Georgia Tech Part of New Biofuel Research Center

ATLANTA (June 29, 2007) — The Georgia Institute of Technology is part of a new research team, led by Oak Ridge National Laboratory (ORNL), that has won a bid from the Department of Energy for a $125 million bioenergy research center that will seek new ways to produce biofuels.

Funded by the Department of Energy's Office of Science, the Bioenergy Science Center will be located on the ORNL campus in a new facility funded by the state and owned by the University of Tennessee. The center, one of three funded from more than 20 proposals, will employ the interdisciplinary expertise of the team's partners in biology, engineering and agricultural science and commercialization to develop processes for converting plants including switchgrass and poplar trees into fuels.

The ORNL-led project will focus on new methods of processing plants into biofuel. The strategy involves breaking down into simple sugars the lattice of cellulose, hemicellulose and lignin that makes plant cell walls resistant to the stress of weather, insects and disease. These sugars can then be processed into fuel. To date, no cost effective bioprocessing methods for cellulose-based bioenergy sources have been developed.

Georgia Tech's primary role in the center will focus on characterization, or the fundamental study of plant cell walls. Tech's goal will be to study switchgrass' chemical bonds to help create more efficient methods of breaking the plant down into the sugar needed to make ethanol.

"As part of the center, Georgia Tech will develop new techniques that allow for a very fine detailed analysis of switchgrass," said Arthur Ragauskas (arthur.ragauskas@chemistry.gatech.edu), one of the primary investigators for Georgia Tech's portion of the project and a professor in the School of Chemistry and Biochemistry.

The DOE Bioenergy Science Center will focus on achieving the specific goals of:

* Modifying plant cell walls to reduce their resistance to breakdown, with a focus on the poplar tree — whose genome ORNL researchers helped sequence last year-and switchgrass, a native grass that can be easily grown in most of the United States. Such modification would decrease or eliminate the need for costly chemical pretreatments now required.

* Consolidated bioprocessing, which involves the use of a single microorganism or group of organisms to break down plant matter through a one-step conversion process of biomass into biofuels.

In announcing the awards, Energy Secretary Samuel Bodman said, "These centers will provide the transformational science needed for bioenergy breakthroughs to advance

President Bush's goal of making cellulosic ethanol cost-competitive with gasoline by 2012, and assist in reducing America's gasoline consumption by 20 percent in 10 years. The collaborations of academic, corporate, and national laboratory researchers represented by these centers are truly impressive and I am very encouraged by the potential they hold for advancing America's energy security."

In addition to ORNL, other DOE Bioenergy Science Center partners include the University of Tennessee, Dartmouth College, the University of Georgia, the Samuel Roberts Noble Foundation, the National Renewable Energy Laboratory and companies ArborGen in Summerville, S.C.; Diversa (now Verenium Corp.) in San Diego, and Mascoma in Cambridge, Mass. The team also includes seven individual researchers from across the country. ORNL's Martin Keller will serve as director for the center.

Other key participants at Georgia Tech include the Strategic Energy Institute; Eberhard Voit, a GRA Eminent Scholar in systems biology in the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University; Cameron Sullards, a principal research scientist and director of the Bioanalytical Mass Spectrometry Facility in the School of Chemistry and Biochemistry and School of Biology; and Charles Liotta, a distinguished professor in the School of Chemical and Biomolecular Engineering and former vice provost of research at Georgia Tech.

Related Links
DoE BioEnergy Science Center http://www.bioenergycenter.org/

http://www.ipst.gatech.edu/faculty_new/faculty_bios/ragauskas/bio_ragauskas_art.html