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Innovative RNA-based Chemistry Designed to Block Viral Replication and Combat Drug Resistance

For Immediate Release

PORTLAND, OR — April 28, 2009 — AVI BioPharma, Inc. (NASDAQ: AVII), a developer of RNA-based drugs, today announced issuance of the second of two key U.S. patents covering the Company's candidate drug for the treatment of Ebola Zaire infection. The patents titled "Antisense Antiviral Compounds and Methods for Treating a Filovirus Infection" (U.S. Patent Nos. 7,524,829 and 7,507,196), cover composition and methods to target the Ebola virus VP35 protein with a range of PMOplus™ compounds. The patents have an expiration date of Oct. 31, 2025.

AVI-6002 is an innovative compound utilizing new chemistry and several novel drug design principles. It specifically works on genes shown to be the most vulnerable to antisense interference. Additionally, it contains two novel PMO compounds (PMOplus™) that target two independent sites in the Ebola Zaire virus genome, the VP35 and VP24 proteins, so the virus must mutate in two different places at the same time to escape the effects of the drug. Finally, through judicious placement of positive charges on the drug backbone, the drug is designed to bind to a negative charge on the virus thus, even if binding at one or more drug-virus base pairs are lost through mutation, the drug retains efficacy. This integration of dual targeting and charge complementation leads to improved efficiency, greater therapeutic effect and significantly lowers the likelihood of drug resistance through viral mutagenesis.

"The strength of AVI's PMO chemistry is evident in compounds such as AVI-6002, which is designed to provide a novel approach to the treatment of Ebola virus infection. Drug optimization required us not only to identify the most effective genes and sequences but also to develop oligomer chemistry to target genetically variable viral transcripts," said Leslie Hudson, Ph.D., President and Chief Executive Officer of AVI BioPharma. "These issued patents cover a key target of our compound and helps protect this novel mechanism of action. We believe the new chemistry could be highly applicable to viruses such as influenza and hepatitis C (HCV) whose error-prone replication leads to high rates of mutation and drug resistance."

Preclinical results of AVI-6002 demonstrate reproducible and high rates of survival in non-human primates challenged with a lethal infection of the Ebola Zaire virus. AVI has received clearance from the United States Food and Drug Administration (FDA) for the Investigational New Drug (IND) application filed for AVI-6002. This research was conducted in collaboration with the [U.S. Army Medical Research Institute of Infectious Diseases](#) (USAMRIID), a co-assignee on the patents. The majority of the collaborative research effort between AVI and USAMRIID has been supported by a research contract from the Department of Defense's Transformational Medical Technologies Initiative with the goal of developing a new antiviral (antisense) platform targeting hemorrhagic fever viruses.

About AVI BioPharma

AVI BioPharma is focused on the discovery and development of RNA-based drugs utilizing proprietary derivatives of its antisense chemistry (morpholino-modified phosphorodiamidate oligomers or PMOs) that can be applied to a wide range of diseases and genetic disorders through several distinct mechanisms of action. Unlike other RNA therapeutic approaches, AVI's antisense technology has been used to directly target both messenger RNA (mRNA) and its precursor (pre-mRNA), allowing for both up- and down-regulation of targeted genes and proteins. AVI's RNA-based drug programs are being evaluated for the treatment of Duchenne muscular dystrophy as well as for the treatment of cardiovascular restenosis through our partner Global Therapeutics, a Cook Group Company. AVI's antiviral programs have demonstrated promising outcomes in Ebola Zaire and Marburg Musoke virus infections and may prove applicable to other viral targets such as HCV or Dengue viruses. For more information, visit www.avibio.com.