

Lab News    Filename: Biofuels funding

*Reviewers: Rajat Sapra, Anup Singh, Grant Heffelfinger, Terry Michalske (director)*

*Photos:*

## **Biofuels work gets another adrenaline shot**

By Mike Janes

Another seed was planted in support of Sandia's blossoming biofuels program recently when the lab snagged \$600K in funding (\$300K for two years) for "Development of Saccharifying Enzymes for Commercial Use." The award, in response to a call from the DOE's Office of Energy Efficiency and Renewable Energy (EERE), is part of a joint proposal led by industry partner DSM. Additional partners include Adengoa Bioenergy Technologies and Los Alamos National Laboratory.

Rajat Sapra (8321) will serve as principal investigator, and other team members include Ken Sale (8321) and Seema Singh (8755). The work, said Rajat, will focus on the use of enzymes from fungi (organisms that grow on plant biomass in communities like rainforest environments) that can break down cellulose for conversion into ethanol. It's a natural extension of Sandia's current work with "extreme" enzymes that break down cellulose in plant biomass to sugars for fermentation or biofuels production (*Lab News*, June 22, 2007), Rajat said.

"DSM already has a well-established understanding of enzymes from fungi and how to produce these enzymes for commercial purposes," said Rajat, who explained that the company possesses a successful industrial fermentation process for non-biofuels applications that involve fungi.

"What we plan on doing is to take our expertise in structural and biophysical analysis, apply it to this particular type of fungal enzymes, and help improve the enzyme engineering process," he said. Sandia will use various spectroscopic and molecular modeling techniques that will help scientists to better understand how these enzymes break down biomass. "Ultimately, what we're trying to do is make better, more effective enzymes," said Rajat.

Grant Heffelfinger (8330) pointed out that the project is unrelated to the high-profile Joint Bio-Energy Institute (JBEI) endeavor (*Lab News*, July 6, 2007). “It’s an important step in further establishing our growing presence in the biofuels arena,” said Grant.

The project is one of four DOE-funded initiatives announced recently. Covering a four-year period, nearly \$34 million has been committed by the Department for the projects, each of which will focus on developing improved enzyme systems to convert cellulosic ethanol into sugars suitable for production of biofuels.

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