Intellectual Property and Iowa State University

Every year, Iowa State University faculty, staff, and graduate students develop new and exciting ideas, processes, and products that have the potential to change how society lives and works.

As a land-grant university, Iowa State University has a mission to see that the technologies are used for the public good. At the same time, it is important to the university to maintain and protect rights to the intellectual property developed by university employees.

The Iowa State University Research Foundation (ISURF) owns, manages, and licenses intellectual property developed by university employees. More than 100 inventions are licensed each year, and in 2000, ISURF was rated second among all U.S. universities in the number of licenses and options executed.

All ISU employees are required to disclose their inventions to ISURF. Inventors play an active role in the process of filing for intellectual property protection and assisting with commercialization by providing detailed information about the invention and associated research to the public.

If the invention has commercial application potential, ISURF proactively markets the product through mailings and on the Internet (www.iastate.edu/~isurf/tech/tech.html). These marketing briefs describe the invention, its potential applications, its advantages over current similar technologies, and its current stage of development.

Companies interested in utilizing or learning more about Iowa State University technologies can access the online technologies database and search by key word, category, description, and potential applications. More information about the technologies of interest is available by e-mailing licensing@iastate.edu.

When a company decides to license a technology, ISURF and the company enter into a license agreement. Each license is unique to the technology and situation, and is developed by ISURF for the best possible relationship for the company and the university. With every license agreement, ISURF requires a royalty that is shared with the inventor and the inventor's college.

ISURF also manages licenses for germplasm developed at the university. Corn, soybean, popcorn, oats, tomatoes, amaranth, and rose varieties are available for licensing. Most germplasm released for research, development, or commercial use is distributed on a non-exclusive basis.

In addition to licensing, ISURF handles the transfer of biological material related to and from ISU, when it is related to ISU-owned intellectual property. The Material Transfer Agreement (MTA) protects the owner's rights to the materials and specifies how the material may be used, whether the owner is the university or a company. If the transfer is related to material that is not ISU-owned intellectual property, the Office of Sponsored Programs Administration handles the MTA development.

For more information on ISURF, or to access the ISURF database of available technologies or germplasm listings, go to www.iastate.edu/isurf.

See page four in this and every issue of the Biotechnology Update for descriptions of biotechnology-related technologies available for licensing from ISURF.
New Agreement Increases Availability of Healthy Soybean Oil Traits

Soybean farmers, producers, and consumers will benefit from a new agreement between Iowa State University and Pioneer Hi-Bred International, Inc.

Until recently, several soybean lines with improved health benefits created at the university were under an exclusive commercial license by Pioneer, giving the company the sole rights to develop products based on the soybean traits. The traits were made available to other researchers through a sublicense. The company developed commercial varieties based on the soybean traits, including the introduction of an oil product with half the saturated fat as traditional soybean oil.

Under the new agreement, Pioneer has made the soybean donor germplasm developed at the university available to public and private researchers for further development. The germplasm will allow researchers to develop additional soybean products that maximize the crop’s potential as a healthier oil source.

The Iowa State University Research Foundation (ISURF) will be responsible for licensing the soybean oil traits to other research organizations or companies for further development, allowing public and private researchers to commercialize the traits without obligation to Pioneer (see story on page 1 for more information about ISURF).

“Pioneer has generously agreed to let other companies develop markets with the novel traits as a way of improving the competitiveness of soybean as a source of healthy oil,” said ISURF director Ken Kirkland.

All of the traits involved in the agreement were developed by Walter Fehr, distinguished professor of agriculture and director of the Office of Biotechnology; and Earl Hammond, university professor of food science and human nutrition.

Plant Virus Provides Tips on How Genes Are Decoded

An Iowa State University plant scientist may have found a way to control and even exploit plant viruses by figuring out the molecular mechanisms of the virus replication cycle.

Allen Miller, a professor of plant pathology, has been studying the replication processes of the barley yellow dwarf virus (BYDV), which is transmitted by an aphid vector. The disease is widespread and causes substantial yield losses in wheat, barley, and oats.

Miller’s research focuses on the mechanism by which the virus’ genetic code is translated in plants during the process of protein synthesis. His research group has identified a new way that this process can begin. The finding could have important implications for improving control of genes in genetically engineered crop plants.

The research also may shed light on the replication of important human viruses that have many fundamental processes in common with plant viruses. Miller presented his findings in April to applied biologists at an international conference on plant virology advances in Cambridge, England. The research was funded by the National Science Foundation and published last year in the scientific journal, Molecular Cell.

New on the Web

The Cost of the Journey—An essay is available that describes the costs associated with commercializing a soybean that produces oil with a different fatty acid composition than conventional soybean oil. The essay explains the reasons for the difference in cost between a conventional soybean oil and an oil that requires identity preservation (IP). The processes involved in production are explained. The essay was written by Walter Fehr, ISU distinguished professor of agriculture and director of the Office of Biotechnology. Go to www.biotech.iastate.edu/publications/IPAPS/CostofJourney.html

Biotechnology Job Postings—A new opportunity for companies with job openings is available on the Office of Biotechnology home page. The Biotechnology Industry Resources web site now has a “Job Opportunities” page that lists current openings for ISU students majoring in the life sciences. Companies interested in posting their job openings on the web site can send an e-mail with a brief description of the position to dhuisman@iastate.edu. Go to www.biotech.iastate.edu/Industrial_resources/jobs.html

New Lecturer in Bioethics

Kristen Hessler has been at Iowa State for just one year, but she already has made significant impacts on bioethics education at
Plastics Make Perfect
by Bridget Bailey, ISU News Service

Plastics have paid off for Surya Mallapragada, an Iowa State associate professor of chemical engineering. Mallapragada has been named one of the world’s top 100 young innovators by Technology Review, a technology magazine published by the Massachusetts Institute of Technology (MIT).

She was chosen for her research in polymeric biomaterials, which are advanced plastics used in a wide array of medical procedures.

“This is a great honor for me,” Mallapragada said. “I owe it to the support of my family and friends, and most importantly, to my students who did all the work and made it possible.”

Polymers are large molecule compounds made from smaller, chemically bonded molecules. Substances such as starch and nylon are considered polymers.

In a new approach to drug delivery and possibly gene therapy, Mallapragada’s group is currently exploring pH- and temperature-sensitive drug release methods using polymers that respond to changes in their environment.

For example, her group has found that these “smart” polymers are liquid at room temperature, but turn into gels at human body temperatures. After injection into a human, the gelled polymers would act as drug dispensers, dissolving bit by bit to administer a dose of medicine in response to pH changes in the body. The target drug for this work is insulin.

Mallapragada and her research team also are using adult optic-nerve-derived stem cells to regenerate optic nerves by incorporating micro-patterned biodegradable polymers that are many times thinner than a human hair, and provide tiny channels in which neurons can regenerate.

Mallapragada is associate director of the Microanalytical Instrumentation Center at Iowa State and an associate scientist at the Ames Laboratory, a Department of Energy lab on the Iowa State campus.


September 19-22—The 12th annual Growth Factor and Signal Transduction symposium, “Molecular Targets for Dietary Intervention in Disease.” Discussion will focus on studying aspects of heart disease, cancer, and inflammation particularly in relation to the impact of dietary components on their development. This will help scientists to understand the underlying biology and help identify the molecular targets of dietary components with the hope of providing the basis for dietary intervention in disease progression. Location: Scheman Building, Iowa State University. More information is available at http://molebio.iastate.edu/~gfst/maing02.html.

October 23—Biotechnology Career Day. Linking your company and ISU’s best student scientists for job and internship possibilities. Attending companies are provided with booth space, and electrical hookups also are available. In addition, a brief description of each company is listed on the Career Day web site, and companies can provide information on job and internship openings to be posted on the Biotechnology Industry Resources web site. Location: Molecular Biology Building, Iowa State University. For more information and to register, go to www.biotech.iastate.edu/Industrial_resources/career_day2002/career_day.html
Available Technologies

Iowa State University is seeking industrial partners to develop and/or commercialize the following techniques. For more information and for a complete listing of all available technologies, contact the Office of Intellectual Property and Technology Transfer at 515-294-3893 or www.iastate.edu/isurf.

More Potatoes, and Faster
ISU researchers have developed a transgenic potato plant that produces more tubers at a faster rate than traditional varieties, even under less-than-ideal growing conditions. The potato plant was developed by overexpressing two gene expression factors.

The acceleration of tuber growth shortens the time for production of a crop. The technology also could reduce the problem of desirable breeding lines producing tubers too late in the season or with too low a yield. The technology also potentially could be used for biopharmaceuticals, as well as for NASA food research programs. ISURF #02885

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, contact the Director of Industry Relations. See address box on this page.


Hong, Mei. Chemistry. Elucidation of the Conformation and Dynamics of Membrane Proteins by Solid-State NMR. National Science Foundation.

