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Athena Biotechnologies, Inc.
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**Athena Biotechnologies, Inc. Awarded Grant to Study Microorganisms Causing
“Citrus Greening” Disease Threatening Citrus Crops.**

Newark, Delaware, May 21, 2009 – Athena Biotechnologies (AthenaBio) has been awarded a second grant by The Florida Citrus Production Research Advisory Council (FCPRAC) to study a bacterial disease threatening the \$9 billion citrus industry in Florida. The disease, known as Citrus Greening or HLB (huanglongbing), is believed to be caused by *Candidatus Liberibacter asiaticus*. Citrus Greening was first discovered in Miami-Dade County in August of 2005 and has quickly spread into all Florida citrus growing counties causing citrus trees to die from the infection. No suitable preventative measures are yet available to control the bacteria once established in the tree, and current efforts to control spread of the infection have been unsuccessful. HLB has already significantly reduced citrus production in Asia, Africa, the Arabian Peninsula, and Brazil. If citrus greening is not treated or controlled, it could wipe out the entire Florida citrus industry. It also threatens to spread to other citrus states of California, Texas and Arizona.

Efforts to understand and treat HLB are hampered by a lack of information in two key areas: (i) poor understanding of the community of microorganisms living inside citrus trees in phloem tissue, and (ii) the inability to cultivate the HLB bacterium in the laboratory. AthenaBio has partnered with Dr. Jacques Ravel at the University of Maryland School of Medicine, Institute for Genome Sciences, and Dr. John Hartung, Research Plant Pathologist of USDA, ARS, in order to study the microorganisms living in both healthy and diseased citrus phloem. The project will use state of the art DNA sequencing technology to identify all of the genes possessed by all of the microorganisms living in the phloem, which is termed the “microbiome”.

According to Dr. Marrs, Chief Technology Officer at AthenaBio, “Understanding the microbiome of both healthy and infected plant samples will give more clues as to the complex nature of HLB and what possible interaction there may be between multiple organisms in diseased plants”.

In addition, AthenaBio will use its proprietary technology (Quorum Sensing Quenching™) to produce pure cultures of microbes from healthy and diseased citrus phloem, which includes previously unculturable isolates. Quorum Sensing Quenching provides “a better Petri dish” that allows cultivation of microorganisms, like HLB, that are difficult or impossible to culture by conventional methods.

Athena Biotechnologies, Inc. is a biotechnology company located at Delaware Technology Park in Newark, Delaware, providing technologies for the renewable energy, medical diagnostics, agricultural and pharmaceutical industries.

The Florida Citrus Production Research Advisory Council (FCPRAC) is a valuable industry program that operates under the Florida Citrus Production Marketing order which was approved in a referendum of Florida Citrus growers in 1991 and renewed again in 1997 and 2004.

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