# Successful Muscular Dystrophy Treatment Results Using AVI BioPharma Technology Published in Nature Medicine

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PORTLAND, Ore.--(BUSINESS WIRE)--Feb. 9, 2006--AVI BioPharma, Inc. (Nasdaq:AVII), today announced that successful results from a new application of its proprietary NEUGENE(R) antisense technology, called ESPRIT (Exon Skipping Pre-RNA Interference Technology), were reported in the February issue of the prestigious scientific journal Nature Medicine by AVI collaborators at the Australian Neuromuscular Research Institute in Nedlands, Western Australia. The paper is titled "Systemic delivery of morpholino oligonucleotide restores dystrophin expression bodywide and improves dystrophic pathology," and relates to the treatment of Duchenne muscular dystrophy (DMD) in a mouse model of the disease.

ESPRIT therapeutics are designed to either delete disease-causing genetic sequences or skip functional sequences to redesign proteins that are overexpressed or harmful in certain diseases.

"This is a new approach to solving genetic disorders and diseases caused by overexpressed or harmful genes," said Denis R. Burger, Ph.D., chief executive officer of AVI. "ESPRIT therapeutics allow for fine genetic surgery at the RNA processing level, providing a new and very potent tool for altering many disease mechanisms. In addition to genetic disorders such as muscular dystrophy, AVI is now applying the ESPRIT therapeutic approach to diseases with an immunologic component, such as diabetes and multiple sclerosis."

In normal genetic function, gene transcription produces a full-length pre-RNA that is then processed to a much shorter and functional messenger RNA. The mRNA is the template for creating a protein. During pre-RNA processing, packets of useful genetic information, called exons, are snipped out of the full-length RNA and spliced together to make the functional mRNA template. AVI's proprietary third-generation NEUGENE chemistry can be used to target splice-joining sites in the pre-RNA, thus forcing the cell machinery to skip over targeted exons, providing altered mRNA, which in turn produces altered proteins.

Targeting the defective DMD dystrophin pre-RNA with an ESPRIT compound, Dr. Steve Wilton, associate professor and head of the Experimental Molecular Medicine Group at the Australian Neuromuscular Research Institute, forced the cell to snip out the disease-causing mutation region. Using this approach, a functional, but altered, dystrophin protein was made from a DMD gene that would previously have only made a nonfunctional protein.

"Antisense oligomers can alter gene expression by snipping out the disease-causing mutation of a gene transcript during the splicing step of gene expression to convert DMD to the much less disabling Becker muscular dystrophy," said Dr. Wilton. "Morpholino antisense oligomers appear to be the most efficient chemistry approach for exon-skipping, as they exhibit low toxicity, have been administered systemically, results persist for months in the body, and several compounds have already been used in human clinical trials."

About Muscular Dystrophy

Muscular dystrophy (MD) is the common name for several progressive hereditary diseases that cause muscles to weaken and degenerate. Each type has its own hereditary pattern, age of onset and rate of muscle loss. Different genetic alterations cause different types of muscular dystrophies. It is estimated that between 50,000 and 250,000 people are affected annually. This number seems to be growing each year due to improved technology for earlier diagnosis.

Within the human gene makeup, there is an important muscle protein called dystrophin, which is one of the largest genes found to date. Dystrophin acts as the glue that holds muscles together by maintaining the structure of muscle cells. Dystrophin is also believed to carry signals between the inside and outside of muscle fibers. Without dystrophin, muscles are not able to operate properly and will eventually suffer progressive damage.

The dystrophin gene is carried on the X chromosome. Young men are therefore almost exclusively more susceptible to dystrophin damage because they have only one X chromosome. When a boy is diagnosed with Duchenne MD, his body is not able to produce any functional dystrophin. In Becker MD, an almost asymptomatic form of muscular dystrophy, a distorted but functional version of dystrophin is generated. In either disorder, muscle cells within the body gradually weaken and eventually die, without fully functional dystrophin.

About AVI BioPharma

AVI BioPharma develops therapeutic products for the treatment of life-threatening diseases using third-generation NEUGENE antisense drugs. AVI's lead NEUGENE antisense compound is designed to target cell proliferation disorders, including cardiovascular restenosis, cancer and polycystic kidney disease. In addition to targeting specific genes in the body, AVI's antiviral program uses NEUGENE antisense compounds to combat disease by targeting single-stranded RNA viruses, including West Nile virus, hepatitis C virus, dengue virus and Ebola virus. AVI has introduced a NEUGENE-based exon-skipping technology called ESPRIT therapy. More information about AVI is available on the company's Web site at http://www.avibio.com.

"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.

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