

## Realization Through Research

Research projects coordinated by FCRC focus on:

- **Microbial Metabolic Engineering**  
Development of biocatalysts for the production of fuel ethanol and other chemicals from renewable plant biomass.
- **Depolymerization of Cellulose and Hemicellulose**  
Development of microbial enzyme systems to solubilize cellulose and hemicellulose in the cell walls of plants into sugars that can serve as inexpensive renewable sources for conversion into fuels and chemicals.
- **Hydrogen Research**  
Development of applications of physiology, biochemistry, genetics, and regulation of hydrogen metabolism in microbes.
- **Environmental Microbiology**  
Development of processes and organisms to remove biological and chemical hazards in contaminated soil and water.
- **Comparative Genomics and Experimental Evolution**  
Efficient use of genomic information to find new enzymes and pathways for biocatalyst development.

FCRC research has produced 27 U.S. and international patented solutions for the conversion of renewable biomass to chemicals and fuels.

### Visit

<http://fcrc.ifas.ufl.edu>  
<http://microcell.ufl.edu>  
for more information

## Participating UF Departments

Agronomy  
Agricultural and Biological Engineering  
Chemistry  
Chemical Engineering  
Environmental Engineering Sciences  
Horticultural Sciences  
Microbiology and Cell Science  
School of Forest Resources and Conservation  
Soil and Water Science

## Sponsors

BioEnergy International, LLC  
Consortium for Plant Biotechnology  
National Institutes of Health  
National Science Foundation  
Florida Board of Governors  
State of Florida  
U.S. Department of Agriculture  
U.S. Department of Energy  
University of Florida Foundation  
Verenium Corporation

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# Florida Center for Renewable Chemicals and Fuels FCRC



# FCRC...

## Providing Energy Solutions

The Florida Center for Renewable Chemicals and Fuels acts as the hub for multi-disciplinary education and research in producing chemicals and fuels from biomass. FCRC:

- SOLVES new technological challenges in renewable energy production;
- CONNECTS faculty and students in productive communication;
- ASSISTS faculty in the development of competitive research grants; and
- MAKES VISIBLE and VIABLE the possibilities in renewable chemicals and energy sources at the state and national levels.

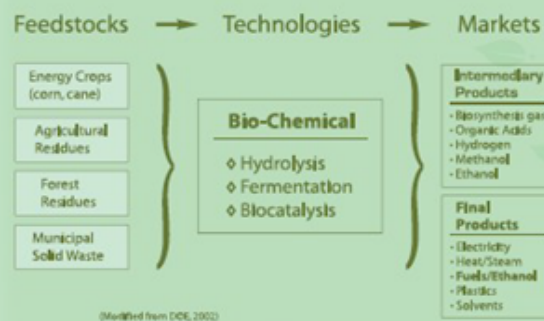
## A Catalyst for Change

Biorefineries producing ethanol in the U.S. currently meet only about 2.5% of automotive fuel demands.

FCRC seeks to expand and enhance the efficiency and sustainability of ethanol and hydrogen fuel production through the creation of new biorefineries that use biomass and energy crops to replace petroleum-based fuel and chemical products. Using these feedstocks can triple biofuels production without competing with crops for food and feed consumption.

The collective vision of the FCRC is a future independent of petroleum as the sole source for energy and chemical needs, resulting in a cleaner environment, a stronger economy, and a more secure source of energy.

## Bio-Refinery



## Fellowships in Biochemicals and Fuels Technology

Four to six graduate research fellowships are awarded each year on a competitive basis to outstanding students pursuing careers in biotechnology. Research fields in microbiology include:

- Biotechnology
- Biochemistry
- Molecular Genetics
- Metabolic Engineering
- Genomics and Proteomics



## Clearing the Path for Progress

FCRC assists faculty in preparing and submitting research proposals, alerts members to new funding opportunities, sponsors meetings and seminars, and shares data and information on metabolic engineering of bacteria for the production of ethanol/hydrogen fuels and chemicals.

