ARROWHEAD PHARMACEUTICALS

Fiscal 2016 Second Quarter Conference Call – Prepared Remarks

May 10, 2016

1:30 PM Pacific time

Operator

Ladies and gentlemen welcome to the Arrowhead Pharmaceuticals fiscal 2016, second quarter 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, Vice President of Investor Relations for Arrowhead. Please go ahead Vince.

Vince Anzalone

Good afternoon everyone. Thank you for joining us to discuss Arrowhead's results for its fiscal 2016 second quarter ended March 31, 2016. With us today from management are president and CEO Dr. Christopher Anzalone, who will provide an overview of the quarter; Dr. Bruce Given, our chief operating officer and head of R&D, who will discuss our clinical programs; and Ken Myszkowski, our chief financial officer, who will give a review of the financials. We 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. These include, but are not limited to, statements regarding the anticipated safety and/or efficacy of ARC-520, ARC-521, ARC-AAT, ARC-F12, ARC-LPA, ARC-HIF2 and our other programs, as well as anticipated timing for study enrollment and completion and the potential for regulatory and commercial success. 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.

This is our first earnings call as Arrowhead Pharmaceuticals and I wanted to take a moment to talk about our name change. While we remain a company rooted in research and world-class science, our top priority is advancing products through clinical development to bring innovative new medicines to patients. The name Arrowhead Research was no longer an accurate representation of the company.

Arrowhead Pharmaceuticals reflects the progress we're making on our growing pipeline of RNAi-based therapeutics. We have quickly become a company with multiple clinical stage products and we plan on having additional products enter clinical trials over the next year and beyond.

This is an "and" move rather than an "or". While we expand our focus to include clinical and, eventually, commercial development, we remain fiercely innovative and continue to drive big science. Our proprietary and constantly evolving technologies give us a robust and versatile drug discovery and development platform. This allows us to continually build on successes from each program and develop effective new therapies rapidly, cost effectively, and potentially with lower risk relative to traditional approaches. This is reflected in the speed at which we've gone from one clinical candidate to our current pipeline of six programs targeting a broad range of disease areas. It is also reflected in the confidence we have in ARC-AAT and ARC-521, for instance. We now know that ARC-520 does exactly what it was designed to do: it consistently and deeply reduces expression of HBV cccDNA. We also know that it does this in a well-tolerated manner. ARC-520 has been given to over 150 people and we continue to see a favorable safety profile. This high activity and emerging safety profile should read on ARC-AAT and ARC-521 because both use the exact same DPC delivery technology as ARC-520. It is uncommon in the pharmaceutical industry to have this carry-over safety and activity understanding as new drugs come to the clinic, and this is a substantial value driver.

We have made a great deal of progress across all of our programs as well as the underlying platforms during the fiscal 2016 second quarter and the period since our last conference call. I will discuss a few of them now and provide some context.

Later in the call Bruce Given will give some more detail and provide a status update on our clinical studies.

I mentioned ARC-520, and lets talk a bit more about that. During the quarter we continued to execute quite well and there are now seven ARC-520 clinical studies actively enrolling patients. As a reminder, the following is a list of current studies:

- 1002 is a single dose study in healthy volunteers testing faster infusion rates of ARC-520
- 2002 is a placebo controlled 3-month study of ARC-520 + NUCS in NUC-experienced e-negative patients
- 2003 is the same as 2002, but in e-positive NUC-experienced patients
- 2007 is an open label 9-month extension for patients in 2002 and 2003 who achieve a ½ log or greater reduction in circulating s-antigen, providing a full year of therapy for eligible patients
- 2004 is our US only placebo-controlled 3-month study of ARC-520 + NUCs in e-positive patients
- The 2001 extension is an open label study of 1 year of ARC-520 treatment on top of NUCs in patients from the single dose 2001 study. 54 of the 58 patients from 2001 are eligible to participate.
- MONARCH is our open label study that includes arms with ARC-520 alone, and triple therapy of ARC-520 + NUCs + interferon. We intend to open additional arms as combinations with new compounds become available.

These are a lot of studies and we will enroll a large number of patients, and given the diversity of disease factors, they will be required to gain a more complete understanding of ARC-520 and how it works. These studies will span various HBV genotypes, NUC experience, and e-antigen status. We go into these studies

as clear intellectual leaders in HBV. Between our long term study in chronically infected chimps and our ARC-520 studies to date, we have moved the HBV field forward and I expect to retain this leadership position this year and beyond.

We clearly have a comprehensive clinical program. The data continue to indicate that ARC-520 is highly active against cccDNA-derived mRNA transcripts and thus can reduce the production of HBV proteins. Keep in mind that the virus hijacks patients' hepatocytes to make only 5 proteins and pre-genomic RNA. That is all this virus does, and our data suggest that we silence every one of them. Several, and possibly all, of these proteins are believed to contribute to immune suppression and, therefore, chronicity of HBV infection as the body is unable to control the virus. Many believe that dramatically reducing both the circulating and intrahepatic proteins will make it increasingly difficult for the virus to continue to evade immune control. In theory, this mode of action should be a powerful tool against the virus. It is difficult to imagine that the virus could continue its normal lifecycle while everything it is capable of making is silenced, and of course we are testing that theory now. In addition to what ARC-520 could do on its own, it could be a powerful backbone therapy that is complementary to other therapeutic mechanisms, and we are eager to interrogate this possibility with various agents in our MONARCH study. We continue to see ARC-520 as a key to enabling functional cures in patients with chronic HBV infection.

As we have said previously, ARC-520 appears to be maximally active in patients with higher relative levels of HBV cccDNA versus HBV that has integrated into the host DNA. During the quarter we presented additional data at the EASL International Liver Congress in e-antigen positive, treatment naïve patients from cohort 7 of the 2001 study. This patient group is predicted to have higher relative levels of cccDNA. These data show how powerful ARC-520 is against cccDNA

derived transcripts and how deeply we can knockdown HBV proteins. We saw a max knockdown of s-antigen of almost 2 logs, or 99%, and a dramatic duration of effect. We had previously reported the former, but the latter represented new data. In this group of patients, s-antigen was still reduced by 83% 2 months after a single dose and 75% after 3 months, which is the final time point of the study. In fact, one of the 6 patients demonstrated approximately 1 log, or 90%, reduction of circulating s-antigen 85 days after a single dose of ARC-520. These are important data because there has simply never been a reliable report that approaches this depth and duration, particularly after a single dose of a therapeutic. In addition, serum HBV DNA reductions of up to 5.5 logs were observed. These were exciting data for us and the HBV community and give us great confidence in our ongoing multiple dose and combination studies.

In addition to ARC-520, we also recently announced that we filed for regulatory clearance to begin a Phase 1/2 study of ARC-521, our second pipeline candidate targeting chronic HBV. We think having both ARC-520, which has been very active in patients with higher cccDNA, and ARC-521, which may be optimal for those with lower cccDNA, should provide us with greater potential to treat all HBV patients. We have an aggressive plan for the development of ARC-521 that includes an accelerated first-in-man Phase 1/2 design intended to allow rapid transition into multi-dose patient cohorts. Our plan was to file regulatory submissions towards the end of the quarter, so we are already a couple months ahead of schedule. We will provide more details about the design when we initiate the study, so stay tuned. We have moved very fast with this program, and we think ARC-521 increases our leadership position in the HBV space and the race to a functional cure.

Turning to ARC-AAT, we continue to accrue our Phase 1 single-ascending-dose study that consists of Part A in healthy volunteers and Part B in patients with AATD. We remain on schedule to complete enrollment and release top-line results from both the expanded Part A and Part B this year and report full data at relevant medical meetings. We are currently preparing a pilot Phase 2a multiple dose study of ARC-AAT that we intend to begin this year.

During the quarter we also presented new data on our three disclosed preclinical programs: ARC-F12, ARC-HIF2, and ARC-LPA. These programs represent not only our expanding pipeline of RNAi therapeutics against a wide range of diseases, but also progress we're making on our underlying technology platform. I will quickly go over these one-by-one.

First, ARC-F12 is designed to inhibit the production of Factor 12. In an edema model in rats, ARC-F12 led to a significant reduction in swelling. In animal models of thrombosis, ARC-F12 was able to reduce the risk of blood clot formation, without the undesirable bleeding risk caused by anticoagulants. These support our belief that ARC-F12 has the potential to treat both hereditary angioedema, or HAE, and to prevent thrombosis. These are very different patient populations, and we have both subcutaneous and intravenous formats for this program, so we are currently assessing what the best clinical path will be for this product. We plan on discussing this more in the future.

ARC-HIF2 is the first candidate to use a DPC™ vehicle designed for extra-hepatic delivery. ARC-HIF2 targets HIF-2alpha for the treatment of renal cell carcinoma. We presented preclinical data showing proof-of-concept for the delivery vehicle, and that ARC-HIF2 could inhibit tumor growth and promote tumor cell death in

multiple RCC mouse models. This represents both an exciting new candidate, and an expansion of our DPC™ platform.

Lastly, ARC-LPA is the first RNAi therapeutic to use Arrowhead's new delivery vehicles designed for subcutaneous administration. This preclinical candidate is targeting lipoprotein(a), or Lp little a, for the treatment of cardiovascular disease. High levels of Lp(a) are associated with an increased risk of cardiovascular disease independent of cholesterol and LDL, and there is currently no good way to deeply reduce circulating levels of Lp(a). Data we recently presented show that ARC-LPA can achieve up to 98% reduction of Lp(a) in mice, and 85-90% in primates with significant reductions through at least 6 weeks. We think this is very attractive candidate on it's own, and we are excited about our new subcutaneous platform that may create additional opportunities to address diseases that require chronic treatment and where the subcutaneous route may be preferable to patients and physicians.

So, as you've heard, this has been another highly productive quarter for us at Arrowhead. We are confident that novel medicines like the ones we're developing at Arrowhead that treat intractable diseases will, in the end, always have great value. We are committed to pushing our pipeline forward and unlocking that value.

With that overview, I would now like to turn the call over to Dr. Bruce Given, our COO and head of R&D. Bruce?

Bruce Given

Thank you Chris and good afternoon everyone.

Before I review the status of our various clinical studies, I wanted to describe the ARC-520 data presented at EASL, the International Liver Congress last month. We presented a poster on the full and final cohort 7 single dose results from the 2001 study and a poster on new data from our ground-breaking chimpanzee study. In addition, our colleagues from the Victorian Infectious Diseases Reference Laboratory in Melbourne, Australia presented a poster on some of their leading edge analytical work from the first 5 cohorts of Hep-ARC 2001. Let me touch on some of the more intriguing findings. All 3 of these posters can be found on our website.

First, regarding our Hep-ARC 2001 cohort 7 poster, ARC-520 and entecavir produced very rapid HBV DNA suppression in hepatitis B e-antigen positive, treatment naïve patients achieving serum HBV DNA reductions of around 4 logs after only 2 weeks and up to 5.5 logs overall. All e-antigen negative, treatment naïve patients achieved reductions that put them below the limit of quantitation, with all but one achieving this by 2 weeks. We have previously reported that ARC-520 showed moderate to strong synergism with both entecavir and tenofovir in mice, so we see this data as consistent with those findings. We suspect that synergism is seen because mechanistically ARC-520 would be expected to reduce levels of polymerase and pre-genomic RNA. This leads us to believe that synergism could well be seen with other mechanisms and agents that would similarly benefit from reductions in viral antigens or pre-genomic RNA. Capsid inhibitors and drugs targeting X antigen would be clear candidates for such a benefit.

The full, 3 month data also show that ARC-520 effectively inhibited HBV cccDNA-derived mRNA with observed viral protein reductions in naïve, e antigen

positive patients of up to 2 logs, or 99%, after a single dose. Chris mentioned this earlier, but I think it bears repeating. The duration of effect for s-antigen reduction in the e-antigen positive, treatment naïve patients is very intriguing. The mean reduction at the last study visit on day 85 was still 75% from baseline after just a single dose of ARC-520. There was also an interesting flattening of the rebound curve between day 57 and day 85. E antigen and core-related antigen levels, where measurable, also were reduced at day 85. As previously reported, naïve e negative patients had a delayed mean s antigen response, that didn't manifest until around 3 weeks post dose. The overall mean reduction was less in e negatives but had still not returned to the mean baseline at day 85. The academic community continues to recognize these data as important and the poster was again a selected stopping point on the HBV expert tour and was featured in the what's new and important general lecture on HBV. We were also asked to present our data at a recent NIH workshop dedicated to HBV.

In the poster on our chimpanzee study, we showed that after monthly administration of 6-11 doses of ARC-520 in chimpanzees chronically infected with HBV, the ARC-520 target site sequences remained virtually unchanged. This suggests to us that no drug resistance developed during the treatment period. While we did not expect that mutation and resistance would be a problem, this gives us additional comfort as we conduct our multiple dose studies in HBV patients. We also showed additional biopsy data with deep sequencing of the HBV mRNAs after treatment with ARC-520. These results demonstrated that all sequences containing the ARC-520 target sites were deeply knocked down in both e positive and e negative chimps. This again supports our perspective that while surface antigen knockdown can be impacted by the relative amount of integrated derived surface antigen transcript, the other transcripts, which will be cccDNA-derived, should be equivalently reduced in either e negative or e positive patients.

As the field gets more interested in the pathologic roles of all hepatic antigens, not just surface antigen, the unique ability of RNAi, and ARC-520 in particular, to knock down all HBV viral transcripts takes on even greater significance.

Finally, Dr. Stephen Locarnini has been studying patients that sero-clear HBsAg. While rare, sero-clearance does occur in a small minority of NUC treated patients. Dr. Locarnini has used a panel of monoclonal antibodies that bind specific parts of the surface antigen to look for changes in binding pattern as a way of studying the host immune response. He previously reported what he calls a clearance profile in patients that sero-cleared on tenofovir based on changes in monoclonal antibody binding. In the EASL poster from his group, he reported data from the four e negative, NUC experienced cohorts and the first NUC experienced e positive cohort. He showed that by week 3, around 50% of the ARC-520-treated patients were showing a clearance profile compared to zero placebo-treated patients. There was a corresponding trend in detection of immune complexes. We don't yet know the significance of these data on the ability of ARC-520 to achieve sero-clearance, but the findings continue to intrigue the academic HBV community.

I will now give a brief status update on some of our clinical studies. The ARC-520 1002 study is a single dose study to evaluate tolerability of increasing infusion rates of ARC-520. We have also dosed 5 mg/kg and will be dosing 6 mg/kg at an infusion rate of 0.9 mL/min, which is about twice as fast as we are currently using in our patient studies. It continues to be well tolerated, and because of this, we have added 5 and 6 mg/kg single dose cohorts to the 2001 study, just to give us dosing flexibility should we decide it is helpful to the program.

In the 2001 open-label extension study, most patients who completed the 2001 study are eligible to enroll if they wish to. Those who elect to participate will

receive up to 13 doses, once every four weeks. This study has begun and some patients from cohort 7 have already initiated dosing.

2002 and 2003 are multiple-dose studies in e-antigen negative and positive patients respectively, both of which are recruiting patients on existing entecavir or tenofovir therapy. The 2002 study is about two-thirds enrolled and the 2003 study is about half enrolled. We are still on schedule to complete enrollment for both studies this year.

Patients in 2002 and 2003 that achieve greater than 0.5 log reduction in s-antigen are eligible to roll over into 2007, which is a long-term extension that allows patients to be dosed up to a year. 2007 has been initiated in Hong Kong and South Korea and patients have begun to be dosed.

For the MONARCH study, in which most initial cohorts employ a triple combination with ARC-520, entecavir, and interferon dosing began in January. We have enrolled patients in three different cohorts, but have not completed any of those three cohorts yet. The initial triple combination cohorts are planned to receive ARC-520 every four weeks for 48 weeks, daily entecavir for 60 weeks, and pegylated interferon for 48 weeks. We hope to look at other combinations as new therapies mature to the point they can be included.

Ever since we learned of the importance of integrated DNA from our chimp study, we have fast tracked our development program for ARC-521. As perhaps all of you are aware, this combines our best RNAi trigger from ARC-520 with our best trigger targeting integrated transcripts. As such, we believe that it can be effective against all HBV-derived RNA transcripts, whether from integrated or cccDNA. We set a breakthrough goal to submit an application for a Phase I study by the

middle of this year and achieved submission in April. We feel that we understand the likely doses and safety profile of ARC-521 based on everything we have learned with ARC-520. Because of this, we have proposed a trial design that moves quickly into multiple doses in healthy volunteers and HBV patients. If this design is agreeable to IRBs and regulators, we should have a lot to report from this program in coming quarters.

Moving on to ARC-AAT, we have enrolled more than 50 subjects between Part A in healthy volunteers and Part B in patients in the single dose, Phase 1 study. We intend to have both parts of the study fully enrolled before the end of the year. We are also applying to begin a pilot Phase 2a multiple dose study. This study will look at the effect on circulating levels of AAT after multiple doses of ARC-AAT. More importantly, we also intend to take biopsies to determine the effect at the hepatocyte level. We have had discussions with regulatory authorities and our goal is to have this study underway later this year, so stay tuned.

With our corporate name change, we also created a new website at arrowheadpharma.com. The pipeline section of the website has descriptions of our active clinical trials and links to the respective clinicaltrials.gov entries. Please refer to that if you would like more information about the studies I have mentioned.

With that, I'd like to turn the call over to Ken Myszkowski, Arrowhead's Chief Financial Officer.

Ken?

Ken Myszkowski

Thank you, Bruce, and good afternoon everyone.

As we reported today, our net loss for the three months ended March 31, 2016 was $20.8 million, or $0.35 per share based on 59.8 million weighted average shares outstanding. This compares with a net loss of $28.7 million, or $0.51 per share based on 55.7 million weighted average shares outstanding, for the three months ended March 31, 2015.

Total operating expenses for the three months ended March 31, 2016 were $21.3 million, compared to $29.7 million for the three months ended March 31, 2015. The decrease in operating expenses compared to the year ago period, are primarily due to a prior year non-cash charge of $10.1 million for acquired in-process research and development costs, a component of the accounting related to the Novartis acquisition. This was somewhat offset by higher general and administrative expenses of $2.1 million during the current period, primarily due to increased legal and patent costs. R&D costs declined by $1.6 million due to lower drug manufacturing costs but higher clinical trial costs, as our ARC-520 manufacturing campaign was completed last year and this year we are incurring higher clinical trial cost related to the ARC-520 phase 2b studies.

Net cash used in operating activities during the second fiscal quarter was $14.7 million, compared with $16.4 million in the prior year period, a decrease of $1.6 million. This was driven by lower R&D costs and the receipt of a refundable R&D tax credit from Australia, somewhat offset by higher G&A expenditures.

Turning to our balance sheet, at March 31, 2016, including our investments in fixed income securities, our cash and investments balance was $61.5 million, a decrease of $15.1 million from December 31, 2015.

Our common shares outstanding at March 31, 2016, were 60 million, which increased from 59.6 million at December 31, 2015 primarily due to the issuance of shares from restricted stock vesting and the exercise of stock options. Also, at March 31, 2016, there were 15,652 shares of preferred stock outstanding. These preferred shares are convertible into 2.7 million shares of common stock. Common shares outstanding including the conversion of our preferred shares would be 62.6 million.

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

Chris Anzalone

Thanks Ken.

As you've heard, our data continue to be good and we are hitting the operational goals in our clinical programs. As I mentioned earlier, we have two candidates in the clinic, one that is about to enter the clinic, three more that are not too far behind, and some additional undisclosed programs that we are working on. This is a robust pipeline for a company of our size, which gives us a lot of opportunity to build value. It also, is about the limit of what we can handle with our current resources, headcount, and facilities.

Because of this, we are, for the first time, in a position where we can support and are actively looking for potential partners and collaborators to expand the reach of assets and potentially be a source of capital. This type of strategic shift can take some time, but we think that our broad IP, advanced technologies, and expertise from working in the field for more than a decade make us an extremely attractive partner.

Looking ahead over the next twelve months and beyond, there are multiple events that could drive value for our shareholders. The ARC-520 MONARCH study and 2001 extension are open-label studies that may provide opportunities to share data ahead of study completion. In addition, the clinical plan for ARC-521 is aggressive, but we feel responsible given our knowledge base. If IRBs and regulators agree, we may provide a read-out faster than some think. The ARC-AAT Phase 2a is anticipated to begin later in the year and the Phase 1 is planned to complete enrollment with a read-out this year. Behind these programs are ARC-F12, ARC-HIF2, and ARC-LPA which are all progressing nicely and should provide additional opportunities to give updates on the candidates and their respective technology platforms.

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

Operator

Operator opens the call to questions …