



AVI BioPharma Publishes Preclinical Data Reducing Inflammation in Hepatitis and Arthritis

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Modulation of RNA splicing focuses on inflammatory diseases, including Rheumatoid Arthritis

For Immediate Release

PORTLAND, OR — May 12, 2008 — AVI BioPharma, Inc. (Nasdaq: AVII) today announced the publication of preclinical results of a study designed to reduce the severity of disease in mouse models of TNF- α induced hepatitis and collagen-induced arthritis. The paper appears in the peer-reviewed journal, [Molecular Therapy](#).

The publication titled, "An Endogenous TNF- α Antagonist Induced by Splice Switching Oligonucleotides Reduces Inflammation in Hepatitis and Arthritis in Mouse Models", was a collaborative study by scientists from Ercole Biotech, Inc., which was acquired by AVI in March 2008, University of North Carolina, Chapel Hill, NC, and Santaris Pharma, Hørsholm, Denmark.

TNF- α is a key mediator of inflammatory diseases, including rheumatoid arthritis (RA). Splice switching oligonucleotides, are a new class of drugs used to modify alternative RNA splicing in order to induce therapeutically favorable splice variants of targeted genes. In this study, treatment with LNA oligonucleotides, developed by Santaris, induced alternative RNA splicing of TNF receptor 2, resulting in a switch from the membrane-bound to a soluble protein form, thus creating a "decoy" receptor, which accumulated in the circulation of treated mice. The generated soluble TNF receptor protein antagonized TNF- α , interfered with its inflammatory function, and reduced severity of inflammatory disease in mouse models of hepatitis and arthritis. This is the first report of upregulation of the endogenous, circulating TNF- α antagonist by oligonucleotide-induced modulation of splicing.

"If our preclinical results can be replicated in the clinic, this would represent a novel therapeutic approach and should also be applicable to other indications. The oligonucleotide creates an anti-inflammatory protein in situ in the treated animal, which we hope will also happen in patients, and it persists in the circulation for weeks," said Dr. Ryszard Kole, co-author of the study and AVI's Senior Vice President of Discovery Research. "The market for inflammatory diseases, including rheumatoid arthritis, is huge. Moreover, this approach is not limited to a single receptor. It should be also applicable to other indications."

About Inflammatory Disease and Rheumatoid Arthritis

TNF-mediated inflammatory diseases include a group of autoimmune disorders such as Crohn's disease, ulcerative colitis, systemic lupus erythematosus, rheumatoid arthritis, and multiple sclerosis. Autoimmune diseases are illnesses that occur when the body tissues are mistakenly attacked by one's own immune system.

Rheumatoid arthritis (RA) is a TNF-mediated chronic disorder that leads to inflammation of the joints as well as other organs of the body. Severe RA is a disabling condition, which leads to substantial loss of mobility due to pain and joint destruction.

The National Institutes of Health estimates that approximately 2 million people in the United States suffer from rheumatoid arthritis, occurring in all races and ethnic groups, with a financial impact in the billions of dollars annually.

Anti-TNF biologics are the newest class of anti-inflammatory and anti-rheumatoid arthritis drugs.

About AVI BioPharma

AVI BioPharma develops therapeutic products for the treatment of life-threatening diseases using third-generation NeuGene[®] antisense drugs and ESPRIT, directed RNA alternative splicing technology. AVI's ESPRIT technology is initially being applied to potential treatments for Duchenne muscular dystrophy. AVI's NeuGene compounds are also designed to treat cardiovascular restenosis in stent and coronary artery bypass graft (CABG) procedures. 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 Marburg Musoke and Ebola Zaire viruses. More information about AVI is available at www.avibio.com.