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UGA scientists receive $20 M in federal bioenergy initiative

Athens, Ga. – Scientists at the University of Georgia teamed with researchers at major universities, national research laboratories and industry colleagues to win 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 is one of three funded from more than 20 proposals. It will employ the interdisciplinary expertise of the team’s partners in biology, engineering and agricultural science and commercialization to develop processes for converting plants such as switchgrass and poplar trees into fuels. UGA’s portion of the research is funded for $20 million over five years.

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,” Bodman said.

In addition to UGA, the DOE Bioenergy Science Center partners include: the Oakridge National Laboratory (ORNL), University of Tennessee, Dartmouth College, the Georgia Institute of Technology, the Samuel Roberts Noble Foundation, the National Renewable Energy Laboratory and companies ArborGen in Summerville, S.C.; Diversa in San Diego, Calif., and Mascoma in Cambridge, Mass. The team also includes seven individual researchers from across the country.

The Center will be based at ORNL in Oak Ridge, Tenn. UGA and its Complex Carbohydrate Research Center (CCRC) will be an anchor facility for the BESC.
“UGA has a tremendous team of scientists with a true collaborative spirit in place to address one of the nation’s biggest scientific challenges,” said UGA Regents Professor Alan Darvill, cofounder and director of the UGA’s Complex Carbohydrate Research Center (CCRC), and leader of the UGA team. “This research, which uses biotechnology approaches to reduce the high cost of processing plants into biofuels, has the potential to make ethanol a significant replacement for fossil fuels for this country’s future energy needs.”

David Lee, vice president for research at UGA, said, “As the state’s land-grant university, the University of Georgia is excited to be part of the DOE Bioenergy Science Center team. The center builds on the university’s strengths in carbohydrate science and plant and microbial genetics, and is an important step toward making a lasting contribution to the nation’s energy security.”

The project will focus on new methods of processing plants into biofuels. 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. 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 and switchgrass, a native grass that can be easily grown in most of the U.S., including Georgia. 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.

The DOE grant leverages considerable commitments of state and private partners. In Georgia, the Georgia Research Alliance has provided $4.5 million in matching funds in support of the new center.

For more information on the DOE Bioenergy Science Center, its partners and facilities, see www.bioenergycenter.org.

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