

Biofuels Research Projects at the USDA-ARS Western Regional Research Center Plant Gene Expression Center Albany, CA

Converting Straw to Biofuels: “The Plant Cell Wall Initiative”

In the next decade, the only way to meet our nation’s targets for renewable fuels is to convert ag-derived cellulose from plants into ethanol and other fuels.

The “Plant Cell Wall Initiative” and Bioenergy programs in Albany provide a wide array of biomass-to-biofuels research that will enable us to meet biofuels needs.



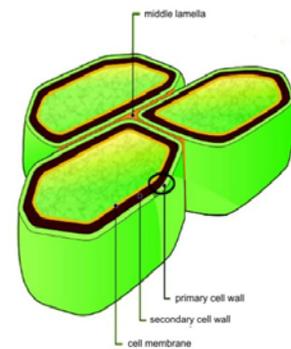
Research Groups under the “Plant Cell Wall Initiative”

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Understanding plant cell wall as a Biofuels Source

For efficient conversion of biomass into bioenergy, the cell structure of each biomass crop must be understood.

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The Plant Cell Wall

Energy Crops: Switchgrass and Model Grasses

Albany leads in **switchgrass** research such as development of genome sequence resources for breeding and biotechnology. Model grasses, such as *Brachypodium*, make breeding easier.

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Flexible, “Athletic” Biorefineries

Engineers in Albany are designing the flexible biorefinery to convert local crops and waste into ethanol and other bioproducts. Wheat-to-ethanol technology is ready for commercialization.

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Plant Gene Expression Center
Albany, CA**

Improvement of Agricultural Feedstocks

Albany researchers produced the first large-scale data of expressed wheat genes, are leaders in wheat genomics, and operate the **GrainGenes database**, an internationally valued source of information for small grain cereals.

Crop improvements have provided new sources of strategic materials for biorefinery use, such as domestic rubber and castor oil.

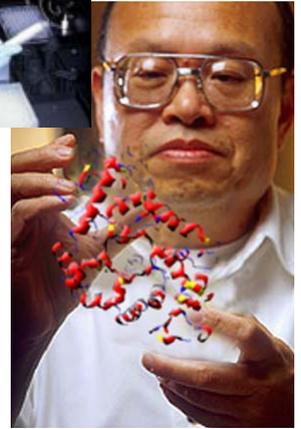
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Improved Enzymes for Biofuels

Enzymes and technology for better starch conversion to ethanol (**cold starch hydrolysis, the new industry standard**) and for improved biomass-to-ethanol conversion are underway. This includes new engineering processes.

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Collaborations

- Multiple active Cooperative Research and Development Agreements (CRADAs) with large and small private companies and grower groups.
- Collaborations with UC Berkeley, Lawrence Berkeley National Labs, UC Davis, University of Illinois, and other academic partners.
- Nationwide field tests with various plant breeders.
- International Cooperative Research in Brazil and the EU.



For General Information on Biofuels Research:

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