Avidity Biosciences Granted FDA Fast Track Designation for AOC 1020 for the Treatment of Facioscapulohumeral Muscular Dystrophy

SAN DIEGO, Jan. 18, 2023 /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 Fast Track designation to AOC 1020 for the treatment of facioscapulohumeral muscular dystrophy (FSHD). FSHD is a serious, rare, hereditary muscle-weakening condition marked by life-long, progressive loss of muscle function that causes significant pain, fatigue, and disability. AOC 1020 is being studied in the Phase 1/2 FORTITUDE™ clinical trial in adults with FSHD and is the company's second muscle-targeting small interfering RNA (siRNA) AOC in clinical development. Avidity plans to share data from a preliminary assessment of AOC 1020 in approximately half of study participants from the FORTITUDE trial in the first half of 2024.

Fast Track designation enables more frequent interactions with the FDA to expedite the development and review process for drugs intended to treat serious or life-threatening conditions and that demonstrate the potential to address unmet medical needs. Currently, there are no FDA-approved treatments for people living with FSHD.

"The FDA Fast Track designation for AOC 1020 reinforces the importance of finding an effective treatment to help people living with FSHD, a devastating and debilitating muscular dystrophy disorder with no treatment options," said Steve Hughes, M.D., chief medical officer at Avidity. "AOC 1020 is designed to directly target the disease-causing gene, DUX4, to address the underlying cause of FSHD. We look forward to working collaboratively with the FDA to bring the first RNA therapy directly targeting DUX4 to patients as quickly as possible."

Avidity's proprietary AOCs are designed to combine the specificity of monoclonal antibodies (mAbs) with the precision of oligonucleotide therapies to target the root cause of diseases previously untreatable with RNA therapeutics. AOC 1020 consists of a proprietary mAb that binds to the transferrin receptor 1 (TfR1) conjugated with a siRNA targeting double homeobox 4 (DUX4) mRNA. The abnormal expression of DUX4 protein leads to changes in gene expression in muscle cells that are associated with the life-long, progressive loss of muscle function in patients with FSHD.

Avidity has three distinct rare disease programs in the clinic. In addition to AOC 1020, the company is also evaluating AOC 1001 in the Phase 1/2 MARINA™ and MARINA open-label extension (MARINA-OLE™) clinical trials for the treatment of myotonic dystrophy type 1 (DM1) and AOC 1044 in the Phase 1/2 EXPLORE44™ trial for the treatment of Duchenne muscular dystrophy (DMD) mutations amenable to exon 44 skipping (DMD44).

The FORTITUDE™ Phase 1/2 Trial of AOC 1020 in Adults with FSHD

The FORTITUDE™ trial is a randomized, placebo-controlled, double-blind, Phase 1/2 clinical trial designed to evaluate AOC 1020 in approximately 70 adult participants with FSHD. FORTITUDE will evaluate the safety, tolerability, pharmacokinetics, and pharmacodynamics of AOC 1020 administered intravenously, with the primary objective being the safety and tolerability of AOC 1020 in FSHD patients. Activity of AOC 1020 will be assessed using key biomarkers, including magnetic resonance imaging (MRI) measures of muscle volume and composition. Though the Phase 1/2 trial is not statistically powered to assess functional benefit, it will explore the clinical activity of AOC 1020 including measures of mobility and muscle strength as well as patient reported outcomes and quality of life measures. Participants will have the option to enroll in an open-label extension study at the end of the treatment period in the FORTITUDE study.

About Facioscapulohumeral Muscular Dystrophy (FSHD)

Facioscapulohumeral muscular dystrophy (FSHD) is characterized by progressive and often asymmetric skeletal muscle loss that typically causes weakness initially in muscles in the face, shoulders, arms and trunk and progresses to weakness in muscles in the lower body. FSHD is an autosomal dominant genetic disease. The abnormal expression of DUX4 (double homeobox 4) leads to a series of downstream events that result in skeletal muscle wasting and progressive loss of muscle function, including an inability to lift arms for more than a few seconds, loss of ability to show facial expressions, and serious speech impediments. These symptoms cause many people affected by FSHD to become dependent on the use of a wheelchair for mobility. Currently, there are no approved treatments for people living with FSHD.

About AOC 1020

AOC 1020 is designed to treat the underlying cause of FSHD, which is caused by the abnormal expression of a gene called double homeobox 4 or DUX4. The abnormal expression of DUX4 protein leads to changes in gene expression in muscle cells that are associated with the life-long, progressive loss of muscle function in patients with FSHD. AOC 1020 aims to reduce the expression of DUX4 mRNA and DUX4 protein in muscles in patients with FSHD. AOC 1020 consists of a proprietary monoclonal antibody that binds to the transferrin receptor 1 (TfR1) conjugated with a siRNA targeting DUX4 mRNA. In

preclinical studies, a single intravenous dose with the murine version of AOC 1020 prevented development of muscle weakness demonstrated by three functional assays - treadmill running, in vivo force and compound muscle action potential. AOC 1020 is currently in Phase 1/2 development as part of the FORTITUDE™ trial in adults with FSHD.

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 progression of clinical programs for AOC 1001, AOC 1020, and AOC 1044 and the timing thereof; the potential of AOC 1020 to treat people with FSHD, the enrollment of participants in the FORTITUDE™ trial, the success of the ongoing FORTITUDE trial and the reporting of data from the preliminary assessment of the FORTITUDE study and the timing thereof; AOC 1020's potential to address unmet needs in patients with FSHD and to treat the underlying cause of FSHD; expectations for Avidity's interactions with the FDA; and the potential to broaden the reach of AOCs™ beyond skeletal muscle tissues. 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; 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@aviditybio.com

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

SOURCE Avidity Biosciences, Inc.
