ARROWHEAD RESEARCH

4Q Fiscal and Year-End 2013 Conference Call – Prepared Remarks

December 18, 2013

1:30 PM Pacific time

Operator

Ladies and gentlemen welcome to the Arrowhead Research fiscal 2013, fourth quarter and year-end financial results conference call. Throughout today's recorded presentation all participants will be in a listen-only mode. After the presentation there will be an opportunity to ask questions. I will now hand the conference call over to Vincent Anzalone, Director of Finance and Investor Relations for Arrowhead. Please go ahead Vince.

Vince Anzalone

Thank you, Operator. Good afternoon everyone, and thank you for joining us today to discuss Arrowhead's results for its fiscal 2013 fourth quarter and year ended September 30, 2013. With us today from management are President and CEO Dr. Christopher Anzalone, Chief Operating Officer and Head of R&D Dr. Bruce Given, and Chief Financial Officer Ken Myszkowski. Management will provide a brief overview of the quarter and year and will then open up the call to your questions.

Before we begin, I would like to remind you that comments made during today's call may contain certain forward-looking statements within the meaning of Section 27(A) of the Securities Act of 1933 and Section 21(E) of the Securities Exchange

Act of 1934. All statements other than statements of historical fact, including without limitation those with respect to Arrowhead's goals, plans, and strategies are forward-looking statements. They represent management's current expectations and are inherently uncertain. Thus, actual results may differ materially. Arrowhead undertakes no duty to update any of the forward-looking statements discussed on today's call.

You should refer to the discussions under risk factors in Arrowhead's annual report on Form 10-K and the Company's quarterly reports on Form 10-Q for additional matters to be considered in this regard.

With that said, I'd like to turn the call over to Dr. Christopher Anzalone, President and CEO of the Company. Chris?

Chris Anzalone

Thanks Vince. Good afternoon everyone and thank you for joining us today.

Fiscal 2013 and the period since our last conference call have been extremely productive. We completed planned enrollment in a Phase 1 study for ARC-520, applied to begin a Phase 2a trial, began chronic GLP tox studies to support a multi-dose Phase 2b, strengthened our balance sheet, and released important non-clinical data demonstrating the value of the candidate and broader platform. Together, these represent important first steps in building long-term durable value with the assets we acquired from Roche.

When we completed the acquisition at the end of 2011, we saw substantial value in the team, proprietary platforms, licenses, and infrastructure, but we also recognized that the market would not properly value any of that until we made it tangible. While we continued to expand the platforms, we needed to publish non-clinical data and push a candidate into the clinic as fast as possible such that the market could better understand the technology and see a path to commercialization. This is what we did in 2013. We think this unlocks substantial value by de-risking ARC-520 and the broader platform.

Lets take a closer look at some of these accomplishments.

We published data demonstrating deep and durable knockdown of hepatitis b, or HBV, viral load and key antigens in two rodent models. We believe the consistent 3-4 log reductions we saw in viral proteins were deeper than had ever been demonstrated in the past. This was an important finding because it is widely believed that reduction of surface, or S, antigen is a necessary step to achieve functional cure of HBV. High levels of circulating s-antigen are immunosuppressive and it is thought that reducing S can re-activate the natural immune system and enable it to clear the virus and reach functional cure. People have tried for years to safely and consistently reduce S and they have consistently failed. Our work is potentially a great leap forward in HBV research and provides hope for a functional cure, which is currently elusive for most.

This work also supported the platform more broadly. We are not aware of any publications reporting this level of knockdown of any target with RNAi. In a world that used to be excited about 70% knockdown, then eventually even 90-95%, we were showing greater than 99.9% silencing that lasted several weeks. This demonstrates the power of the DPC delivery platform in addition to the

individual ARC-520 candidate. If we can achieve multi-log knockdown safely for HBV, we should also be able to do it for other liver targets. When combined with the work we had done in literally dozens of monkeys and hundreds of rodents with other liver targets, we built a deep understanding of the safety and efficacy profile of the DPCs.

We pushed this understanding further in a study that was conducted in collaboration with Dr. Robert Lanford, of the Texas Biomedical Research Institute, using a chimpanzee with chronic HBV. At the AASLD Liver Meeting in November, we reported that short exposure to ARC-520 resulted in deep reductions in HBV DNA, e-antigen, and s-antigen that did not return to baseline until study day 43, 43, and 71 respectively. This level of knockdown in an extremely viremic chimp alone would have been important because we do not believe anything like it had ever been reported. However, we also saw an increase in serum alanine transaminase, or ALT, which coincided with the nadir of circulating s-antigen and this was extremely exciting. It suggests a therapeutic immunological flare, which is thought to be part of a cascade that, under chronic therapy, could lead to s-antigen seroconversion and functional cure. We expected to see deep and durable reductions in HBV gene products, but the liver flare was a welcome, but somewhat unexpected, surprise after such a short exposure to ARC-520. If this flare was in fact a marker of the immune system being re-awakened, then it is a good indication that ARC-520 is doing what it was designed to do.

Together, all of these animal studies have significantly de-risked the ARC-520 program and the DPC platform. We have shown safety and efficacy across 4 species, including two species of primates. RNAi is reliable in that if a specific siRNA sequence is delivered to the right cell, it will generally knockdown an intended gene product after it has been validated. Further, it is generally accepted

in the RNAi field that non-human primate data are highly predictive with respect to safety, dose, and response in humans. Therefore, our extensive animal work, spanning multiple species and models, including a chimpanzee naturally infected with the same HBV humans can be infected with, has given us substantial confidence that ARC-520 may reduce s-antigen in HBV-infected people.

At that point, what was the next hurdle we needed to get over? The answer is evidence of drug tolerability and safety in humans. Before a drug is introduced in humans, there is always risk that there will be a safety signal that was not predicted in animal models.

The successful Phase 1 study of ARC-520, which will be discussed in more detail later, represented the next key de-risking event for Arrowhead. We began dosing in July and were able to complete planned enrollment in just three months. We saw no signs of end-organ toxicity and observed no differentiating findings on vital signs, ECGs, physical examinations, or clinical chemistries in the ARC-520 groups relative to placebo. ARC-520 and the DPC delivery system appear to be safe and well tolerated at all dose levels studied.

So at that point, we had fundamentally de-risked ARC-520 and the DPC platform through extensive efficacy studies in animals and a successful Phase 1 showing good tolerability in humans. What else represents a near-term risk? One answer is capital. We were able to remove that risk as well.

During 2013, we strengthened our balance sheet with two equity financings totaling $100 million, with terms that were shareholder friendly. There were no discounts or warrants associated with these transactions. This capital fully funds Arrowhead into 2016 and enables us to move forward with our lead product and

platform development plans rapidly. It ensures that ARC-520 is fully resourced through the upcoming Phase 2a study in the first half of 2014 and a Phase 2b study planned to begin in the second half of 2014. It also allows us to expand our pipeline, with an IND for our second candidate planned for late 2014 and one or more additional candidates targeted for 2015.

The demand we've seen from high quality institutional investors has been encouraging and we view their investment as a vote of confidence. We see the increasing level of institutional ownership as a sign that we are maturing as a company, so to move from less than 10% institutional ownership to over 70%, including preferred shares as converted, is a significant step forward.

As I've said in the past, we viewed 2013 as a year in which we could begin to demonstrate the value of the assets acquired from Roche. To that end, we tried to provide consistent updates on the progress of our clinical programs and development of our DPC platform. We also hosted an analyst and investor day in March and participated in several key investor and scientific conferences, including AASLD and HepDART in recent months. We plan to continue this practice in 2014 and are eager to increase our visibility by providing updates on ARC-520 as results are available, giving guidance on our next clinical candidates, and publishing advances made to the DPC platform.

I would now like to turn the call over to our COO and Head of R&D, Dr. Bruce Given, to discuss the ARC-520 clinical program. Bruce?

Bruce Given

Thanks Chris, and hello everyone.

As Chris mentioned, it has been an extremely productive year for our R&D organization. I'm very pleased and encouraged that we've been able to take ARC-520 through GLP-toxicology studies, undertake the first external GMP-manufacturing run of clinical drug supply, complete a Phase 1 study, and complete all necessary steps to initiate a Phase 2a study in less than 12 months. We have been operating at best in class speed.

As you know, the goal of ARC-520 is to achieve a functional cure of chronic hepatitis B infection. HBV is the world's most common serious liver infection, with an estimated 350 million patients worldwide that are chronically infected. There are an estimated 2 million chronic HBV infections in the US and 14 million is Western Europe, so there is clearly a large disease burden in both the developed and developing worlds. HBV can lead to cirrhosis of the liver and is responsible for 80% of primary liver cancers globally. The death toll for HBV is estimated to be as high as one million per year, and there is currently no reliable curative therapy.

We initiated a Phase 1 study of ARC-520 in July and completed enrollment in October. The Phase 1 study was designed to characterize the safety profile of ARC-520 across a range of doses from 0.01 mg/kg to 2 mg/kg and to 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. 36 subjects were enrolled as planned in 6 groups randomized at a ratio of 2:1 to receive ARC-520 or placebo. Subjects were admitted to the unit overnight pre-dose and vital signs, telemetry, ECGs, safety labs, PK, and adverse events were monitored for 24 hours post-dose. Return visits occurred for repeat safety evaluations and recording of adverse events at 48

hrs, 72 hours, day 7, day 14 and day 28 post dosing. We have been able to lock this database and review unblinded individual data, although the we don't yet have the statistical results.

Our review has indicated that the Phase 1 study demonstrated that a single intravenous administration of ARC-520 appears to be safe and well tolerated up to and including a dose of 2 mg/kg, the highest dose tested. There were no serious AEs, no dose limiting toxicities, no discontinuations, and only a modest occurrence rate of AEs with no dose related increase in frequency or severity, with the possible exception of mild lightheadedness, which occurred in two ARC-520 subjects in the 2 mg/kg dose group. There were no general differences observed or findings rated clinically significant on vital signs, ECGs, physical examinations, or clinical laboratories in the ARC-520 groups relative to placebo. Adverse event frequency and severity did not differ between placebo and ARC-520. We view these as typical Phase I safety results, which gives us confidence as we move toward a Phase 2a study of ARC-520 and as we work to bring additional DPC-enabled candidates into the clinic.

In November we submitted an application for a Certificate for Clinical Trial to the Hong Kong Department of Health for a Phase 2a study. Prior to that, the study protocol, investigator brochure, and informed consent were submitted to the ethics committees at two sites in Hong Kong. Pending approval, we intend to proceed with a multicenter, randomized, double-blind, placebo-controlled, dose-escalation study. The study is being conducted to determine the depth and duration of hepatitis B surface antigen reduction after a single intravenous dose of ARC-520 in combination with entecavir in patients with chronic HBV infection. Earlier in the year, we conducted combination studies in rodent models, and the data indicate that treatment with ARC-520 in combination with entecavir appears to have

additive and possibly synergistic effect. Enrollment will only be open to e-antigen negative patients. We believe that keeping HBV DNA and e-antigen levels constant will allow us to get the cleanest readout on ARC-520's ability to reduce s-antigen, which is thought to be the key to de-repressing the immune system and achieving a functional cure. Additional details on the Phase 2a study design and anticipated timelines will be provided when patient enrollment begins.

We are also on schedule to complete chronic GLP toxicology studies and a second manufacturing run of ARC-520 clinical drug supply to support our plans to initiate a multi-dose Phase 2b study in the second half of 2014. This study will be a multi-national study currently planned to include sites in the US, Europe and Asia. It will likely be open to both e-antigen negative and e-antigen positive chronic HBV patient patients on a background of NUC therapy with entecavir or tenofovir. The design of this study will be informed by data from Phase 2a, but we expect our design in 2b to allow a preliminary read on achievement of functional cures.

With that update, I would now like to turn the call over to our CFO Ken Myszkowski to review our financials for the period. Ken?

Ken Myszkowski

Thank you, Bruce, and good afternoon everyone.

As we reported today, our net loss attributable to Arrowhead for the year ended September 30, 2013 was $31.1 million, or $1.30 per share based on 24 million weighted average shares outstanding. This compares with a net loss attributable to Arrowhead of $21.1 million, or $1.90 per share based on 11.1 million weighted average shares outstanding, for the year ended September 30, 2012.

Total operating expenses for the year ended September 30, 2013 were $24.9 million, compared to 21.2 million for the year ended September 30, 2012.

Net cash used in operating activities in fiscal 2013 were $19 million, compared with $15.3 million in the prior year period.

The increase in operating expenses and cash used in operating activities of approximately $3.5 million, as compared to the prior fiscal year, reflects final pre-clinical requirements, including GMP manufacturing and GLP toxicology, to enable ARC-520 to enter clinical trials, as well as the cost of the phase 1 trial of ARC-520 for which we completed planned enrollment this past October.

Turning to our balance sheet, our cash and investments of idle cash were $29.8 million at September 30, 2013, compared to $3.4 million at September 30, 2012. The increase in our cash balance reflects $42.5 million in cash from financings during fiscal 2013, in addition to cash inflow from warrant exercises of $2 million. Subsequent to September 30, 2013, an additional financing yielded $60 million in net proceeds. That financing closed in October 2013.

During the past year, we secured equity financings of over $100 million, which puts the Company on a very solid financial footing to support the needs of our operations.

During the fiscal year, cash outlays for R&D were $13 million, and cash used in G&A were $6.6 million. Cash inflows during the fiscal year included $42.5 million from the sale of equity securities, $2 million from warrant exercises,

$300,000 in revenue, and $1.4 million in proceeds related to the sale of our former subsidiary, Unidym.

Our common shares outstanding at September 30, 2013, were 32.5 million, and would be 37.9 million assuming conversion of preferred shares outstanding at September 30, 2013. Taking into account our October financing and shares issued through the exercise of warrants since the end of the fiscal year, current common shares outstanding are 38.7 million, and would be 49.4 million assuming conversion of preferred shares outstanding.

With that brief overview, I will now turn the call back to Chris.

Chris Anzalone

Thanks Ken. Drug development, particularly in a new therapeutic modality, is an inherently uncertain business. We view raw discovery as value creation, but de-risking the product of discovery unlocks that value. 2013 has been a year of unlocking value by systematically reducing risk for ARC-520 and the broader platforms. This has taken many forms, including: becoming well capitalized; reporting non-clinical data demonstrating deep and reliable gene silencing; completing a successful Phase 1 study demonstrating that ARC-520, and DPCs more broadly, are well tolerated in humans; and finally we met or exceeded all of our timeline guidance. Arrowhead's risk profile is fundamentally different than it was a year ago, and this is the base on which we build for 2014.

We expect to start and hope to finish the ARC-520 Phase 2a in the first half of 2014 and plan to begin the multi-dose Phase 2b in the second half of the year. We

plan to file an IND for a candidate late in 2014 against a new liver target and orphan indication. We hope to provide more granular timing guidance as well as a full discussion about the new candidate during the first half of 2014.

As I mentioned earlier, one of the attractive features of RNAi is the ability to study new candidates rapidly. We see Arrowhead's next stage as a period of pipeline expansion and because we have a more mature and validated delivery platform now, we believe that we have already started to de-risk new candidates.

In addition to our DPC platform for iv administration, we have an active program in subcutaneous administration. We hope to provide an update on this as well as where we are with extra-hepatic delivery later in 2014. We believe these are significant value drivers going forward.

2013 was a great year for us and was marked by substantial progress, but we truly believe that our best days are ahead. Thank you all for joining us today and thank you for supporting Arrowhead.

I would now like to open the call to your questions. Operator?

Operator

Operator opens the call to questions …