Bioscience Alliance
Reaches First Benchmark

Robert C. Brown, Bergles Professor in Thermal Science and professor of mechanical engineering, chemical and biological engineering, and agriculture and biosystems engineering, is the director of the Center for Sustainable Environmental Technologies. Brown co-chairs the bioeconomy platform with Georg Anderl of Genencor International, Inc. The focus of the platform is to better utilize the raw materials Iowa produces and to reduce waste streams, especially with biorefineries like ethanol and biodiesel plants. Environmental and life cycle assessment will be key for this platform.

Brown says it is an exciting time with a lot of potential for Iowa. “Other Midwest states are already acknowledging that Iowa is the best organized with respect to developing a bioeconomy. Now we must get the state legislature behind it.”

Manjit Misra, professor of agricultural and biosystems engineering and director of the Seed Science Center, co-chairs the biodefense platform with Mike Apicella of the University of Iowa and Kevin Maher of Global Vet Link. The focus of the platform is to develop the science of biodefense and to organize people and technology to carry out the plan for the state. The group will be looking at intentional threats, including terrorism, and unintentional threats like natural diseases. A primary focus will be on containment strategies.

Ruth MacDonald, chair of Iowa State’s food science and human nutrition department, co-chairs the Advanced Food and Feed Platform with Michael Budnick of Proliant, Inc. The leaders are working to connect people who are interested in contributing expertise and who have an interest in economic development in the food and feed areas, which include animal science, food science and human nutrition, and processing of plant materials and animal products. The primary objective of this platform is to take advantage of Iowa’s rich base in commodities by converting the raw materials or byproducts into commercial products that help human or animal health.
SBIRs Can Help Small Businesses

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs provide qualified small businesses with opportunities to propose innovative R&D projects that meet specific federal needs. The two programs award over two billion dollars annually to applicants who meet the requirements and are then selected by grant committees.

To apply for these programs, a small business must respond to a federal solicitation with a proposal. The Iowa State University Office of Intellectual Property and Technology Transfer (OIPTT) can ease the proposal process and increase the chances of winning an award.

OIPTT can help companies identify solicitations that match their R&D capabilities. The office will assist in writing proposals and reviewing them for technical, financial and business content. OIPTT also can locate research collaborators at Iowa State University, Ames Laboratory or other Iowa research institutions to give the proposal a competitive edge.

Contact Kristine Johansen with the Iowa State Office of Intellectual Property and Technology Transfer at kajohans@iastate.edu or (515) 294-3208 or visit the office online at www.techtransfer.iastate.edu/

Biotechnology News

Office of Biotechnology Awards Graduate Fellowships

By Glenda Webber, Office of Biotechnology, Communications

Iowa State University’s Office of Biotechnology has awarded fellowships to five incoming graduate students with exceptional qualifications who are preparing for careers in biotechnology research.

Each year, outstanding students are nominated for the fellowships by 28 Iowa State academic departments or interdisciplinary programs involved in biotechnology research. Since 1994, the Office of Biotechnology has awarded 185 graduate fellowships.

Student nominees are rated on a number of factors, including grade point average, graduate record exam scores, letters of recommendation, science background, research experience and scholarly publications. Fellowship students perform research on a biotechnology-related project while working towards M.S. or Ph.D. degrees. To help them discover their research interests, students may work with several different project teams during the first year of the fellowship.

The following five incoming graduate students have been awarded biotechnology fellowships.

**Bioinformatics and computational biology**
- Tian Xia
- Xiao Yang

**Chemistry**
- Xiaowen Fang

**Interdepartmental Genetics**
- Megan Harvey

**Toxicology**
- Fan Tong

ISU Spin-off Company Wins SBIR Grant

A spin-off company from Iowa State University has won a $440,000 Small Business Innovation Research (SBIR) grant from the National Science Foundation to further develop its unique noise-reduction technologies. Vibroacoustics Solutions, Inc., is developing a “smart” material that has both passive and active noise-reduction capabilities. It is made from a composite of polymer and natural fibers such as kenaf and hemp.

The material can help control noise in products such as home appliances, doors and office furniture, as well as agricultural and construction machinery, automobiles and aircraft.
Iowa State University is seeking industrial partners to develop and/or commercialize the following technologies. For more information or for a complete listing of all available technologies, contact the Office of Intellectual Property and Technology Transfer at 515-294-3893 or www.techtransfer.iastate.edu/.

Single Dose Controlled Release Vaccine Formulations Using Polyanhydride Microspheres

ISU researchers have developed a single-dose, controlled-release vaccine formulation based on polyanhydride microspheres. The microspheres can be loaded with antigenic proteins for immunization. The microsphere composition controls the release of the antigen. The need for alum-based adjuvants that tend to induce Th2 immunity is obviated. Additionally, preferential Th1 versus Th2 immune responses can be induced based on how the microspheres are loaded with antigen. This type of vaccination strategy may improve protection against intracellular pathogens, and be especially useful for the development of vaccines against certain cancers and viruses. These single-dose controlled-release...
Recyclable Heterogeneous Catalyst for Conversion of Oils to Biodiesel

A low-cost, highly-active heterogeneous catalyst that greatly simplifies the biodiesel production process has been developed by researchers at Iowa State University. Compared to conventional methods, the use of the catalyst reduces the need for downstream separation, product washing and wastewater neutralization steps. This economical and stable catalyst can be used in a more environmentally friendly biodiesel production process that offers better control over final product quality. ISURF 3280

### Research Update

The following are a subset of the grants recently awarded for biotechnology-related research at ISU. For more information about establishing research relationships with ISU biotechnology researchers, please contact Lisa Lorenzen at llorenze@iastate.edu.


Shoemaker, R. Agronomy. SoyMap: An Integrated Map of Soybean for Resolution and Dissection of Multiple Genome Duplication Events. Purdue University.