisms in a cell. These rights include the Tuschl II patents, including issued U.S. Patent Nos. 7,056,704; 7,078,196; 7,078,196; 8,329,463; 8,362,231; 8,372,968; and 8,445,327; Tuschl I patents, including U.S. Patent Nos. 8,394,628 and 8,420,391; and allowed Tuschl I patent application, U.S. Publication No. 2011024446; City of Hope patents, including U.S. Patent No. 8,084,599; and Kreutzer-Limmer patents assigned to Alnylam, including U.S. Patent Nos. 7,829,693; 8,101,594; 8,119,608; 8,202,980; and 8,168,776.

Thomas Tuschl is the first named inventor on Tuschl I and Tuschl II. Tuschl I refers to the patents arising from the patent application entitled The Uses of 21-23 Sequence-Specific Mediators of Double-Stranded RNA Interference as a Tool to Study Gene Function and as a Gene-Specific Therapeutic. Tuschl II patents refer to the patents and patent applications arising from the patent application entitled RNA Interference Mediating Small RNA Molecules. City of Hope is the first named assignee of certain core siRNA patents. The second named assignee of these patents is Integrated DNA Technologies, Inc. Kreutzer-Limmer patents refer to the Alnylam patents and patent applications, relating to core siRNA IP, which includes inventors, Roland Kreutzer and Stefan Limmer.

Chemical modifications of double-stranded oligonucleotides

The RNAi Licenses also include patents related to modifications of double-stranded oligonucleotides, including modifications to the base, sugar, or internucleoside linkage, nucleotide mimetics, and end modifications, which do not abolish the RNAi activity of the double-stranded oligonucleotides. Also included are patents relating to modified double-stranded oligonucleotides, such as meroduplexes described in in U.S. Publication No. 20100209487 assigned to Marina Biotech (f/k/a MDRNA, Inc.), and microRNAs described in U.S. Patent Nos. 7,582,744; 7,674,778, and 7,772,387 assigned Alnylam. The RNAi Licenses also include rights from INEX/Tekmira relating to lipid-nucleic acid particles, and oligonucleotide modifications to improve pharmacokinetic activity including resistance to degradation, increased stability, and more specific targeting of cells from Alnylam and ISIS Pharmaceuticals, Inc.

Manufacturing techniques for the double-stranded oligonucleotide molecules or chemical modifications

The RNAi Licenses also include patents relating to the synthesis and manufacture of double-stranded oligonucleotide molecules for use in RNA interference, as well as chemical modifications of such molecules, as described above. These include methods of synthesizing the double-stranded oligonucleotide molecules such as in the core Tuschl I allowed U.S. Application No. 12/897,749, the core Tuschl II U.S. Patent Nos. 7,056,704; 7,078,196; and 8,445,327; and Alnylam s U.S. Patent Nos. 8,168,776, as well as methods of making chemical modifications of the

double-stranded oligonucleotides such as described in Alnylam s U.S. Patent No. 7,723,509 and INEX s U.S. Patent Nos. 5,976,567; 6,858,224; and 8,484,282. Patent applications are currently pending that further cover manufacturing techniques for double-stranded oligonucleotide molecules or chemical modifications.

Uses and Applications of Double-Stranded Oligonucleotide Molecules or Chemical modifications

The RNAi Licenses also include patents related to uses of the double-stranded oligonucleotides that function through the mechanism of RNA interference. These include for example, the core Tuschl I U.S. Patent No. 8,394,628 and Tuschl II U.S. Patent No. 8,329,463; Alnylam s U.S. Patent Nos. 7,763,590; 8,101,594, and 8,119,608, and City of Hope s U.S. Patent No. 8,084,599. Other more specific uses have been acquired and patent applications are currently pending that cover additional end uses and applications of double-stranded oligonucleotides functioning through RNA interference.

License Agreements

Cerulean License

The linear cyclodextrin-based drug delivery platform, Cyclosert, was designed for the delivery of small molecule drugs. In December 2008, we completed a Phase 1 trial with IT-101, a conjugate of Calando s linear cyclodextrin polymer and Camptothecin, a potent anti-cancer drug, with a positive safety profile and indications of efficacy.

On June 23, 2009, we entered into a transaction with Cerulean related to Cyclosert and IT-101 (the Cerulean Transaction). In the Cerulean Transaction, we granted Cerulean an irrevocable, perpetual, royalty bearing worldwide license with the right to sublicense, under certain patent rights and know-how in the field of human diseases solely in order to: (a) conduct research and development on the Linear Cyclodextrin System, including making improvements thereto, in order to research and commercialize our clinical asset IT-101 (now known as CRLX-101), as well as certain other products in which no therapeutic agent is specifically defined (the Cerulean Products); (b) research, develop, make, have made, use, market, offer to sell, distribute, sell and import CRLX-101 and Cerulean Products; and (c) use, copy, modify and distribute certain know-how for those purposes. In the Cerulean Transaction, we retained all rights with respect to products in which a therapeutic agent is a (i) tubulysin, (ii) cytolysin, (iii) second generation epothilone or (iv) nucleic acid (hereinafter Calando Products).

The Cerulean Transaction also involved the sale and assignment by us of certain patents directed to Cyclosert and CRLX-101 (the Cerulean Assigned Patents) to Cerulean. Cerulean then granted back to us an exclusive, irrevocable, perpetual, royalty free, worldwide license, with the right to grant sublicenses, under the Cerulean Assigned Patents solely to the extent necessary to research and commercialize products in which each therapeutic agent is a cytolysin, tubulysin, second generation epothilone or any nucleic acid.

The Cerulean Transaction resulted in an initial payment to Calando of $2.4 million. Cerulean is obligated to pay development milestone payments of up to $2.75 million if CRLX-101 progresses through clinical trials and receives marketing approval. If approved, we are also entitled to receive up to an additional $30 million in sales milestone payments, plus single digit royalties on net sales. Should Cerulean sublicense CRLX-101 to a third party, we are entitled to receive a percentage of any sublicensing income at rates between 10% and 40%, depending on the stage of the drug s development at the time of sublicensing.

Cerulean is obligated to further pay development milestone payments of up to $3 million for each Cerulean Product that progresses through clinical trials and receives marketing approval. If Cerulean Products are approved, we are entitled to receive up to an additional $15 million in sales milestone payments, plus single digit royalties on net sales. Should Cerulean sublicense a Cerulean Product to a third party, we are entitled to receive a percentage of any sublicensing income at a rate in the tens.

The terms of the agreements of the Cerulean Transactions are tied to the expiration of certain controlled patent rights and Cerulean Assigned Patents. Cerulean may terminate the agreements on thirty (30) days notice and unless there is a drug safety concern, would be obligated to re-assign the CRLX-101 IND back to us and provide us with an exclusive license thereto under the Cerulean Assigned Patents.

On August 5, 2013, Calando terminated and Cerulean assumed all of Calando s rights in a license from the California Institute of Technology (Caltech) under intellectual property related to linear cyclodextrin-based drug delivery technology (the Caltech License). Notwithstanding the termination of Calando s rights under the Caltech License (including those to the retained Calando Products), Cerulean remains contractually obligated to make all of the aforementioned milestone, sublicensing and royalty payments to Calando.

Calando is no longer responsible for the costs associated with prosecution of the patents of the Caltech License. However, Cerulean may offset any costs it incurs prosecuting the Caltech License-associated patents from payments

that are due to Calando.

University of Texas MD Anderson Cancer Center License

In December 2010, we obtained an exclusive worldwide license from at the University of Texas MD Anderson Cancer Center in Houston, Texas (UTMDACC) related to Adipotide technology (the UTMDACC License). The UTMDACC License granted us a royalty-bearing, exclusive right (with the right to sublicense) under certain UTMDACC patents to develop and commercialize certain products in the fields of: 1) therapeutics, diagnostics and research services that both (i) incorporate peptides that specifically target adipose tissue, and (ii) are used to treat, diagnose or research solely either (a) obesity, overweight and/or (b) metabolic conditions related to, caused by and/or associated with obesity and overweight, e.g., diabetes; and 2) cancer therapies, diagnostics and research products associated with a specific targeting moiety. We also have rights to certain improvements to the technology.

In consideration for the license, we paid UTMDACC an upfront fee of $2 million and are obligated to pay annual fees initially equal to $50,000 increasing up to a maximum of $100,000, with such annual fees creditable against milestone payments.

We may be obligated to pay development milestone payments of up to $8.3 million for each UTMDCC licensed product that progresses through clinical trials and receives U.S. marketing approval. Additional EU and Japanese approval milestone payments are in the low single digit million dollar range. If a commercial drug is developed and approved, royalty payments on net sales of UTMDACC licensed products are in the low single digit range. Should we sublicense or partner a UTMDACC licensed product, UTMDACC would receive partnering fee percentages in the range of single digits to the twenties, depending on the stage of development of the partnered UTMDACC licensed product.

The term of the UTMDACC License is linked to the last to expire patents licensed therein or 15 years if a licensed product contains only licensed know-how. We are obligated to actively and effectively attempt to commercialize the UTMDACC Technology and submit to UTMDACC a Phase 2 clinical trial protocol within two years of obtaining an approved IND. We are also obligated to commence a Phase 2 clinical trial within four years and a Phase 3 clinical trial within seven years of approval of an IND. However, we may obtain yearly extensions of time upon the payment of an increasing fee in the range of tens of thousands of dollars up to several hundred thousand dollars. We also have diligence obligations with respect to any UTMDACC Improvements later added to the license.

Research and Development Facility

Arrowhead operates a research and development facility in Madison, Wisconsin. This facility was built and equipped by Roche and was part of our acquisition of their RNA therapeutics business. Since the acquisition in 2011, we have integrated all research and development operations into that facility. A summary of the facility is provided below:

- Approximately 40 scientists;

- State-of-the-art laboratories: 24,000 total sq. ft. of lab space;

- Complete small animal facility;

- Primate colony housed at the Wisconsin National Primate Research Center, an affiliate of the University of Wisconsin;

· In-house histopathology capabilities;

· Animals models for metabolic, viral, and oncologic diseases;

· Animal efficacy and safety assessment;

· Polymer, siRNA, and small molecule synthesis and analytics capabilities (HPLC, NMR, MS, etc.);

· Polymer and siRNA PK, biodistribution, clearance methodologies; and

· Confocal microscopy, flow cytometry, Luminex platform, clinical chemistry analytics.

Research and Development Expenses

Research and development expenses consist of costs incurred in discovering, developing and testing our clinical candidates and platform technologies. R&D expenses also include costs related to clinical trials, including costs of Contract Research Organizations to recruit patients and manage clinical trials. Other costs associated with clinical trials include manufacturing of clinical supplies, as well as GLP toxicology studies necessary to support clinical trials, both of which are outsourced to cGMP-compliant manufactures and GLP-compliant laboratories. Total research and development expense for fiscal 2013 was $12.3 million, an increase from $8.7 million in 2012.

We employ approximately 40 employees in an R&D function, primarily working from our facility in Madison, Wisconsin. These employees are engaged in various areas of research on Arrowhead candidate and platform development including synthesis and analytics, PK/biodistribution, formulation, CMC and analytics, tumor and extra-hepatic targeting, bioassays, live animal research, toxicology/histopathology, clinical and regulatory operations, and other areas. Salaries and payroll-related expenses for our R&D activities were $3.6 million during fiscal 2013 and $3.3 million in fiscal 2012. Laboratory supplies including animal-related costs for in-vivo studies were $1.4 million and $1.1 million in fiscal 2013 and 2012, respectively.

Costs related to manufacture of clinical supplies, GLP toxicology studies and other outsourced lab studies, as well as clinical trial costs were $5.8 million and $2.6 million in fiscal 2013 and 2012 respectively.

Facility-related costs, primarily rental costs for our leased laboratory in Madison, Wisconsin were $0.7 million and $0.8 million in fiscal 2013 and 2012, respectively. Other research and development expenses were $0.8 million and $0.9 million in fiscal 2013 and 2012, respectively. These expenses are primarily related to consulting fees, technology license fees and sponsored research.

Government Regulation

Governmental authorities in the U.S. and other countries extensively regulate the research, development, testing, manufacture, labeling, promotion, advertising, distribution and marketing, among other things, of drugs and biologic products. All of our foreseeable product candidates are expected to be regulated as drug products.

In the U.S., the FDA regulates drug products under the Federal Food, Drug and Cosmetic Act (the FDCA), and other laws within the Public Health Service Act. Failure to comply with applicable U.S. requirements, both before and after approval, may lead to administrative and judicial sanctions, such as a delay in approving or refusal by the FDA to approve pending applications, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, and/or criminal prosecutions. Before drug products are marketed they must be approved by the FDA. The steps required before a novel drug product is approved by the FDA include: (1) pre-clinical laboratory, animal, and formulation tests; (2) submission to the FDA of an Investigational New Drug Application (IND) for human clinical testing, which must become effective before human clinical trials may begin; (3) adequate and well-controlled clinical trials to establish the safety and effectiveness of the product for each indication for which approval is sought; (4) submission to the FDA of a New Drug Application (NDA); (5) satisfactory completion of a FDA inspection of the manufacturing facility or facilities at which the drug product is produced to assess compliance with cGMP; and FDA review and finally (6) approval of an NDA.

Pre-clinical tests include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies. The results of the pre-clinical tests, together with manufacturing information and analytical data, are submitted to the FDA as part of an IND, which must become effective before human clinical trials may begin. An IND will automatically become effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions, such as the conduct of the trials as outlined in the IND. In such a case, the IND sponsor and the FDA must resolve any outstanding FDA concerns or questions before clinical trials can proceed. There can be no assurance that submission of an IND will result in FDA authorization to commence clinical trials. Once an IND is in effect, each clinical trial to be conducted under the IND must be submitted to the FDA, which may or may not allow the trial to proceed.

Clinical trials involve the administration of the investigational drug to human subjects under the supervision of qualified physician-investigators and healthcare personnel. Clinical trials are typically conducted in three defined phases, but the phases may overlap or be combined. Phase 1 usually involves the initial administration of the investigational drug or biologic product to healthy individuals to evaluate its safety, dosage tolerance and pharmacodynamics. Phase 2 usually involves trials in a limited patient population, with the disease or condition for which the test material is being developed, to evaluate dosage tolerance and appropriate dosage; identify possible

adverse side effects and safety risks; and preliminarily evaluate the effectiveness of the drug or biologic for specific indications. Phase 3 trials usually further evaluate effectiveness and test further for safety by administering the drug or biologic candidate in its final form in an expanded patient population. Our product development partners, the FDA, or we may suspend clinical trials at any time on various grounds, including any situation where we believe that patients are being exposed to an unacceptable health risk or are obtaining no medical benefit from the test material.

Assuming successful completion of the required clinical testing, the results of the pre-clinical trials and the clinical trials, together with other detailed information, including information on the manufacture and composition of the product, are submitted to the FDA in the form of an NDA requesting approval to market the product for one or more indications. Before approving an application, the FDA will usually inspect the facilities where the product is manufactured, and will not approve the product unless cGMP compliance is satisfactory. If the FDA determines the NDA is not acceptable, the FDA may outline the deficiencies in the NDA and often will request additional information. If the FDA approves the NDA, certain changes to the approved product, such as adding new indications, manufacturing changes or additional labeling claims are subject to further FDA review and approval. The testing and approval process requires substantial time, effort and financial resources, and approval on a timely basis, if at all, cannot be guaranteed.

Under the Orphan Drug Act, the FDA may grant orphan drug designation to a drug intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the U.S. and for which there is no reasonable expectation that the cost of developing and making available in the U.S. a drug for this type of disease or condition will be recovered from sales in the U.S. for that drug. Orphan drug designation must be requested before submitting an NDA. After the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other application to market the same drug for the same indication, except in very limited circumstances, for seven years.

In addition, regardless of the type of approval, we and our partners are required to comply with a number of FDA requirements both before and after approval. For example, drug makers are required to report certain adverse reactions and production problems, if any, to the FDA, and to comply with certain requirements concerning advertising and promotion for our products. In addition, quality control and manufacturing procedures must continue to conform to cGMP after approval, and the FDA periodically inspects manufacturing facilities to assess compliance with cGMP. Accordingly, manufacturers must continue to expend time, money and effort in all areas of regulatory compliance, including production and quality control to comply with cGMP. In addition, discovery of problems, such as safety problems, may result in changes in labeling or restrictions on a product manufacturer or NDA holder, including removal of the product from the market.

Corporate Information

Unless otherwise noted, (1) the term Arrowhead refers to Arrowhead Research Corporation, a Delaware corporation, (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 Subsidiaries refers collectively to Arrowhead Madison Inc. (Madison), Calando Pharmaceuticals, Inc. (Calando), Ablaris Therapeutics, Inc. (Ablaris), and Tego Biosciences Corporation (Tego), as well as our former subsidiary, Unidym, Inc. (Unidym), which was divested in January 2011, and Alvos Therapeutics, Inc. (Alvos) and Agonn Systems, Inc. (Agonn),which were merged into Arrowhead during 2013. (4) the term Minority Investments refers collectively to Nanotope, Inc. (Nanotope), which was dissolved during 2013, and Leonardo Biosystems, Inc. (Leonardo) in which the company holds a less than majority ownership position, (5) the term Common Stock refers to Arrowhead s Common Stock, (6) the term Preferred Stock refers to Arrowhead s Preferred Stock and the term Stockholder(s) refers to the holders of Arrowhead Common Stock. All Arrowhead share and per share data have been adjusted to reflect a one for ten reverse stock split effected on November 17, 2011.

Arrowhead was originally incorporated in South Dakota in 1989, and was reincorporated in Delaware in 2000. The Company s principal executive offices are located at 225 South Lake Avenue, Suite 1050, Pasadena, California 91101, and its telephone number is (626) 304-3400. We operate a 24,000 square foot research and development facility in Madison, Wisconsin. As of September 30, 2013, Arrowhead had 54 full-time employees.

Other Business Interests

Leonardo Biosystems, Inc.

Leonardo is a drug delivery company that employs a novel multi-stage drug delivery mechanism aimed at dramatically increasing targeting efficiency of pharmaceuticals. Arrowhead has an approximately 3% ownership interest in Leonardo. Leonardo s silicon micro-particulate technology 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. Pre-clinical testing in animal disease models suggests that Leonardo s platform enables significantly increased targeting of tumors and also provides sustained release of cancer therapies. Further development of Leonardo s technology is dependent on cash resources available to Leonardo.

Unidym, Inc.

In January 2011, Arrowhead sold Unidym, Inc. to Wisepower Co., Ltd., a publicly traded, Seoul, Korea-based electronics company (KOSDAQ: 040670). Unidym was a majority-owned subsidiary that developed nanotechnology-enabled materials to be used in the manufacturing of certain electronics components. Upfront consideration consisted of stock and convertible bonds originally valued at $5,000,000. Additional cash earn-out payments of up to $140 million are possible based on cumulative sales and licensing milestones, and up to 40% of licensing revenue.

ITEM 1A. RISK FACTORS

You should carefully consider the risks discussed below and all of the other information contained in this report in evaluating us and an investment in our securities. If any of the following risks and uncertainties should occur, they could have a material adverse effect on our business, financial condition or results of operations. In that case, the trading price of our Common Stock could decline. Additionally, we note that we are a development stage company and we have accrued net losses annually since inception. 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.

Risks Related to Our Company

Drug development is time consuming, expensive and risky.

We are focused on technology related to new and improved pharmaceutical candidates. Product candidates that appear promising in the early phases of development, such as in animal and early human clinical trials, often fail to reach the market for a number of reasons, such as:

Clinical trial results may be unacceptable, 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, may not approve our potential product for the intended use; and

Manufacturing and distribution may be uneconomical.

For example, the positive pre-clinical results for ARC-520 in animals may not be replicated in human clinical studies or it may be found to be unsafe in humans. Additionally, 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. Clinical trials can take many years to complete, including the process of study design, clinical site selection and the enrollment of patients. As a result, we can experience significant delays in completing clinical studies, which can increase the cost of developing a drug candidate. If our drug candidates are not successful in human clinical trials, we may be forced to curtail or abandon certain development programs. If we experience significant delays in commencing or completing our clinical studies, we could suffer from significant cost overruns, which could negatively affect our capital resources and our ability to complete these studies.

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

Our research and development efforts involve therapeutics based on RNA interference and peptide targeting, which are largely unproven technologies. Our scientists and engineers are working on developing technology in various stages. However, such technology s commercial feasibility and acceptance are unknown. Scientific research and development requires significant amounts of capital and takes a long time to reach commercial viability, if it can be

achieved at all. To date, our research and development projects have not produced commercially viable drugs, and may never do so. During the research and development process, we may experience technological barriers that we may be unable to overcome. Because of these uncertainties, it is possible that no commercial products will be successfully developed. If we are unable to successfully develop commercial products, we will be unable to generate revenue or build a sustainable or profitable business.

Our drug candidates are in the early stages of our development and because we have a short development history with both DPCs and Homing Peptides, there is a limited amount of information about us upon which you can evaluate our business and prospects.

We have not begun to market or generate revenues from the commercialization of any products. We have only a limited history upon which one can evaluate our targeted therapeutic business and prospects as our drug candidates are still at an early stage of development. Thus, we have limited experience and have not yet demonstrated an ability to successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the biopharmaceutical area. For example, to execute our business plan, we will need to successfully:

Execute product development activities using unproven technologies;

Build, maintain and protect a strong intellectual property portfolio;

Receive FDA approval and gain market acceptance for the development and commercialization of any drugs we develop;

Develop and maintain successful strategic relationships; and

Manage our spending and cash requirements as our expenses are expected to increase in the near term due to preclinical and clinical trials.

If we are unsuccessful in accomplishing these objectives, we may not be able to develop products, raise capital, expand our business or continue our operations.

We may be unable to attract revenue-generating collaborations with other pharmaceutical and biotech companies to advance our drug candidates.

Our business strategy includes obtaining collaborations with other pharmaceutical and biotech companies to support the development of our therapeutic siRNA and other drug candidates. We may not be able to attract such partners, and even if we are able to enter into such partnerships, the terms may be less favorable than anticipated. Further, entering into partnership agreements may limit our commercialization options and/or require us to share revenues and profits with our partners.

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

Even if our research and development efforts yield technologically feasible applications, we may not successfully develop commercial products. Drug development takes years of study in human clinical trials prior to regulatory approval, and, even if we are successful, we may not be so on a timely basis. During our development period, superior competitive technologies may be introduced which could diminish or extinguish the potential commercial uses for our drug candidates. Additionally, the degree to which the medical community and consumers will adopt any product we develop is uncertain. The rate and degree of market acceptance of our products will depend on a number of factors, including the establishment and demonstration in the medical community of the clinical efficacy and safety of our products and their potential advantage over alternative treatments. We cannot predict whether significant commercial market acceptance for our products, if approved, will ever develop, and we cannot reliably estimate the projected size

of any such potential market. Our revenue growth and achievement of profitability will depend substantially on our ability to introduce products that will be accepted by the medical community. If we are unable to cost-effectively achieve acceptance of our technology among the medical establishment and patients, or if the associated products do not achieve wide market acceptance, our business will be materially and adversely affected.

Risks Related to Our Financial Condition

We have a history of net losses, and we expect to continue to incur net losses and may not achieve or maintain profitability.

We have incurred net losses since our inception, including net losses of $27.9 million for the year ended September 30, 2013 and a cumulative net loss since inception of approximately $181.6 million. We expect that our operating losses will continue as we continue our drug development and discovery efforts. To achieve profitability, we must, either directly or through licensing and/or partnering relationships, successfully develop and obtain regulatory approval for one or more drug candidates and effectively manufacture, market and sell any drugs we successfully develop. Even if we successfully commercialize drug candidates that receive regulatory approval, we may not be able to realize revenues at a level that would allow us to achieve or sustain profitability.

Accordingly, we may never generate significant revenue and, even if we do generate significant revenue, we may never achieve profitability.

We will require substantial additional funds to complete our research and development activities.

Our business currently does not generate the cash that is necessary to finance our operations. Subject to the success of the research and development programs of our company and our partners, and potential licensing or partnering transactions, we will likely need to raise additional capital to:

Fund research and development activities relating to our development of our drug candidates, including pre-clinical and preclinical trials and manufacturing to support these efforts;

Fund our general and administrative activities;

Pursue licensing opportunities for our technologies;

Protect our intellectual property; and
Retain our management and technical staff.
Our future capital needs depend on many factors, including:

The scope, duration and expenditures associated with our research and development;

The extent to which our R&D and clinical efforts are successful, and clinical trial requirements;

The outcome of potential partnering or licensing transactions, if any;

Competing technological developments;

Our proprietary patent position, if any, in our products; and
The regulatory approval process for our drug candidates.
We will need to raise additional funds through public or private equity offerings, debt financings or additional strategic alliances and licensing arrangements in the future to continue our operations. We may not be able to obtain additional financing on terms favorable to us, if at all. General market conditions may make it very difficult for us to seek financing from the capital markets, and the terms of any financing may adversely affect the holdings or the rights of our stockholders. For example, if we raise additional funds by issuing equity securities, further dilution to our stockholders will result, which may substantially dilute the value of your investment. In addition, as a condition to providing additional funds to us, future investors may demand, and may be granted, rights superior to those of existing stockholders. Debt financing, if available, may involve restrictive covenants that could limit our flexibility in conducting future business activities and, in the event of insolvency, would be paid before holders of equity securities received any distribution of corporate assets. We may be required to relinquish rights to our technologies or drug

candidates, or grant licenses on terms that are not favorable to us, in order to raise additional funds through alliance, joint venture or licensing arrangements. If adequate funds are not available, we may have to further delay, reduce or eliminate one or more of our planned activities. These actions would likely reduce the market price of our common stock.

The investment of our cash, cash equivalents and fixed income marketable securities is subject to risks which may cause losses and affect the liquidity of these investments.

At September 30, 2013, we had $10.7 million in fixed income marketable securities. These investments are in corporate bonds nearing maturity, but our investments may also include commercial paper, securities issued by the U.S. government obligations, certificates of deposit and money market funds meeting the criteria of our investment policy, which is focused on the preservation of our capital. These investments are subject to general credit, liquidity, and market and interest rate risks. We may realize losses in the fair value of these investments or a complete loss of these investments, which would have a negative effect on our consolidated financial statements. In addition, should our investments cease paying or reduce the amount of interest paid to us, our interest income would suffer. The market risks associated with our investment portfolio may have an adverse effect on our results of operations, liquidity and financial condition.

We may not be able to effectively secure first-tier technologies when competing against other investors.

Our success may require that we acquire new or complimentary technologies. However, we compete with a substantial number of other companies that may also compete for technologies we desire. In addition, many venture capital firms and other institutional investors, as well as other pharmaceutical and biotech companies, invest in companies seeking to commercialize various types of emerging technologies. Many of these companies have greater financial, scientific and commercial resources than us. Therefore, we

may not be able to secure the technologies we desire. 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.

Risks associated with reliance on Third Parties

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 financial and development 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 capability, 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 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 drug 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 drug candidates or that result in costly litigation or arbitration that diverts our management s resources.

The occurrence of any of the above events or other related events not foreseen by us could impair our ability to generate revenues and harm our business and financial condition.

We may lose a considerable amount of control over our intellectual property and may not receive anticipated revenues in strategic transactions, particularly where the consideration is contingent on the achievement of development or sales milestones.

Our business model has been to develop new technologies and to exploit the intellectual property created through the research and development process to develop commercially successful products. For example, Calando has licensed a portion of its technology to Cerulean Pharma, Inc. and has ceased internal technical and business development activities. A significant portion of the potential value from these licenses is tied to the achievement of the development and sales milestones, which we cannot control. Similarly, the majority of the consideration, up to $140 million, potentially payable by Wisepower in connection with our sale of Unidym is tied to the achievement of commercialization milestones, which we cannot control. Although Wisepower and Cerulean are required to use certain minimum efforts to achieve the post-closing milestones, we cannot control whether they actually achieve these milestones. If the acquirers fail to achieve performance milestones, we may not receive a significant portion of the total value of any sale, license or other strategic transaction.

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 product candidates. 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. There may be a disruption or delay in the performance of our third-party contractors, suppliers or collaborators which is beyond our control. 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 have limited manufacturing capability and must rely on third-party manufacturers to manufacture our clinical supplies and commercial products, if and when approved, and if they fail to meet their obligations, the development and commercialization of our products could be adversely affected.

We have limited manufacturing capabilities and experience. ARC-520 and our other drug candidates are composed of multiple components and require specialized formulations for which scale-up and manufacturing could be difficult. We also have limited experience in such scale-up and manufacturing requiring us to depend on a limited number of third parties, who may not be able to deliver in a timely manner, or at all. In order to develop products, apply for regulatory approvals and commercialize our products, we will need to develop, contract for, or otherwise arrange for the necessary manufacturing capabilities. Our internal manufacturing capabilities are limited to small-scale production of material for use in in vitro and in vivo experiments that is not required to be produced under current good manufacturing practice, or cGMP, standards. There are a limited number of manufacturers that supply synthetic siRNAs. There are risks inherent in pharmaceutical manufacturing that could affect the ability of our contract manufacturers to meet our delivery time requirements or provide adequate amounts of material to meet our needs. Included in these risks are synthesis and purification failures and contamination during the manufacturing process, which could result in unusable product and cause delays in our development process, as well as additional expense to us.

Additionally, our product candidates have not yet been manufactured for commercial use. If any of our product candidates become approved for commercial sale, we will need to establish third-party manufacturing capacity. A third-party manufacturing partner may require us to fund capital improvements to support the scale-up of manufacturing and related activities. The third-party manufacturer may not be able to establish scaled manufacturing capacity for an approved product in a timely or economic manner, if at all. If a manufacturer is unable to provide commercial quantities of such an approved product, we will have to successfully transfer manufacturing technology to a different manufacturer. Engaging a new manufacturer for such an approved product could require us to conduct comparative studies or utilize other means to determine bioequivalence of the new and prior manufacturers products, which could delay or prevent our ability to commercialize such an approved product. If any of these manufacturers is unable or unwilling to increase its manufacturing capacity or if we are unable to establish alternative arrangements on a timely basis or on acceptable terms, the development and commercialization of such an approved product may be delayed or there may be a shortage in supply. Any inability to manufacture our product candidates or future approved drugs in sufficient quantities when needed would seriously harm our business.

Manufacturers of our approved products, if any, must comply with current good manufacturing practices (cGMP) requirements enforced by the U.S. Food and Drug Administration and other foreign health authorities through facilities inspection programs. These requirements include quality control, quality assurance, and the maintenance of records and documentation. Manufacturers of our approved products, if any, may be unable to comply with these cGMP requirements and with other FDA, state, and foreign regulatory requirements. We have little control over our manufacturers compliance with these regulations and standards. A failure to comply with these requirements may result in fines and civil penalties, suspension of production, suspension or delay in product approval, product seizure or recall, or withdrawal of product approval. If the safety of any quantities supplied is compromised due to our manufacturer s failure to adhere to applicable laws or for other reasons, we may not be able to obtain regulatory approval for or successfully commercialize our products, which would seriously harm our business.

We rely on third parties to conduct our clinical trials, and if they fail to fulfill their obligations, our development plans may be adversely affected.

We rely on independent clinical investigators, contract research organizations and other third-party service providers to assist us in managing, monitoring and otherwise carrying out our clinical trials. We have contracted, and we plan to continue to contract with certain third-parties to provide certain services, including site selection, enrollment, monitoring and data management services. Although we depend heavily on these parties, we do not control them and therefore, we cannot be assured that these third-parties will adequately perform all of their contractual obligations to

us. If our third-party service providers cannot adequately and timely fulfill their obligations to us, or if the quality and accuracy of our clinical trial data is compromised due to failure by such third-party to adhere to our protocols or regulatory requirements or if such third-parties otherwise fail to meet deadlines, our development plans may be delayed or terminated.

Risks related to managing our operations

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

Our future success depends to a significant extent on the continued services of our key employees, including Dr. Anzalone, our President and Chief Executive Officer, Dr. Bruce Given, our Chief Operating Officer, Dr. David Lewis, our Chief Scientific Officer, and Kenneth Myszkowski, our Chief Financial Officer. 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 and management. 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.

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 President and CEO as well as Dr. Mauro Ferrari, an Arrowhead board member, are board members of Leonardo, a drug delivery company in which Arrowhead owns a 3% interest. Drs. Anzalone and Ferrari own a noncontrolling interest in Leonardo. Douglass Given, a member of our board of directors, is the brother of Bruce Given, our Chief Operating Officer. 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 business and operations could suffer in the event of information technology system failures.

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war, and telecommunication and electrical failures. Such events could cause interruption of our operations. For example, the loss of pre-clinical trial data or data from completed or ongoing clinical trials for our product candidates could result in delays in our regulatory filings and development efforts and significantly increase our costs. To the extent that any disruption or security breach were to result in a loss of or damage to our data, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the development of our product candidates could be delayed.

Risks related to our development, regulatory approval, and marketing of our product candidates

The manufacture and sale of human therapeutic products are governed by a variety of statutes and regulations. There can be no assurance that our product candidates will obtain regulatory approval.

The sale of human therapeutic products in the U.S. and foreign jurisdictions is subject to extensive and time consuming regulatory approval which requires:

·controlled research and human clinical testing;

·establishment of the safety and efficacy of the product for each use sought;

·government review and approval of a submission containing manufacturing, pre-clinical and clinical data;

·adherence to Good Manufacturing Practice Regulations during production and storage; and

·control of marketing activities, including advertising and labeling.

The product candidates we currently have under development will require significant development, pre-clinical and clinical testing and investment of significant funds before their commercialization. Some of our product candidates, if approved, will require the completion of post-market studies. There can be no assurance that such products will be developed and approved. The process of completing clinical testing and obtaining required approvals is likely to take a number of years and require the use of substantial resources. If we fail to obtain regulatory approvals, our operations will be adversely affected. Further, there can be no assurance that product candidates employing a new technology will be shown to be safe and effective in clinical trials or receive applicable regulatory approvals.

Investors should be aware of the risks, problems, delays, expenses and difficulties which we may encounter in view of the extensive regulatory environment which affects our business in any jurisdiction where we develop product candidates.

If testing of a particular product candidate does not yield successful results, then we will be unable to commercialize that product candidate.

We must demonstrate our product candidates safety and efficacy in humans through extensive clinical testing. Our research and development programs are at an early stage of development. We may experience numerous unforeseen events during, or as a result of, the testing process that could delay or prevent commercialization of any products, including the following:

- the results of pre-clinical studies may be inconclusive, or they may not be indicative of results that will be obtained in human clinical trials;
- safety and efficacy results attained in early human clinical trials may not be indicative of results that are obtained in later clinical trials;
- after reviewing test results, we may abandon projects that we might previously have believed to be promising;
- we or our regulators, may suspend or terminate clinical trials because the participating subjects or patients are being exposed to unacceptable health risks; and
- our product candidates may not have the desired effects or may include undesirable side effects or other characteristics that preclude regulatory approval or limit their commercial use if approved.

Clinical testing is very expensive, can take many years, and the outcome is uncertain. The data collected from our clinical trials may not be sufficient to support approval of our product candidates by the regulatory authorities. The clinical trials of our product candidates may not be completed on schedule, and the regulatory authorities may not ultimately approve any of our product candidates for commercial sale. If we fail to adequately demonstrate the safety and efficacy of a product candidate, this would delay or prevent regulatory approval of the product candidate, which could prevent us from achieving profitability.

It may take us longer than we are currently projecting to complete our clinical trials, and we may not be able to complete them at all.

Although for planning purposes, we project the commencement, continuation and completion of our clinical trials, a number of factors, including scheduling conflicts with participating clinicians and clinical institutions, and difficulties in identifying or enrolling patients who meet trial eligibility criteria, may cause significant delays. We may not commence or complete clinical trials involving any of our product candidates as projected or may not conduct them successfully.

Even if we achieve regulatory approval, future regulatory reviews or inspections may result in the suspension or withdrawal of one or more of our products, closure of a facility or enforcement of substantial fines.

If regulatory approval to sell any of our product candidates is received, regulatory agencies may, nevertheless, limit the categories of patients who can use them. In addition, regulatory agencies subject a marketed product, its manufacture and the manufacturers facilities to continual review and periodic inspection. If previously unknown problems with a product or manufacturing and laboratory facility are discovered or we fail to comply with applicable regulatory approval requirements, a regulatory agency may impose restrictions on that product or on us. The agency may require the withdrawal of the product from the market, closure of the facility or enforcement of substantial fines.

Our ability to successfully commercialize human therapeutic products may depend in part on reimbursement for the cost of such products and related treatments from government health administration authorities, private health

coverage insurers and other organizations.

Third-party payers are increasingly challenging the price of medical products and services. Significant uncertainty exists as to the reimbursement status of newly approved healthcare products, and adequate third-party coverage may not be available to establish price levels sufficient for us to realize an appropriate return on our investment in product development. When we partner our product candidates we will typically be relying on that partner to obtain cost reimbursement from third parties for the product candidate.

We face potential product liability exposure, and if successful claims are brought against us, we may incur substantial liability for a product candidate and may have to limit its commercialization.

The use of our product candidates in clinical trials and the sale of any products for which we obtain marketing approval expose us to the risk of product liability claims. Product liability claims might be brought against us by clinical trial participants, consumers, health-care providers, pharmaceutical companies, or others selling our products. If we cannot successfully defend ourselves against these claims, we may incur substantial liabilities. Regardless of merit or eventual outcome, product liability claims may result in:

·decreased demand for our product candidates;
·impairment of our business reputation;

·withdrawal of clinical trial participants;
·costs of related litigation;
·substantial monetary awards to patients or other claimants;
·loss of revenues; and
·the inability to commercialize our product candidates.

Although we currently have liability insurance for our clinical trials our insurance coverage may not be sufficient to reimburse us for all expenses or losses we may suffer. Moreover, insurance coverage is becoming increasingly expensive and, in the future, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses.

The successful commercialization of our product candidates, if approved will depend in part on the extent to which government authorities and health insurers establish adequate reimbursement levels and pricing policies.

Sales of any approved drug candidate will depend in part on the availability of coverage and reimbursement from third-party payers such as government insurance programs, including Medicare and Medicaid, private health insurers, health maintenance organizations and other health care related organizations. Accordingly, coverage and reimbursement may be uncertain. Adoption of any drug candidate by the medical community may be limited if third-party payers will not offer coverage. Additionally, significant uncertainty exists as to the reimbursement status of newly approved drugs. Cost control initiatives may decrease coverage and payment levels for any new drug and, in turn, the price that we will be able to charge. We are unable to predict all changes to the coverage or reimbursement methodologies that will be applied by private or government payers. Any denial of private or government payer coverage or inadequate reimbursement could harm our business and reduce our revenue.

In addition, both the federal and state governments in the United States and foreign governments continue to propose and pass new legislation affecting coverage and reimbursement policies, which are designed to contain or reduce the cost of health care, as well as hold public hearings on these matters, which has resulted in certain private companies dropping the prices of their drugs. Further federal and state proposals and healthcare reforms are likely, which could limit the prices that can be charged for the product candidates that we develop and may further limit our commercial opportunity. There may be future changes that result in reductions in potential coverage and reimbursement levels for our product candidates, if approved and commercialized, and we cannot predict the scope of any future changes or the impact that those changes would have on our operations.

If future reimbursement for approved product candidates, if any, is substantially less than we project, or rebate obligations associated with them are substantially increased, our business and commercial opportunities could be materially and adversely impacted.

Risks Related to Our Patents, Licenses and Trade Secrets

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

We have licensed rights to pending patents and have filed and expect to continue to file patent applications. 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. Finally, patent prosecution is expensive, and we may be forced to curtail prosecution if our

cash resources are limited. Thus, the patents held by or licensed to us may not afford us any meaningful competitive advantage. If we are unable to derive value from our licensed or owned intellectual property, the value of your investment may decline.

Our Subsidiaries are party to 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 are party to license agreements with University of Texas MD Anderson Cancer Center, Alnylam Pharmaceuticals, Inc. and other entities to incorporate their proprietary technologies into our drug products under development. These license agreements require us to pay royalties and satisfy other conditions, including conditions in some cases related to the commercialization of the licensed technology. We may not be able to successfully incorporate these technologies into marketable

products or, if we do, sales may not be sufficient to recover the amounts that we are obligated to pay to the licensors. If we fail to satisfy our obligations under these agreements, the terms of the licenses may be materially modified, such as by rendering currently exclusive licenses non-exclusive, or may give our licensors the right to terminate their respective agreement with us, which would limit our ability to implement our current business plan and harm our business and financial condition.

We 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 intellectual property landscape in the fields in which we participate 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, 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. We cannot be certain 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.

We license patent rights from third-party owner and we rely on such owners to obtain, maintain and enforce the patents underlying such licenses.

We are a party to a number of licenses that give us rights to third-party intellectual property that is necessary or useful for our business. In particular, we have obtained licenses from, among others, Alnylam and the University of Texas MD Anderson Cancer Center. We also expect to enter into additional licenses to third-party intellectual property in the future.

Our success will depend in part on the ability of our licensors to obtain, maintain and enforce patent protection for our licensed intellectual property, in particular, those patents to which we have secured exclusive rights. Our licensors may not successfully prosecute the patent applications to which we are licensed. Even if patents issue in respect of these patent applications, our licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents, or may pursue such litigation less aggressively than we would. Without protection for the intellectual property we license, other companies might be able to offer substantially identical products for sale, which could adversely affect our competitive business position and harm our business prospects.

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

We license a portion of our technology from government-funded sources such as the University of Texas MD Anderson Cancer Center. Our other 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 licensors 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 licensors 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 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, 2013, we had 32,489,444 shares of Common Stock issued and outstanding. 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 may not generate substantial revenue from the license or sale of our technology 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;

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 our technology;

Announcements regarding developments in the RNA interference or biotechnology fields in general;

Market perception and/or announcements regarding other companies developing products in the field of RNA interference;

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

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 such volatility could result in the loss of all or part of your investment. Additionally, 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.

The market for purchases and sales of our Common Stock may be 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, at various times our securities have been relatively thinly traded. Investor trading patterns could serve to exacerbate the volatility of the price of our stock. 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. It may be difficult to sell shares of our Common Stock quickly without significantly depressing the value of the stock. Unless we are successful in developing continued investor interest in our stock, sales of our stock could result in major fluctuations in the price of the stock.

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

The trading market for our Common Stock can be influenced by the research and reports that industry or securities analysts publish about our business. Currently, coverage of our Company by industry and securities analysts is limited. Investors have many investment opportunities and may limit their investments to companies that receive greater coverage from analysts. If additional industry or securities analysts do not commence coverage of the Company, the trading price of our stock could be negatively impacted. If one or more of the analysts downgrade our stock or comment negatively on our prospects, our stock price may 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.

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 unpredictable and investors should not expect dividends 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.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

At September 30, 2013, we had leases for our corporate headquarters, located in Pasadena, California, and our research facility in Madison, Wisconsin. The Company does not own any real property. The following table summarizes the company s leased facilities:

	Office Space	Monthly Rent	Lease Commencement	Lease Term
Pasadena, California	5,300 sq. ft.	$ 13,000	August 16, 2012	5.5 years

Madison, Wisconsin	24,000 sq. ft.	$ 56,500	February 16, 2009	10 Years

ITEM 3. LEGAL PROCEEDINGS

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

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. On November 17, 2011, the Company effected a 1 for 10 reverse stock split. The share prices in the table below are shown on a post-split basis.

	Fiscal Year Ended September 30,			
	2013		2012	
	High	Low	High	Low
1st Quarter	$ 2.63	$ 2.01	$ 7.50	$ 3.60
2nd Quarter	2.42	1.78	6.38	4.13
3rd Quarter	2.35	1.69	7.14	3.12
4th Quarter	6.05	1.96	3.84	2.60

Shares Outstanding

At December 16, 2013, 38,700,363 shares of the Company s Common Stock were issued and outstanding, and were owned by 275 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.

Securities Authorized for Issuance Under the Equity Compensation Plans

The disclosure required under this item related to equity compensation plans is incorporated by reference from Item 12, under the caption Equity Compensation Plan Information in this Annual Report on Form 10-K.

Sales of Unregistered Securities

All information under this Item has been previously reported on our Current Reports on Form 8-K.

Repurchases of Equity Securities

We did not repurchase any shares of our Common Stock during fiscal 2013 or fiscal 2012.

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, (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 Subsidiaries refers collectively to Arrowhead Madison Inc. (Madison), Calando Pharmaceuticals, Inc. (Calando), Ablaris Therapeutics, Inc. (Ablaris), and Tego Biosciences Corporation (Tego), as well as our former subsidiary, Unidym, Inc. (Unidym), which was divested in January 2011, and Alvos Therapeutics, Inc. (Alvos), and Agonn Systems, Inc. (Agonn),which were merged into Arrowhead during 2013. (4) the term Minority Investments refers collectively to Nanotope, Inc. (Nanotope), which was dissolved during 2013, and Leonardo Biosystems, Inc. (Leonardo) in which the company holds a less than majority ownership position, and (5) the term Common Stock refers to Arrowhead s Common Stock and the term Stockholder(s) refers to the holders of Arrowhead Common Stock. All Arrowhead share and per share data have been adjusted to reflect a one for ten reverse stock split effected on November 17, 2011.

Overview

Arrowhead Research Corporation is a biopharmaceutical company developing targeted RNAi therapeutics. The Company is leveraging its proprietary drug delivery technologies to develop targeted drugs based on the RNA interference mechanism that efficiently silence disease-causing genes. These platforms have yielded several drug candidates under internal and partnered development. Arrowhead technologies also enable partners to create peptide-drug conjugates that specifically home to cell types of interest while sparing off-target tissues. Arrowhead s pipeline includes clinical programs in chronic hepatitis B virus and obesity and partner-based programs in oncology.

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 technology licenses, collaborative research and development arrangements, research grants and product sales. 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 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 up-front license fees, milestones and product royalties are 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.

Business Combinations

In October 2011, we acquired all of the outstanding common stock of Roche Madison, Inc. and certain related intellectual property assets for a $50,000 promissory note and 1,288,158 shares of Arrowhead Common Stock, an estimated consideration value of $5.1 million on the date of the acquisition. We assigned the value of the consideration to the tangible assets and identifiable intangible assets and the liabilities assumed on the basis of their fair values on the date of acquisition. The excess of net assets over the consideration was recorded as a nonoperating gain.

In April 2012, we acquired all of the outstanding common stock of Alvos Therapeutics, Inc. in exchange for the issuance of 315,457 shares of Arrowhead Common Stock, valued at $2.0 million at the time of acquisition. The consideration was assigned to its tangible and intangible assets, and liabilities based on estimated fair values at the time of acquisition.

The allocation of value to certain items, including property and equipment, intangible assets and certain liabilities require management judgment, and is based upon the information available at the time of acquisition.

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 impairment is indicated, recoverability is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset.

Impairment of Intangible assets

Intangible assets consist of in-process research and development, patents and license agreements acquired in conjunction with a business acquisition. Intangible assets are monitored for potential impairment whenever events or circumstances indicate that the carrying amount may not be recoverable, and are also reviewed annually to determine whether any impairment is necessary. Based on ASU 2012-02, the annual review of intangible assets is performed via a two-step process. First, a qualitative assessment is performed to determine if it is more likely than not that the intangible asset is impaired. If required, a quantitative assessment is performed and, if necessary, impairment is recorded.

Stock-Based Compensation

We recognize stock-based compensation expense based on the grant date fair value using the Black-Scholes options pricing model, which requires us to make assumptions regarding certain variables including the risk-free interest rate, expected stock price volatility, and the expected life of the award. The assumptions used in calculating stock-based compensation expense represent management s best estimates, but these estimates involve inherent uncertainties, and if factors change or the Company used different assumptions, its stock-based compensation expense could be materially different in the future.

Derivative Assets and Liabilities

We account for warrants and other derivative financial instruments as either equity or assets/liabilities based upon the characteristics and provisions of each instrument. Warrants classified as equity are recorded as additional paid-in capital on our consolidated balance sheet and no further adjustments to their valuation are made. Some of our warrants were determined to be ineligible for equity classification because of provisions that may result in an adjustment to

their exercise price. Warrants classified as derivative liabilities and other derivative financial instruments that require separate accounting as assets or liabilities are recorded on our consolidated balance sheet at their fair value on the date of issuance and are revalued on each subsequent balance sheet date until such instruments are exercised or expire, with any changes in the fair value between reporting periods recorded as other income or expense. We estimate the fair value of these assets/liabilities using option pricing models that are based on the individual characteristics of the warrants or instruments on the valuation date, as well as assumptions for expected volatility, expected life and risk-free interest rate. Changes in the assumptions used could have a material impact on the resulting fair value. The primary input affecting the value of our derivatives liabilities is the Company s stock price. For example, at September 30, 2013, a 25% change in the value of the Company s stock price would affect the value of the derivative liability by approximately $1.2 million to $1.3 million, depending on other inputs.

Reverse Stock Split

As of November 17, 2011, the Company effected a 1 for 10 reverse stock split (the reverse stock split). As a result of the reverse stock split, each ten shares of the Company s Common Stock issued and outstanding immediately prior to the reverse split were combined into one share of Common Stock. Also, as a result of the Reverse Stock Split, the per share exercise price of, and the number of shares of Common Stock underlying outstanding Company stock options, warrants, preferred stock and any Common Stock based equity grants outstanding immediately prior to the reverse stock split was proportionally adjusted, based on the one-for-ten split ratio, in accordance with the terms of such options, warrants or other Common Stock based equity grants as the case may be. No fractional shares of Common Stock were issued in connection with the reverse stock split. Stockholders instead received cash payment in lieu of any fractional shares. Unless otherwise noted, all share and per share amounts in these have been retrospectively adjusted to reflect the reverse stock split.

Full Year Review

During 2013, the Company made substantial progress with its lead clinical candidate, ARC-520, for the treatment of chronic hepatitis B infection. In July 2013, the Company began a Phase 1 clinical trial in Australia in healthy volunteers to characterize the safety profile of ARC-520. This trial completed enrollment in October 2013, and the Company is preparing for a Phase 2a pilot efficacy study for chronically infected HBV patients. The Company continues to develop other clinical candidates for future clinical trials, focusing on intravenous-administered liver targets, as well as subcutaneous liver targets. The Company has partnered programs in oncology and obesity. The Company s research and development efforts are concentrated at our research facility in Madison, Wisconsin. Clinical candidates are tested through GLP toxicology studies at outside laboratories, and drug materials for such studies, and for clinical trials, are contracted to third-party manufactures when cGMP production is required. The Company engages third-party contract research organizations (CROs) to manage clinical trials and works cooperatively with such organizations on all aspects of clinical trials, including plan design, patient recruiting, and follow up. These outside costs, relating to the preparation and administration of clinical trials, are referred to as program costs, and as the Company is successful in the progression of its clinical candidates, program costs will increase.

Results of Operations

The Company had a net loss of $31.7 million for the year ended September 30, 2013, compared to a net loss of $22.1 million for the year ended September 30, 2012, an increase of $4.4 million.

The increase in the net loss was the result of a number of factors. From an operating standpoint, the main factor was higher R&D expenses of $3.3 million for preclinical GLP toxicology studies and cGMP drug manufacturing in preparation of the clinical trial for ARC-520, as well as costs for the Phase 1 clinical trial of ARC-520. General and administrative expenses were lower in 2013 by $2.9 million, but this change was primarily due to the prior year write down of certain receivables from minority interest companies. Salaries and payroll related expenses increased nominally in 2013, primarily due to headcount increases and general salary adjustments. In 2013, the Company recorded a noncash impairment expense of $1.3 million to write off certain patents as a result of a termination of a license agreement. Other expense was higher in 2013 by $6.1 million primarily due to noncash losses from the change in value of derivatives, as well as the write down of a note receivable obtained as part of our disposition of Unidym in 2011. Details of the results of operations are presented below.

Revenues

Total revenue was $290,000 for the year ended September 30, 2013 and $147,000 for the year ended September 30, 2012. Revenue is primarily composed of amortization of up-front patent license fee payments. In addition, the Company had collaboration revenue of $115,000 during the year ended September 30, 2013.

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, 2013 and 2012 are shown in the table below.

Salary and Payroll-Related Expenses Fiscal 2013 compared to Fiscal 2012

The Company employs scientific, technical and administrative staff at its corporate offices and its research facility. Salaries and payroll-related expense consists of salary and related benefits. Salary and benefits include two major categories: general and administrative (G&A) compensation expense, and research and development (R&D) compensation expense, based on the primary activities of each employee. The following table provides detail of salary and related benefits expenses for the years ended September 30, 2013 and 2012.

(in thousands)

	Twelve months Ended September 30, 2013	% of Expense Category	Twelve months Ended September 30, 2012	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
G&A compensation-related	$ 3,075	46%	$ 3,107	48%	$ (32)	-1%
R&D compensation-related	3,593	54%	3,308	52%	285	9%
Total	$ 6,668	100%	$ 6,415	100%	$ 253	4%

During the year ended September 30, 2013, G&A compensation expense decreased $32,000, a decline of 1%. During the year ended September 30, 2013, R&D compensation expense increased $285,000. Compensation expense for R&D employees is primarily composed of the personnel costs at our R&D facility in Madison, Wisconsin. During 2013, the Company hired two additional employees. The Company plans to further increase its workforce to accelerate research and development efforts to add additional clinical candidates to its pipeline.

General & Administrative Expenses Fiscal 2013 compared to Fiscal 2012

The following table provides details of our general and administrative expenses for the years ended September 30, 2013 and 2012.

(in thousands)

	Twelve months Ended September 30, 2013	% of Expense Category	Twelve months Ended September 30, 2012	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Professional/outside services	$ 1,319	38%	$ 1,802	28%	$ (483)	-27%
Patent expense	941	27%	1,023	16%	(82)	-8%
Facilities and related	170	5%	120	2%	50	42%
Travel	440	13%	369	6%	71	19%
Business insurance	216	6%	202	3%	14	7%
Communication and Technology	184	5%	196	3%	(12)	-6%
Office expenses	110	3%	91	1%	19	21%
Other	109	3%	2,636	41%	(2,527)	-96%

Total	$ 3,489	100%	$ 6,439	100%	$ (2,950)	-46%

Professional/outside services include legal, accounting and other outside services retained by the Company. All periods include normally occurring legal and accounting expenses related to SEC compliance and other corporate matters. Professional/outside services expense was $1.3 million during the year ended September 30, 2013, compared to $1.8 million in the comparable prior period. The decrease in professional services relate to lower legal and consulting costs at Arrowhead, as well as a decline in those costs as they relate to our subsidiary, Calando, for which we have curtailed activities.

Patent expense was $941,000 during the year ended September 30, 2013, compared to $1,023,000 in the comparable prior period. During 2013, Calando reduced its patent expense cost by curtailing patent prosecution costs for non-strategic patents. In August 2013, Calando terminated its license agreement with Caltech, and its rights and obligations thereto. Accordingly patent expense related to Calando is expected to be negligible going forward. The Company continues to invest in patent protection for its DPC technology, related product candidates and other RNAi technology through patent filings throughout the world. The Company expects to extend and maintain protection for its current portfolios and file new patent applications as technologies are developed and improved.

Facilities and related expense was $170,000 during the year ended September 30, 2013, compared to $120,000 in the comparable prior period. Facilities and related expense within general and administrative expenses primarily relate to rental costs associated with the Company s headquarters in Pasadena, California. Facilities expense increased as the Company moved into a new corporate headquarters in August 2012, which costs are higher than the smaller temporary office space that was occupied in fiscal 2012.

Travel expense was $440,000 during the year ended September 30, 2013, compared to $369,000 in the comparable prior period. Travel expense increased due to general increased level of activities, particularly increased drug manufacturing, and clinical trial activities, as well as travel between the corporate office in Pasadena and our R&D facility in Madison. Travel expense includes costs related to travel by Company personnel for operational business meetings at other company locations, business initiatives and collaborations throughout the world with other companies, marketing, investor relations, fund raising and public relations purposes.

Business insurance expense was $216,000 during the year ended September 30, 2013, compared to $202,000 in the comparable prior period. The company experienced rate decreases in its Directors and Officers insurance coverage, which was offset by additional insurance costs primarily related to specific insurance purchased to cover insurance requirements of our clinical trials for ARC-520.

Communication and technology expense was $184,000 during the year ended September 30, 2013, compared to $196,000 in the comparable prior period. The decrease was primarily due to lower information technology consulting costs, which include normally recurring support for the Company s network and other systems. No major system-related upgrades were undertaken in fiscal 2013. IT consulting fees can fluctuate depending on issues that arise with software and/or other on-going software projects.

Office expenses are administrative costs to facilitate the operations of the Company s office facilities in Pasadena and include office supplies, copier/printing costs, postage/delivery, professional dues/memberships, books/subscriptions, staff amenities, and professional training. Office expenses were $110,000 during the year ended September 30, 2013, compared to $91,000 in the comparable prior period. The increase in office expenses was due to non-capitalized office furniture, research journals/articles and other miscellaneous administrative expenses.

Other expense was $109,000 during the year ended September 30, 2013 compared to $2.6 million in the comparable prior period. During the year ended September 30, 2012, the Company recorded reserves against receivable from its unconsolidated affiliates, Nanotope and Leonardo in the amount of $2.5 million.

Research and Development Expenses Fiscal 2013 compared to Fiscal 2012

R&D expenses are related to the Company s on-going research and development efforts, primarily related to its laboratory research facility in Madison, Wisconsin, and also include outsourced R&D services. The following table provides details of research and development expense for the years ended September 30, 2013 and 2012.

(in thousands)

	Twelve months Ended September 30, 2013	% of Expense Category	Twelve months Ended September 30, 2012	% of Expense Category	Increase (Decrease) $	Increase (Decrease) %
Outside labs & contract services	$ 2,512	29%	$ 787	15%	$ 1,725	219%

In vivo studies	303	3%	302	6%	1	0%
Drug manufacturing	2,187	24%	1,256	22%	931	74%
Consulting	259	3%	375	7%	(116)	-31%
License, royalty & milestones	322	4%	274	5%	48	18%
Laboratory supplies & services	1,058	12%	794	15%	264	33%
Clinical trials	1,093	13%	599	11%	494	82%
Facilities and related	732	8%	787	15%	(55)	-7%
Sponsored research	188	2%	185	3%	3	2%
Other research expenses	52	1%	32	1%	20	63%
Total	$ 8,706	100%	$ 5,391	101%	$ 3,315	61%

Outside lab and contract services expense was $2,512,000 during the year ended September 30, 2013, compared to $787,000 in the comparable prior period. The increase is primarily due to GLP toxicology studies related to ARC-520, our hepatitis B clinical

candidate in preparation for a Phase 1 clinical trial. Additionally, we initiated long-term toxicology studies to support a Phase 2b, multi-dose clinical study for ARC-520. As ARC-520 and other clinical candidates progress through clinical trials, outside lab and contract service expense is expected to increase. Outside toxicology work can and will fluctuate depending on the number of clinical candidates the Company is developing and on the specific needs of each development candidate.

In vivo studies expense was $303,000 during the year ended September 30, 2013, compared to 302,000 in the comparable prior period. The current period expense relates to preclinical animal studies at our Madison research facility, as the Company tests formulations of new potential clinical candidates.

Drug manufacturing expense was $2.2 million during the year ended September 30, 2013, compared to $1.3 million in the comparable prior period. Drug manufacturing expense for fiscal 2013 was related to the manufacturing campaign to produce materials for the ARC-520 GLP toxicology studies and the Phase 1 clinical trial. The Company is utilizing outside manufactures to produce these components. In the prior year, approximately half of the drug manufacturing expense was related to the production of polymer components for RONDEL. Further development of RONDEL and CALAA-01 has been suspended as the Company focuses on its DPC delivery platform. Manufacturing costs related to ARC-520 are expected to continue as the Company prepares for a multi-dose Phase 2b clinical trial. Also, as the Company develops other clinical candidates, it will incur related manufacturing costs for toxicology studies and future clinical trials.

Consulting expense was $259,000 during the year ended September 30, 2013, compared to $375,000 in the comparable prior period. During fiscal 2012, the Company retained the services of a former Alvos employee to consult in the transition and this contract was not renewed in 2013. Additionally, the Company scaled back its strategic advisory board, replacing it with a clinical advisory board, to address the Company s needs with respect to ARC-520. The timing of such consulting expenses resulted in less costs in 2013.

License, royalty & milestone expense was $322,000 during the year ended September 30, 2013, compared to $274,000 in the comparable prior period. The licensing fees, royalty and milestones expenses in fiscal 2013 was related to a one-time $100,000 milestone payment due at the start of the ARC-520 clinical trial, and a one-time payment related to gain access to certain targeting technology from our acquisition of Alvos. The prior year expense was primarily related to a one-time milestone payment made related to the Ablaris clinical trial.

Laboratory supplies and services expense was $1,058,000 during the year ended September 30, 2013, compared to $794,000 in the comparable prior period. This increase in expense is associated with research and development efforts related to pre-clinical programs including siRNA synthesis for the identification and screening of new liver and extra-hepatic targets, subcutaneous formulations to be utilized in therapeutic areas where chronic dosing may be required and assessing the interaction of ARC-520 with other hepatitis therapeutics.

Clinical trial expense was $1,093,000 during the year ended September 30, 2013, compared to $599,000 in the comparable prior period. Expenses relating to clinical trials are increasing as the Company advances ARC-520. In fiscal 2013, the Company began a Phase 1 clinical trial for ARC-520 in healthy volunteers which completed enrollment in October 2013. In fiscal 2014, the Company submitted for ethics and regulatory permission to initiate a Phase 2a pilot efficacy clinical trial in chronic HBV patients and expects to conduct a Phase 2a clinical trial in fiscal 2014.

R&D facilities expense was $732,000 during the year ended September 30, 2013, compared to $787,000 in the comparable prior period and relates to rent for a research building, but also includes related property tax, utilities, and repairs and maintenance as may be required from time to time. Facilities expenses were fairly constant during the year and as compared to the prior period, with minor fluctuations in repairs and maintenance, electricity, property taxes and common area maintenance.

Sponsored research expense was $188,000 during the year ended September 30, 2013, compared to $185,000 in the comparable prior period. Sponsored research expense in both periods relates solely to research conducted at the University of Cincinnati for our obesity program. Such research expense is dependent upon studies undertaken, and vary based on needs and priority of the program.

Other research expense was $52,000 during the year ended September 30, 2013, compared to $32,000 in the comparable prior period. The increase primarily relates to the costs of other laboratory services, primarily waste disposal costs, which vary based on the type and level of R&D activity.

Stock-based compensation expense

Stock-based compensation expense, a noncash expense, was $1,536,000 during the year ended September 30, 2013, compared to $1,241,000 during the comparable prior period. Stock-based compensation expense is based upon the valuation of stock options granted to employees, directors, and certain consultants. Many variables affect the amount expensed, including the Company s stock price on the date of the grant, as well as other assumptions. Based on the additional options granted to new and existing employees in fiscal 2013, compensation expense has increased from the prior year.

Depreciation and amortization expense

Depreciation and amortization expense, a noncash expense, was $1,751,000 during the year ended September 30, 2013, compared to $1,749,000 during the comparable prior period. The majority of depreciation and amortization expense relates to depreciation on lab equipment obtained as part of the acquisition of Roche Madison. In addition, the Company records depreciation on leasehold improvements at its Madison research facility. Depreciation and amortization expense is essentially unchanged from the prior year. Calando patents were written down during the year and recorded as impairment expense, thus amortization of those patents has been completed. This decrease was mostly offset by increased depreciation expense from newly acquired lab equipment capitalized in fiscal 2013.

Other Income / Expense

Other income / expense increased from expense of $1.0 million in fiscal 2012 to $7.1 million in fiscal 2013. The increase in other expense during fiscal 2013 was primarily due to a noncash expense of $5.3 million for the change in value of derivatives. This expense was caused by the method of accounting for certain warrants issued by the Company that have price adjustment features. The change in value of derivatives is impacted by the fair value calculation, based upon various inputs, but principally susceptible to a change in the Company s stock price, which was the factor that drove the change in expense, primarily during the fourth quarter of fiscal 2013. Additionally, the Company recorded expense of $1.0 million related to the write down of a note receivable related to the sale of our former subsidiary, Unidym. Finally, the Company recorded a loss of $641,000 related to expenses at its minority equity investments, Leonardo and Nanotope. During fiscal 2012, the Company recorded several nonrecurring items: Impairment of its investment in its unconsolidated affiliate, Nanotope of $1.4 million, a loss on the disposal of fixed assets of $1.1 million, and a gain recorded upon the acquisition of Roche Madison of $1.6 million, and an impairment of its investment in Leonardo of $0.2 million. An additional component of other income/expense in fiscal 2012 was the change in value of derivatives, which was a gain of $387,000.

Liquidity and Cash Resources

As a development stage company, Arrowhead has historically financed its operations through the sale of securities of Arrowhead and its Subsidiaries. Research and development activities have required significant capital investment since the Company s inception, and are expected to continue to require significant cash investment in fiscal 2014, and beyond.

At September 30, 2013, the Company had cash on hand of approximately $19.1 million. Excess cash invested in fixed income securities was $10.7 million. Subsequent to September 30, 2013, the Company closed an additional financing generating $60 million in net proceeds from the sale of equity. The Company believes its current financial resources are sufficient to fund its operations through at least the next twelve months.

Cash and cash equivalents increased $15.7 million during fiscal 2013 from $3.4 million at September 30, 2012 to $19.1 million at September 30, 2013. The Company invested excess cash balances of $10.7 million in marketable securities at September 30, 2013.

Cash used in operating activities was $19.0 million, which represents the on-going expenses of its research and development programs and corporate overhead. Cash outlays were primarily composed of the following: salary and payroll-related expenses were $7.0 million, general and administrative costs were $3.6 million, and research and development costs were $8.7 million. Cash expenses were minimally offset by cash received from revenues of $0.3 million.

Cash used by investing activities was $9.5 million, primarily related to cash investments in fixed income securities of $10.7 million, offset by proceeds from the sale of investments of $1.4 million, related to securities of Wisepower received in the sale of Unidym in 2011. Capital expenditures were $0.3 million.

Cash provided by financing activities of $44.3 million includes $44.5 million of cash received from equity financings by the Company, offset by principal payments on capital leases of $0.2 million. The equity financings included the sale of common stock and warrants issued in December 2012 for proceeds of $3.8 million, the sale of common stock and warrants issued in the January 2013 for proceeds of $3.3 million and cash received from the sale of common and preferred stock issued in May 2013 with proceeds of $35.3 million. .The exercise of warrants during fiscal 2013 resulted in additional cash inflow of $2.1 million.

Recent Financing Activity / Sources of Capital:

On October 11, 2013, the Company closed a securities offering with certain institutional investors (the Purchasers), pursuant to which the Company sold 3,071,672 shares of common stock, (the Shares), at a purchase price of $5.86 per share, and 46,000 shares of Series C Convertible Preferred Stock (the Preferred Shares), at a purchase price of $1,000 per share. The Preferred Shares are convertible into shares of common stock at a conversion price of $5.86 per share of common stock. The aggregate purchase price paid by the Purchasers for the Shares and Preferred Shares was $64,000,000 and the Company received net proceeds of approximately $60,000,000, after advisory fees and offering expenses.

In May 2013, the Company sold 14.3 million shares of Arrowhead common stock at a price of $1.83 per share, and 9,900 shares of Arrowhead series B convertible preferred stock at a price of $1,000 per share. The series B preferred stock is convertible into common stock at a conversion price of $1.83. Gross proceeds were $36 million.

On January 25, 2013, the Company sold 1.7 million units at a price of $2.12 per unit in a public offering. Each unit consisted of one share of Common Stock and a warrant to purchase 0.5 share of Common Stock. The exercise price of these warrants was $2.14 as of June 30, 2013. Gross proceeds from the offering were $3.5 million; net proceeds were $3.3 million after deducting commissions and other offering expenses.

On December 6, 2012, the Company sold 1.8 million units at a price of $2.26 per unit in a public offering. Each unit consisted of one share of Common Stock and a warrant to purchase 0.5 share of Common Stock. The exercise price of these warrants was $2.12 as of June 30, 2013. Gross proceeds from the offering were $4.1 million; net proceeds were $3.8 million after deducting commissions and other offering expenses.

Based upon the Company s current cash resources and operating plan, the Company expects to have sufficient liquidity to fund operations for at least the next twelve months.

Off-Balance Sheet Arrangements

As of September 30, 2013, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

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

The information required by this item is included in Item 15 of this Annual Report Form 10-K.

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

None.

ITEM 9A. 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.

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, 2013. 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, management has concluded that our internal control over financial reporting was effective as of September 30, 2013.

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, 2013, 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, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.
The information called for by this Item is incorporated by reference from our 2013 Proxy Statement.

ITEM 11. EXECUTIVE COMPENSATION
The information called for by this Item is incorporated by reference from our 2013 Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS.
The information called for by this Item is incorporated by reference from our 2013 Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE.
The information called for by this Item is incorporated by reference from our 2013 Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES
The information called for by this Item is incorporated by reference from our 2013 Proxy Statement.

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.

(3) Exhibits.

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

Exhibit Number	Description	Incorporated by Reference Herein Form	Date
2.1	Stock and Asset Purchase Agreement between Arrowhead Research Corporation and Roche entities, dated October 21, 2011	Annual Report on Form 10-K for the fiscal year ended September 30, 2011, as Exhibit 2.1	December 20, 2011
3.1	Certificate of Incorporation of InterActive Group, Inc., a Delaware corporation, dated December 15, 2000	Schedule 14C, as Exhibit A	December 22, 2000

Exhibit Number	Description	Incorporated by Reference Herein Form	Date
3.2	Certificate of Amendment to Certificate of Incorporation of InterActive Group, Inc. (effecting, among other things a change in the corporation s name to Arrowhead Research Corporation), filed with the Secretary of State of the State of Delaware on January 12, 2004	Schedule 14C, as Exhibit 1	December 22, 2003
3.3	Certificate of Amendment to Certificate of Incorporation of Arrowhead Research Corporation, dated January 25, 2005	Form 10-QSB for the quarter ended December 31, 2004, as Exhibit 3.4	February 11, 2005
3.4	Certificate of Amendment to Certificate of Incorporation of Arrowhead Research Corporation, dated October 13, 2009	Annual Report on Form 10-K for the fiscal year ended September 30, 2009, as Exhibit 3.4	December 22, 2009
3.5	Series A Certificate of Designations, dated October 25, 2011	Current Report on Form 8-K, as Exhibit 3.1	October 26, 2011
3.6	Certificate of Amendment to Certificate of Incorporation of Arrowhead Research Corporation, dated November 17, 2011	Current Report on Form 8-K, as Exhibit 3.1	November 17, 2011
3.7	Bylaws	Schedule 14C, as Exhibit B	December 22, 2000
3.8	Amendment No. 1 to the Bylaws of Arrowhead Research Corporation	Current Report on Form 8-K, as Exhibit 3.1	April 27, 2010
3.9	Form of Series B Certificate of Designations, dated on or about May 1, 2013	Current Report on Form 8-K, as Exhibit 3.1	April 30, 2013
3.10	Form of Series C Certificate of Designations, dated on or about October 10, 2013	Current Report on Form 8-K, as Exhibit 3.1	October 10, 2013
4.1	Form of Registration Rights Agreement, July and August 2009	Current Report on Form 8-K, as Exhibit 10.2	July 17, 2009
4.2	Form of Registration Rights Agreement, dated December 11, 2009	Annual Report on Form 10-K for the fiscal year ended September 30, 2009, as Exhibit 4.2	December 22, 2009

4.4	Form of Common Stock Warrant expiring in September 2013	Current Report on Form 8-K, as Exhibit 10.2	September 11, 2008
4.5	Form of Warrant to Purchase Capital Stock expiring June 2014	Current Report on Form 8-K, as Exhibit 4.1	July 17, 2009