CELLULOSIC BIOENERGY RESEARCH

NSF EPSCOR RII AWARD, 2008-2013

OKLAHOMA EPSCOR

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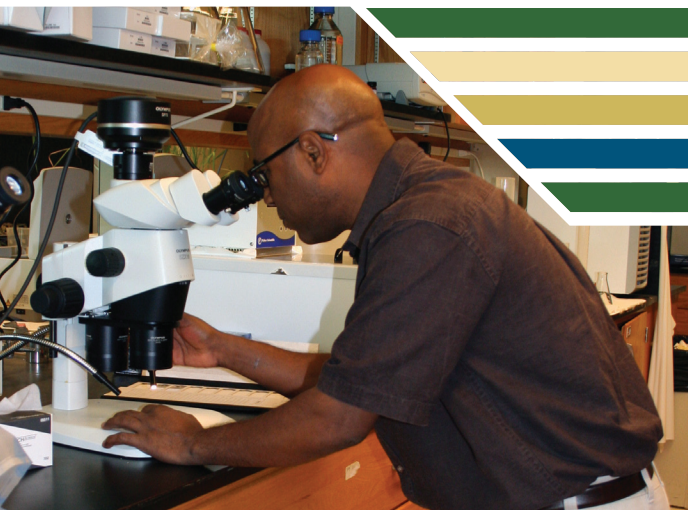
OBJECTIVE 1. **FEEDSTOCK DEVELOPMENT**
To discover molecular mechanisms and tools for biomass development through the use of genomics, functional genomics and genetic transformation approach.

OBJECTIVE 2. **MICROBIAL CONVERSION**
To understand the molecular basis and mechanisms underlying efficient microbial conversion of biomass to liquid fuels through direct and indirect fermentation.

OBJECTIVE 3. **CHEMICAL CONVERSION**
To improve existing processes and to develop new catalytic/thermochemical conversion processes of cellulosic biomass.

BIOFUELS
INNOVATION FOR OUR ENERGY FUTURE

OKLAHOMA EPSCOR

BIOENERGY RESEARCHERS

The OK NSF EPSCoR Research Infrastructure Improvement Award 2008-2013, "Building Oklahoma's Leadership Role in Cellulosic Bioenergy," is a multi-institutional collaborative project that includes researchers from Oklahoma State University, University of Oklahoma and Samuel Roberts Noble Foundation.

CELLULOSIC BIOENERGY RESEARCH

Oklahoma EPSCoR scientists are developing unique methods to transform non-food energy crops, such as switchgrass, into liquid fuel.

One such innovation, the "GRASSohol" process, will enhance biofuel refinement and potentially produce more than 60 gallons of ethanol per dry ton of material.

Researchers are also investigating new technologies to convert lignocellulosic biomass to gasoline and diesel fuel. These technologies have the potential to signficantly reduce the capital cost of new biofuel refineries and capure a high percentage of the biomass carbon.

OBJECTIVE 1
FEEDSTOCK DEVELOPMENT

Mali Mahalingam, OSU
Stephen Marek, OSU
Kiran Mysore, SRNF
Tim Samuels, OSU
Ramanjulu Sunkar, OSU
Million Tadege, OSU
Rao Uppalapati, SRNF
Zeng-yu Wang, SRNF
Yanqi Wu, OSU

OBJECTIVE 2
MICROBIAL CONVERSION

Laura Bartley, OU
Mostafa Elshahed, OSU
Sub Gollahalli, OU
Zhili He, OU
Chris Hemme, OU
Ramkumar Parthasarathy, OU
Bradley Stevenson, OU
Ralph Tanner, OU
Joe Zhou, OU

OBJECTIVE 3
CHEMICAL CONVERSION

Danielle Bellmer, OSU
Roberto Galliaso, OU
Ron Halterman, OU
Pete Heinzelman, OU
Ray Huhnke, OSU
Friederike Jentoft, OU
Rolf Jentoft, OU
Ajay Kumar, OSU
Lance Lobban, OU
Richard Mallinson, OU
Ken Nicholas, OU
Krushna Patil, OSU
Daniel Resasco, OU
Alberto Striolo, OU

THE UNITED STATES EPA PREDICTS THAT 85% OF DEDICATED ENERGY CROPS IN THE U.S. WILL BE GROWN IN OKLAHOMA BY 2022. (Federal Register/Vol. 74, No. 99/Table VB2-5)