The Lancet Publishes Clinical Trial Data That Demonstrate Statistically Significant and Dose-Dependent Expression of Dystrophin in Duchenne Muscular Dystrophy Patients Treated With AVI BioPharma's Eteplirsen

July 25, 2011 7:03 AM ET

Study Results Suggest Eteplirsen Has Potential to Modify Disease Progression, Corresponding Author Says

BOTHELL, WA, Jul 25, 2011 (MARKETWIRE via COMTEX) --

AVI BioPharma, Inc. (NASDAQ: AVII), a developer of RNA-based therapeutics, today announced that data published in The Lancet from a Phase 1b/2 study of eteplirsen, the Company's exon-skipping therapy for the treatment of Duchenne muscular dystrophy (DMD), demonstrate that the treatment was well tolerated and was shown to induce statistically significant and dose-dependent improvements in dystrophin expression in patients. DMD is a genetic muscle wasting disease caused by the absence of functional dystrophin, an essential muscle protein.

"Our observations of significant and dose dependent improvements in novel dystrophin expression and other associated biochemical markers suggest that eteplirsen has the potential to reduce muscle damage in DMD patients and positively modify the severe progressive nature of the disease," said Prof. Francesco Muntoni, professor of pediatric neurology and head of the Dubowitz Neuromuscular Centre at the UCL Institute of Child Health, London, and the corresponding author of the study paper. "Restoration of dystrophin with a safe therapeutic candidate could have a considerable positive impact on the quality of life for patients, their mobility and the way their condition is managed as they age, and we are eager to continue the investigation of eteplirsen in placebo-controlled trials to evaluate biochemical markers and clinical endpoints over a longer treatment duration."

The primary objective of the 19-patient, 12-week, six dose cohort study was to assess eteplirsen's safety and tolerability. Secondary objectives were assessments of the pharmacokinetic profile and ability to restore dystrophin expression. Eteplirsen was well tolerated in all patients, with no clear drug-related serious adverse events. Reported adverse events were mostly mild or moderate in intensity and not dose-related. The plasma half-life was short, and there was no plasma accumulation observed between doses. Clearance of eteplirsen was primarily via the kidney.

Eteplirsen induced exon 51 skipping in all cohorts, and novel dystrophin protein expression was observed in a dose-dependent manner ($p=0.02$). While results were variable among patients, the substantial, statistically significant ($p=0.04$), new dystrophin expression was observed in the highest two dose cohorts. Moreover, novel dystrophin expression was accompanied by a significant reduction of inflammatory cell infiltrates in the two highest dose cohorts, including CD3 ($p=0.01$), CD4 and CD8 inflammation markers, suggesting an alteration in the underlying degenerative disease process. The functional properties of the novel dystrophin expression were confirmed by localization of the protein at the sarcolema, or cell membrane. Clinical muscle function evaluations found that most patients remained stable during the study period. The study was not designed to evaluate clinical benefit, and longer drug exposure is believed necessary to influence disease progression.

Chris Garabedian, AVI's CEO and president, commented: "The publication of our most recent clinical trial data in The Lancet reinforces the commitment we made to accelerate our development of eteplirsen. We are more focused than ever on optimizing our development efforts and continue to advance the NDA-enabling activities initiated earlier this year to support the start of a pivotal trial."

About Duchenne Muscular Dystrophy

DMD is one of the most common fatal genetic disorders to affect children around the world. Approximately one in every 3,500 boys worldwide is affected with DMD. A devastating and incurable muscle-wasting disease, DMD is associated with specific inborn errors in the gene that codes for dystrophin, a protein that plays a key structural role in muscle fiber function. Progressive muscle weakness eventually spreads to the arms, neck and other areas. Eventually, this progresses to complete paralysis and increasing difficulty in breathing due to respiratory muscle dysfunction requiring ventilatory support as well as cardiac muscle dysfunction leading to heart failure. The condition is terminal, and death usually occurs before the age of 30.

About Eteplirsen

Eteplirsen is AVI's lead drug candidate that is systemically delivered for the treatment of a substantial subgroup of patients with

DMD. Data from clinical studies of eteplirsen in DMD patients have demonstrated a broadly favorable safety and tolerability profile and restoration of dystrophin protein expression and other markers of biochemical efficacy.

Eteplirsen uses AVI's novel phosphorodiamidate morpholino oligomer (PMO)-based chemistry and proprietary exon-skipping technology to skip exon 51 of the dystrophin gene. By skipping exon 51, eteplirsen may restore the gene's ability to make a shorter, but still functional, form of dystrophin from mRNA. Promoting the synthesis of a truncated dystrophin protein is intended to improve, stabilize or significantly slow the disease process and prolong and improve the quality of life for patients with DMD. AVI is also developing other PMO-based exon-skipping drug candidates intended to treat additional patients with DMD.

About AVI BioPharma

AVI BioPharma is focused on the discovery and development of novel RNA-based therapeutics for rare and infectious diseases, as well as other select disease targets. Applying pioneering technologies developed and optimized by AVI, the Company is able to target a broad range of diseases and disorders through distinct RNA-based mechanisms of action. Unlike other RNA-based approaches, AVI's technologies can be used to directly target both messenger RNA (mRNA) and precursor messenger RNA (pre-mRNA) to either down-regulate (inhibit) or up-regulate (promote) the expression of targeted genes or proteins. By leveraging a highly differentiated RNA-based technology platform, AVI has built a pipeline of potentially transformative therapeutic agents, including eteplirsen, which is in clinical development for the treatment of Duchenne muscular dystrophy, and multiple drug candidates that are in clinical development for the treatment of infectious diseases. For more information, visit www.avibio.com.

Forward-Looking Statements and Information

This press release contains statements that are forward-looking, including statements about the development of AVI's product candidates, including the initiation of a pivotal study for eteplirsen, and the efficacy, potency and utility of our product candidates in the treatment of rare and infectious diseases. These forward-looking statements involve risks and uncertainties, many of which are beyond AVI's control. Known risk factors include, among others: clinical trials may not demonstrate safety and efficacy of any of AVI's drug candidates and/or AVI's antisense-based technology platform; any of AVI's drug candidates may fail in development, may not receive required regulatory approvals, or be delayed to a point where they do not become commercially viable. Any of the foregoing risks could materially and adversely affect AVI's business, results of operations and the trading price of its common stock. For a detailed description of risks and uncertainties AVI faces, you are encouraged to review the official corporate documents filed with the Securities and Exchange Commission. AVI does not undertake any obligation to publicly update its forward-looking statements based on events or circumstances after the date hereof.

"Safe Harbor" Statement under the Private Securities Litigation Reform Act of 1995: The statements that are not historical facts contained in this release are forward-looking statements that involve risks and uncertainties, including, but not limited to, the results of research and development efforts, the results of preclinical and clinical testing, the effect of regulation by the FDA and other agencies, the impact of competitive products, product development, commercialization and technological difficulties, and other risks detailed in the company's Securities and Exchange Commission filings.

AVI Investor and Media Contact:
David Schull
Russo Partners
858.717.2310 or 212.845.4271
Email Contact

SOURCE: AVI BioPharma, Inc.

http://www2.marketwire.com/mw/emailprcntct?id=54F7B0E5BC7EB210