Avidity Biosciences Receives FDA Rare Pediatric Disease Designation for AOC 1044 for Treatment of Duchenne Muscular Dystrophy in People with Mutations Amenable to Exon 44 Skipping

SAN DIEGO, Feb. 20, 2024 /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 that the U.S. Food and Drug Administration (FDA) has granted Rare Pediatric Disease designation to AOC 1044, the company's investigational therapy for the treatment of Duchenne muscular dystrophy (DMD) in people living with mutations amenable to exon 44 skipping (DMD44). AOC 1044 is being assessed in the Phase 1/2 EXPLORE44™ trial for people living with DMD44 and is the first of multiple AOCs the company is developing for DMD. In addition to receiving Rare Pediatric Disease Designation, AOC 1044 has been granted Orphan Designation by the FDA and the European Medicines Agency (EMA), and Fast Track Designation by the FDA.

DMD is a rare genetic condition that is characterized by progressive muscle damage and weakness due to the loss of dystrophin protein that typically starts at a very young age. Currently, there are no therapies approved targeting exon 44.

"We are pleased that the FDA has granted Rare Pediatric Disease designation to AOC 1044, adding to the Orphan Drug and Fast Track designations already granted. The effects of DMD44 are devastating, with symptoms often starting in childhood. These designations by the FDA underscore the urgent need for innovative treatments and validate the potential of AOC 1044 to address the unmet need of people living with Duchenne muscular dystrophy," said Steve Hughes, M.D., chief medical officer at Avidity. "We recently shared healthy volunteer data of AOC 1044 from our Phase 1/2 EXPLORE44 trial demonstrating unprecedented delivery of therapeutic oligonucleotide in skeletal muscle and consistent exon skipping in healthy volunteers, and we look forward to sharing data from that study in people living with DMD44 later this year. We remain steadfast in our commitment to advancing science and improving the lives of people and their families affected by this devastating condition."

In December 2023, Avidity reported positive AOC 1044 data in healthy volunteers from the EXPLORE44 trial. AOC 1044 is designed to deliver phosphorodiamidate morpholino oligomers (PMO) to skeletal muscle and heart tissue to specifically skip exon 44 of the dystrophin gene to enable dystrophin production. AOC 1044 delivered unprecedented concentrations of PMO in skeletal muscle with up to 50-times greater concentrations of PMO in skeletal muscle following a single dose compared to peptide conjugated PMOs in healthy volunteers. AOC 1044 was well tolerated, demonstrated statistically significant exon 44 skipping compared to placebo of up to 1.5% in healthy volunteers after a single dose of 10 mg/kg AOC 1044 and increased exon skipping in all participants. Avidity plans to provide a first look at AOC 1044 data in people living with DMD44 in 2H 2024.

The FDA defines a "rare pediatric disease" as a serious or life-threatening disease in which the serious or life-threatening manifestations primarily affect individuals aged from birth to 18 years. Under the FDA's Rare Pediatric Disease Priority Review Voucher program, a sponsor who receives an approval for a drug or biologic for a rare pediatric disease may qualify for a voucher that can be redeemed to receive a priority review of a subsequent marketing application for a different product.

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. For more information about the EXPLORE44 trial, visit the EXPLORE44 study website or visit http://www.clinicaltrials.gov and search for NCT05670730.

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 one in 3,500 to 5,000 boys born worldwide having Duchenne.

About AOC 1044
AOC 1044 is designed to deliver phosphorodiamidate morpholino oligomers (PMOs) to skeletal muscle and heart tissue to

specifically skip exon 44 of the dystrophin gene 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 a PMO targeting exon 44. 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. Data from the Phase 1/2 EXPLORE44 trial showed that AOC 1044 delivered unprecedented concentrations of PMO in skeletal muscle with up to 50-times greater concentrations of PMO in skeletal muscle following a single dose compared to peptide conjugated PMOs in healthy volunteers. AOC 1044 was well tolerated, demonstrated statistically significant exon 44 skipping compared to placebo of up to 1.5% in healthy volunteers after a single dose of 10 mg/kg AOC 1044 and increased exon skipping in all participants.

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 is revolutionizing the field of RNA with its proprietary AOCs, which are designed to combine the specificity of monoclonal antibodies with the precision of oligonucleotide therapies to address targets and diseases previously unreachable with existing RNA therapies. Utilizing its proprietary AOC platform, Avidity demonstrated the first-ever successful targeted delivery of RNA into muscle and is leading the field with clinical development programs for three rare muscle diseases: myotonic dystrophy type 1 (DM1), Duchenne muscular dystrophy (DMD) and facioscapulohumeral muscular dystrophy (FSHD). Avidity is broadening the reach of AOCs with its advancing and expanding pipeline including programs in cardiology and immunology through internal discovery efforts and key partnerships. Avidity is headquartered in San Diego, CA. For more information about our AOC platform, clinical development pipeline and people, please visit www.aviditybiosciences.com and engage with us on LinkedIn and X.

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 anticipated timing of release of data from the EXPLORE44™ trial; the characterization of data associated with AOC 1044 in healthy volunteers; the impact of such data on the advancement of AOC 1044; the significance of designations by the FDA; the additional AOCs Avidity is developing for DMD; the design and goals of the EXPLORE44™ trial and the dosages of AOC 1044 to be administered therein; the number and type of participants to enroll in the EXPLORE44 trial; an extension study for EXPLORE44 participants; expectations related to the EXPLORE44 trial and AOC 1044; the potential of Avidity's product candidates to treat rare diseases and Avidity's efforts to bring them to people suffering from applicable diseases; and the potential of AOCs to target a range of different cells and tissues beyond the liver, and to treat cardiac and immunological diseases.

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 Avidity's business and beyond its control, including, without limitation: Avidity may not be able to resolve the partial clinical hold related to the serious adverse event which occurred in the Phase 1/2 MARINA® trial; additional data related to Avidity's current clinical programs that continues to become available may be inconsistent with the data produced as of the respective data cutoff dates, further analysis of existing data and analysis of new data may lead to conclusions different from those established as of the date hereof, and such data may not meet Avidity's expectations; unexpected adverse side effects to, or inadequate efficacy of, Avidity's product candidates that may delay or limit their development, regulatory approval and/or commercialization; 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, data readouts and completion of preclinical studies or clinical trials, and the success of such studies and trials; Avidity's dependence on third parties in connection with preclinical and clinical testing and product manufacturing; Avidity may not realize the expected benefits of its collaborations; regulatory developments in the United States and foreign countries; Avidity could exhaust its available capital resources sooner than it currently expects and fail to raise additional needed funds; and other risks described in Avidity's Annual Report on Form 10-K for the fiscal year ended December 31, 2022, and in subsequent filings with the 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 arise 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.

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