Avidity Biosciences Announces Phase 1/2 EXPLORE44™ Trial of AOC 1044 for Duchenne Muscular Dystrophy Mutations Amenable to Exon 44 Skipping

AOC 1044 is the first antibody oligonucleotide conjugate (AOC™) of multiple Duchenne muscular dystrophy programs to enter the clinic

First AOC from Avidity's RNA platform technology engineered to deliver phosphorodiamidate morpholino oligomers (PMO) to enter the clinic

Avidity has three distinct rare disease programs in clinical development

Volume 5 of virtual investor and analyst series on Thursday, October 13 at 10:00 am ET

SAN DIEGO, Oct. 11, 2022 /PRNewswire/ -- Avidity Biosciences, Inc. (Nasdaq: RNA), a biopharmaceutical company committed to delivering a new class of RNA therapeutics called Antibody Oligonucleotide Conjugates (AOCs™), today announced the Phase 1/2 EXPLORE44™ clinical trial of AOC 1044 in healthy volunteers and participants with Duchenne muscular dystrophy (DMD), a rare, genetic condition that is characterized by progressive muscle damage and weakness. AOC 1044 is designed for people living with DMD amenable to exon 44 skipping (DMD44) and is the first of multiple AOCs the company is developing for DMD. Currently, there are no approved therapies to treat the underlying mechanism of disease for people living with DMD mutations amenable to exon 44 skipping. Avidity has advanced three distinct rare disease programs - DM1, FSHD and DMD44 – into clinical development in a 14-month period.

DMD is an irreversible, progressive disease caused by a genetic mutation that prevents the body from producing a protein called dystrophin, which is an important protein that protects muscle cells from injury during contraction. The lack of functional dystrophin leads to stress and tears of muscle cell membranes, resulting in muscle cell death and progressive loss of muscle function. Those living with the condition often require special aid and assistance throughout their lives and have significantly shortened life expectancy.

"Advancing the EXPLORE44 Phase 1/2 clinical trial for AOC 1044 is a significant milestone for Avidity and our proprietary AOC platform. There are no therapies addressing the underlying mechanism of disease for the young people and their families living with DMD44, who have a progressively debilitating and often ultimately fatal condition," said Sarah Boyce, president and chief executive officer. "AOC 1044 is the first of multiple AOCs that we are developing for DMD and our first AOC PMO to advance into the clinic. With three clinical programs for three distinct rare diseases in clinical development, we have achieved significant progress in the past year toward our vision of profoundly improving people's lives by revolutionizing the delivery of RNA therapeutics."

AOC 1044 is designed to deliver phosphorodiamidate morpholino oligomers (PMO) to skeletal muscle and heart tissue to specifically skip exon 44 of DMD to enable dystrophin production. AOC 1044 is Avidity's first AOC engineered to deliver PMO and the company has two additional programs for DMD, which target exon 45 and exon 51.

"On behalf of the DMD community, we are eager for AOC 1044 to enter clinical studies as we are in desperate need of new treatments for young people living with DMD," said Craig M. McDonald, M.D., Professor and Chair of the Department of Physical Medicine and Rehabilitation and Director of the Rehabilitation and Training Center in Neuromuscular Diseases at the University of California, Davis. "DMD causes progressive muscle wasting that results in the inability to walk, dependence on a wheelchair, paralysis from the neck down and eventually, requiring a ventilator to breathe. With the ability to deliver to skeletal muscle and heart tissue, it is our hope that AOC 1044 will potentially provide patients with mutations amenable to exon 44 skipping with a life-changing treatment option."

Avidity has three distinct rare disease programs in the clinic – AOC 1001 for myotonic dystrophy type 1 (DM1) is currently being evaluated in the MARINA™ Phase 1/2 clinical trial and an open label-extension trial called MARINA-OLE™; AOC 1020 is advancing into the Phase 1/2 FORTITUDE™ trial for the treatment of facioscapulohumeral muscular dystrophy (FSHD) and AOC 1044 is advancing into the Phase 1/2 EXPLORE44™ trial for the treatment of DMD44.

The EXPLORE44™ Phase 1/2 Trial of AOC 1044
The EXPLORE44 trial is a randomized, placebo-controlled, double-blind, Phase 1/2 clinical trial to evaluate AOC 1044 in healthy volunteers and participants with DMD mutations amenable to exon 44 skipping (DMD44). EXPLORE44 will evaluate the safety, tolerability, pharmacokinetics, and pharmacodynamic effects of single and

multiple ascending doses of AOC 1044 administered intravenously. EXPLORE44 is expected to enroll approximately 40 healthy volunteers and 24 participants with DMD44, ages seven to 27 years old. The EXPLORE44 trial will assess exon skipping and dystrophin protein levels in participants with DMD44. Participants with DMD44 will have the option to enroll into an extension study.

Video Webcast Information
The company is hosting Volume 5 of their virtual investor and analyst series on October 13, 2022, beginning at 10:00 a.m. ET to further discuss the AOC 1044 program. The event is a live video webcast and can be accessed here or from the "Events and Presentations" page in the "Investors" section of Avidity's website. A replay of the webcast will be archived on Avidity's website following the event.

About Duchenne muscular dystrophy (DMD)
Duchenne muscular dystrophy (DMD) causes a lack of functional dystrophin that leads to stress and tears of muscle cell membranes, resulting in muscle cell death and the progressive loss of muscle function. The dystrophin protein maintains the integrity of muscle fibers and acts as a shock absorber through its role as the foundation of a group of proteins that connects the inner and outer elements of muscle cells. People living with DMD suffer from progressive muscle weakness that typically starts at a very young age. Over time, people with Duchenne will develop problems walking and breathing, and eventually, the heart and respiratory muscles will stop working. Those living with the condition often require special aid and assistance throughout their lives and have significantly shortened life expectancy. While there are treatments approved to treat people with DMD, there remains a very high unmet need. DMD is a monogenic, X-linked, recessive disease that primarily affects males, with 1 in 3500 to 5000 boys born worldwide having Duchenne.

About AOC 1044
AOC 1044 is designed to deliver phosphorodiamidate morpholino oligomers (PMO) to skeletal muscle and heart tissue to specifically skip exon 44 of DMD to enable dystrophin production in people living with Duchenne muscular dystrophy, with mutations amenable to exon 44 skipping (DMD44). DMD is characterized by progressive muscle degeneration and weakness due to alterations of a protein called dystrophin that protects muscle cells from injury during contraction. AOC 1044 consists of a proprietary monoclonal antibody that binds to the transferrin receptor 1 (TfR1) conjugated with PMO targeting exon 44. In a preclinical model of DMD, a murine active AOC produced durable exon skipping and functional dystrophin protein in skeletal muscle and heart tissue following a single intravenous dose. AOC 1044 is currently in Phase 1/2 development as part of the EXPLORE44™ trial for the treatment of DMD mutations amenable to exon 44 skipping. The company is developing additional programs for DMD, targeting exon 45 and exon 51.

About Avidity
Avidity Biosciences, Inc.'s mission is to profoundly improve people's lives by delivering a new class of RNA therapeutics - Antibody Oligonucleotide Conjugates (AOCs™). Avidity's proprietary AOCs are designed to combine the specificity of monoclonal antibodies with the precision of oligonucleotide therapies to target the root cause of diseases previously untreatable with RNA therapeutics. Avidity's advancing and expanding pipeline has three programs in clinical development. AOC 1001 is designed to treat people with myotonic dystrophy type 1 (DM1) and is currently in Phase 1/2 development with the ongoing MARINA™ and MARINA-OLE™ trials. AOC 1020 is designed to treat people living with facioscapulohumeral muscular dystrophy (FSHD) and is currently in Phase 1/2 development with the FORTITUDE™ trial. AOC 1044 is designed for people with Duchenne muscular dystrophy (DMD) mutations amenable to exon 44 skipping and is currently in Phase 1/2 development with the EXPLORE44™ trial. AOC 1044 is the first of multiple AOCs the company is developing for DMD. Avidity is also broadening the reach of AOCs beyond muscle tissues through both internal discovery efforts and key partnerships as the company continues to deliver on the RNA revolution. Avidity is headquartered in San Diego, CA. For more information about our science, pipeline and people, please visit www.aviditybiosciences.com and engage with us on LinkedIn and Twitter.

Forward-Looking Statements
Avidity cautions readers that statements contained in this press release regarding matters that are not historical facts are forward-looking statements. These statements are based on the company's current beliefs and expectations. Such forward-looking statements include, but are not limited to, statements regarding: the expected initiation of clinical trials of AOC 1044 and AOC 1020 in patients with DMD and FSHD, respectively; AOC 1044's potential to address unmet needs in DMD and to treat the underlying biological cause of DMD, Avidity's ability to develop AOCs for DMD targeting exon 45 and exon 51; and the potential to broaden the reach of AOCs beyond skeletal muscle tissues such as the heart. The inclusion of forward-looking statements should not be regarded as a representation by Avidity that any of these plans will be achieved. Actual results may differ from those set forth in this press release due to the risks and uncertainties inherent in the business, including, without limitation: Avidity is early in its development efforts; Avidity's approach to the discovery and development of product candidates based on its AOC platform is unproven, and the company does not know whether it will be able to develop any products of commercial value; potential delays in the commencement, enrollment and completion of clinical trials, including the expected initiation of the FORTITUDE™ and

EXPLORE44™ trials; Avidity may not be able to resolve the partial clinical hold recently imposed by the FDA relating to a serious adverse event in the MARINA study, and the analysis related to the underlying cause of the serious adverse event may result in delays in the MARINA study or an inability to compete the study; unexpected adverse side effects or inadequate efficacy of its product candidates that may delay or limit their development, regulatory approval and/or commercialization, or may result in clinical holds, recalls or product liability claims; the success of its preclinical studies and clinical trials for the company's product candidates; the results of preclinical studies and early clinical trials are not necessarily predictive of future results; Avidity's dependence on third parties in connection with preclinical testing and product manufacturing; regulatory developments in the United States and foreign countries, including acceptance of INDs and similar foreign regulatory filings and the proposed design of future clinical trials; disruption to its operations from the COVID-19 pandemic or the war in Ukraine; and other risks described in prior press releases and in filings with the Securities and Exchange Commission (SEC). Avidity cautions readers not to place undue reliance on these forward-looking statements, which speak only as of the date hereof, and the company undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date hereof. All forward-looking statements are qualified in their entirety by this cautionary statement, which is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

Investor Contact:
Kathleen Gallagher
(858) 401-7900 x550
investors@avidity bio.com

Media Contact:
Navjot Rai
(858) 401-7900 x550
media@avidity bio.com

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