

Jump-starting UT Research Spin-offs



Better Medical Implants

Dr. John Biggerstaff is a world-class specialist in inflammation response and blood flow. Manufacturers of medical devices need better data on how their products interact with the body. “Sometimes you want the body to interact positively with the system, but with other things such as oxygenators, you don’t want the body to react to at all because blood flow can be altered and have deleterious effects on organs or even cause death,” he says. Doctoral student Ben Curry fell in love with the research and is refining what they believe is the most comprehensive set of tests in the country that assess biocompatibility of medical implant devices. Biggerstaff says, “Application of this technology to new medical devices will save lives.”



Sensors for Disease Control

As they work toward a technology that farmers can use in their fields for disease prediction and control, bio-systems engineer Dr. John Wilkerson, plant pathologist Dr. Mark Windham and master’s student Crystal Kelly have devised a wireless network of small environmental sensors that provide an early warning when conditions are right for disease growth in greenhouses. “With greenhouses, one area may receive more light, another more heat,” Kelly says. “This network of data would make greenhouses more efficient and environmentally friendly. It would also allow more precise watering and use of chemicals.” The result would be healthier, more uniform plants and less dead loss.

UT Distinguished Professor Fred Tompkins is on a mission. Through a new special topics course, he is striving to open students and professors’ eyes to the idea of launching innovative and potentially lucrative business spin-offs. His vision is to enable students to create careers for themselves—ones that potentially enrich East Tennessee’s technology business base, grow jobs and boost the state’s economy.

The course is offered through the College of Agricultural Sciences and Natural Resources, but its reach extends to students across the university who are engaged in the sciences, engineering and technology development.

As former CEO of the university’s Research Foundation, Tompkins knows the value of faculty members’ discoveries. But professors are generally fully focused on gaining and sharing knowledge, not creating commercial ventures. And that’s where opportunity for their students comes into play.

“Many of our science and technology-focused students have never considered launching venture spin-offs,” Tompkins says. “I want some of them to get ‘bitten by the bug’ or at least open their minds to that potential.”

Twenty guest lecturers join Tompkins to share their first-hand knowledge of various aspects of launching a business venture and making it succeed.

“The course is all about encouraging, educating and enabling,” he says. “I’m also always on the lookout for folks who are willing to invest funding in these students – money that can be used to mature their ideas and their technologies and to determine if a viable business that can meet a societal need is a real possibility.” —Margot Emery



Detection of a Killer Disease

There is no imaging test available in the U.S. to detect an under-diagnosed disease called amyloidosis. This disease can trigger Alzheimer's and contribute to heart failure, Type 2 diabetes, rheumatoid arthritis and about 23 other diseases that ultimately lead to death. Dr. Jonathan Wall, student Emily Martin and three other researchers at the UT Graduate School of Medicine have developed a peptide agent, formed a start-up LLC called Solex, and are working on an imaging procedure to empower physicians to detect amyloid deposits and instantly assess the effectiveness of treatments. The Mayo Clinic has said if it is available, they'll use it. Their next step is to obtain funding for a clinical trial.

Vertical Urban Crops

Tim Carter sees vertical greenhouses as a way to bring agriculture to densely populated areas and cut the costs of trucking produce across the country. "I envision a building comparable to a 2-acre plot in which plants are grown hydroponically with optimum fertilization and light." His concept uses new technological breakthroughs in LED lighting for low-cost, highly efficient grow lights and the latest in computer-controlled environments. "With our population increasing and more people moving to cities for jobs, farms will have to transform—at least in the future when fossil fuels won't sustain us." His retail flower business, The Butterfly Garden of Knoxville, is a way to raise funds for his company, Proventus.

