



The Center for Bioenergy Innovation

The Center for Bioenergy Innovation, led by Oak Ridge National Laboratory, is custom engineering feedstock plants and microbes for a sustainable bioeconomy. CBI builds on a robust legacy of scientific understanding to provide breakthroughs for a new generation of cost-effective, environmentally positive, and industrially relevant bioproducts and biofuels.



ORNL's plant phenotyping system aids scientists in connecting plant gene functions to observable traits through automated, high-throughput measurement of key plant characteristics.

Moving toward Bioproducts from Biomass

The vision for CBI is to accelerate domestication of bioenergy-relevant plants and microbes to enable high-impact, value-added coproduct development at multiple points in the bioenergy supply chain. Our central, integrated focus areas are as follows.

Plant genomics and bioengineering—Developing sustainable biomass crops, including perennial nonfood crops that thrive in the suboptimal environment of marginal lands, require less water, fertilizer, and pesticide, and are more easily broken down and converted to advanced biofuels and bioproducts

Conversion processes—Improving processes using microbes engineered to simultaneously break down and convert plant biomass into advanced biofuels, increasing efficiency and lowering costs of biofuels production, and creating drop-in fuel substitutes that have properties similar to gasoline and can use the existing fuel delivery infrastructure

Value-added products—Using new microbes and methods to convert the lignin residuals from bioprocessing into valuable products such as renewable chemicals that replace petroleum-based feedstocks

15
CBI Partners

3
Key goals

1 of 4
DOE Bioenergy
Research Centers

250+
Scientists

232
Publications in the
last 2 years

"We're developing new biomass feedstocks, engineering microbes to produce fuels from biomass, and creating microorganisms to convert lignin into highly valued products."

Jerry Tuskan, CEO, Center for Bioenergy Innovation



Research and Development Focus Areas



Sustainability—Harness natural diversity and beneficial plant-microbe interactions to realize bioenergy crops that are drought tolerant, use fertilizer more efficiently, and are resistant to pests and pathogens



Feedstock development—Use genomics-based approaches to rationally design biomass feedstocks with high yield and uniformity for biofuel and bioproduct production



Deconstruction and separation—Eliminate the high cost of chemical pretreatment and enzymes by using engineered microbes to simultaneously break down, refine, and convert biomass



Conversion to specialty biofuels and bioproducts—Achieve advanced fuels from biomass and value-added coproducts from lignin residues by using improved microbial platforms

CBI Collaborations and Affiliates

CBI has among its goals an effective, coordinated path toward successful technology commercialization across the bioenergy supply chain through licensing to companies pursuing biofuels development. The program is open to industry, academia, nonprofits, and individuals.



CBI Partners

Colorado
State
University

Dartmouth

GREENWOOD
RESOURCES

Mit Massachusetts
Institute of
Technology

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

NOBLE
RESEARCH
INSTITUTE

OAK RIDGE
National Laboratory

PennState

UCRIVERSIDE

University of Colorado
Boulder

UNIVERSITY OF
GEORGIA

UNT UNIVERSITY
OF NORTH TEXAS

THE UNIVERSITY OF
TENNESSEE
KNOXVILLE

West Virginia University

WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON

CONTACT:

Gerald A. Tuskan
Chief Executive Officer
Center for Bioenergy Innovation

tuskanga@ornl.gov
865-576-8141

One Bethel Valley Road,
Oak Ridge, TN 37830

in t i
f y r o
cbi.ornl.gov