Avidity Biosciences Announces New Precision Cardiology Development Candidates to Treat Rare Genetic Cardiomyopathies and Provides First Look at Next-Generation Technology Innovations

Avidity expands its leading RNA delivery technology into precision cardiology with two new wholly-owned development candidates targeting rare genetic cardiomyopathies: AOC 1086 to treat PLN Cardiomyopathy and AOC 1072 to treat PRKAG2 Syndrome

AOC 1072 and AOC 1086 preclinical data demonstrated robust siRNA delivery to the heart and targeted knockdown with potent reduction of approximately 80% in cardiac PLN mRNA and PRKAG2 mRNA

Avidity introduces next-generation technology innovations demonstrating improved siRNA delivery in skeletal muscle and increased durability in preclinical studies

AOC 1072 preclinical data will be presented at American Heart Association (AHA) Scientific Sessions 2024

Volume 11 of virtual investor and analyst series today, Tuesday, Nov. 12 at 8:00 a.m. ET

SAN DIEGO, Nov. 12, 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 it has expanded beyond rare skeletal muscle disorders and is opening up a new therapeutic field, precision cardiology, to address the root cause of genetic diseases of the heart. Avidity is advancing its first two new wholly-owned precision cardiology development candidates targeting rare genetic cardiomyopathies: AOC 1086 targeting PLN (phospholamban) cardiomyopathy and AOC 1072 targeting PRKAG2 (Protein Kinase AMP-activated non-catalytic subunit Gamma 2) Syndrome. In addition, Avidity shared preclinical data from next-generation technology innovations demonstrating improved siRNA delivery and increased durability.

"Today marks a key milestone for Avidity as we leverage the broad utility of our proprietary AOC platform to address the underlying cause of genetic heart diseases in precision cardiology," said Sarah Boyce, president and chief executive officer at Avidity Biosciences. "We are proud to be the first company to successfully deliver siRNA directly to skeletal muscle and now, we have demonstrated that we can deliver siRNA against targets in the heart in preclinical studies. With continued innovations to our AOC technology, we are expanding on the possibilities of RNA delivery. These advancements further our mission to profoundly improve people's lives by revolutionizing a new class of targeted RNA therapeutics."

AOC 1072 and AOC 1086 are designed to deliver siRNA directly to the heart muscle to knock down specific disease-causing genetic mutations that cause rare genetic cardiomyopathies. In preclinical studies, AOC 1086 and AOC 1072 demonstrated robust siRNA delivery to the heart muscle and potent targeted knockdown of approximately 80% in cardiac PLN mRNA and PRKAG2 mRNA. AOC 1086 and AOC 1072 were well tolerated without any effect on electrocardiogram parameters for evaluating cardiac safety in preclinical studies. Preclinical data from AOC 1072 targeting PRKAG2 will be presented at the American Heart Association (AHA) Scientific Sessions 2024 on November 16 in Chicago, Illinois.

Avidity also shared a first-look at next-generation technology innovations, including siRNA modifications and evolved antibody engineering, which, in preclinical studies provided up to 30-fold increase in siRNA delivery in skeletal muscle, and greater durability with sustained target inhibition for three months. Advancements in siRNA delivery and greater durability allow the opportunity for less frequent dosing and improved patient convenience.

Video Webcast Information
The company is hosting Volume 11 of its investor and analyst event series on November 12, 2024, beginning at 8:00 a.m. ET to discuss preclinical data on AOC 1072 and AOC 1086, along with platform innovations. The virtual event will be available via 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 PLN Cardiomyopathy
PLN (Phospholamban) Cardiomyopathy is an autosomal dominant, progressive cardiac disease caused by a mutation on the PLN gene. The most common disease variant is the R14del, causing a buildup of toxic protein aggregates that trigger cardiomyocyte death leading to dilation of the heart chambers, arrhythmias (irregular heartbeats), sudden cardiac arrest and heart failure. There are no FDA-approved disease-modifying therapies for PLN cardiomyopathy, and current standard of care focuses on symptom management with medications or invasive treatments including pacemakers or implantable cardioverter defibrillator (ICD). Patients who develop progressive heart failure may require a heart transplant.

About PRKAG2 Syndrome
PRKAG2 (Protein Kinase AMP-activated non-catalytic subunit Gamma 2) Syndrome is an autosomal dominant, progressive

cardiac disease caused by a mutation on the PRKAG2 gene that results in increased AMP-activated protein kinase (AMPK) activity. This causes excessive cardiac glycogen storage in the heart, leading to cardiac hypertrophy (thickening of heart muscle) and multiple different types of arrhythmias (irregular heartbeats), including Wolff-Parkinson-White syndrome, atrial fibrillation, and cardiac conduction system disease. As a result, patients with PRKAG2 syndrome are at an increased risk of experiencing sudden cardiac arrest or heart failure. There are no FDA-approved disease-modifying therapies for PRKAG2 Syndrome, and current standard of care focuses on symptom management with medications or invasive treatments including pacemakers or implantable cardioverter defibrillator (ICD). Patients who develop progressive heart failure may require a heart transplant.

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 neuromuscular diseases: myotonic dystrophy type 1 (DM1), Duchenne muscular dystrophy (DMD) and facioscapulohumeral muscular dystrophy (FSHD). Avidity is also advancing two wholly-owned precision cardiology development candidates addressing rare genetic cardiomyopathies. 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 ability of our AOC technology to develop precision cardiology therapeutics; the ability of AOC 1072 to target PRKAG2 Syndrome and the ability of AOC 1086 to target PLN cardiomyopathy; our ability to deliver siRNA to the heart; safety and tolerability results of our precision cardiology product candidates; the design and capabilities of AOC 1072 and AOC 1086; the effectiveness of AOC 1072 and AOC 1086; our next generation technology and its potential impact; the improved delivery and durability associated with our next generation technology; the design and capabilities of our next generation technology; and plans and objectives of management for future operations. 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: the results of preclinical studies are not necessarily indicative of final results; further analysis of existing preclinical 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; preclinical data related to Avidity's precision cardiology programs and next generation technology may not support the filing or approval of any IND; 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; potential delays in the commencement, enrollment, data readouts and completion of preclinical studies or clinical trials; Avidity's dependence on third parties in connection with preclinical and clinical testing and product manufacturing; legislative, judicial and regulatory developments in the United States and foreign countries; Avidity could exhaust its available capital resources sooner than it currently expects; and other risks described in Avidity's Annual Report on Form 10-K for the fiscal year ended December 31, 2023 and 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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