

The KU OTTIP welcomes Michael Meyer, UMKC law extern for the fall semester.

Self Fellow Mark Bailey has completed his KU OTTIP summer externship.

James Baxendale, attended the Dean's and VC Summit in Washington, DC on July 25.

James Baxendale and Ann Spitz recently attended the Central Region Association of University Technology Managers (AUTM) meeting held in Austin, Texas.

KU Center for Research, Inc.  
Technology Transfer and Intellectual Property  
2385 Irving Hill Road  
Lawrence, KS 66045-7563  
Director: James G. Baxendale  
Phone: 785.864.7783  
785.864.7189  
Fax: 785.864.5272  
E-mail: [jbaxendale@ku.edu](mailto:jbaxendale@ku.edu)  
[www.technologytransfer.ku.edu](http://www.technologytransfer.ku.edu)

This electronic newsletter is distributed to interested KU faculty and staff, economic development organizations, and others interested in learning about KU innovations.

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## Join us for Invention to Venture 2007

The Office of Technology Transfer and Intellectual Property at the University of Kansas, along with the Institute for Entrepreneurship and Innovation at the University of Missouri-Kansas City, will again host a one-day workshop at the Kauffman Foundation on Saturday, September 29, on the basics of technology entrepreneurship. Information on registration and program content can be obtained by calling 785-864-7189.

## New KU Lawrence campus start-ups in FY 2007

### KCBioMediX

The start-up completed their first round of funding for \$1.5 million. These funds will be used to achieve FDA clearance to market the N-Trainer, build units for clinical trials and begin the design process for the production version. The N-Trainer and the Actifier employ an electronic pacifier to assess and then improve a newborn baby's essential motor skills, such as sucking, swallowing and breathing. International patents have also been filed for Europe and China. Dr. Steve Barlow recently presented his clinical research information at the Pediatric Academic Society show in Toronto and to over 200 neonatal intensive care therapists at a conference in Myrtle Beach, SC, where the concept was well received. The company is set to obtain FDA clearance to market the device early in 2008, with first sales expected in early 2009.

### Computerized Assessments and Learning (CAL)

CAL is on the forefront of testing, assessments and psychometric applications to create assessment systems that support the teaching and learning process while being responsive to needs and demands for school accountability.

CAL's primary marketable product is a computer test delivery system that is intended

for use by states and local school systems to deliver, via computer, test items and related testing services as part of a state mandated or a local district's testing program. Item inputs, item on-screen delivery, capturing student responses, scoring, reporting, and data analysis components are included as part of the system. CAL has entered into an exclusive teaming agreement with Data Recognition Corporation (DRC) to market its on-line test delivery system and services.

### Kansas Analytical Systems LLC (KAS)

Solid state nuclear magnetic resonance (SSNMR) is a powerful technique for the analysis of chemical compounds such as pharmaceuticals and complex biomolecules, but is limited by long experimental times, often hundreds of hours. A new innovation, the multisample solids (MSS) probe, conceived and patented by Dr. Eric Munson of the Department of Pharmaceutical Chemistry and developed by Revolution NMR of Fort Collins, CO, promises to dramatically increase the utilization of SSNMR. The MSS probe provides the capability to analyze as many as five samples simultaneously. KAS has been established to make this technology available to those who require rapid, state-of-the-art analytical services.

## Unique furniture design from the School of Architecture



Dr. Robert Corser in the School of Architecture has developed an innovative manufacturing technique for making furniture from flat pieces of material, such as plywood. Traditional methods involve fasteners of some kind to hold various pieces of furniture. Dr. Corser's "induced stress joinery" project is a new approach to flat pack furniture based on the generation of internal stresses in the flat material during assembly. By removing the fasteners from the equation, assembly is easier and the joinery of the final forms is more elegant. The models are scalable from doll furniture to adult size furniture.



## Examples of innovative technologies disclosed in FY 2007

### Method for and Creation of High Mechanical Performance Biocompatible Interpenetrating Network (IPN) Hydrogels for Tissue Engineering

Michael Detamore, Chemical and Petroleum Engineering, has developed a novel synthesis procedure to create hydrogels with mechanical properties desirable for musculoskeletal tissue engineering, with moduli comparable to cartilage and failure properties (strength and toughness) far beyond hydrogels currently used in tissue engineering. This discovery has immediate applications in cartilage tissue engineering. It has potential future applications in the regeneration of other tissues such as bone, fibrocartilage, skin, etc. The significance of this discovery is that by creating these hydrogels of high toughness, KU researchers have overcome a major limitation of hydrogel scaffolds currently employed in tissue engineering, as high toughness is crucial to constructs for them to withstand fracture in demanding environments such as a human knee or hip.

### Method for Creating Microsphere-Based Materials with Predefined 3D Spatial and Temporal Control of Biomaterials, Porosity, and/or Bioactive Signals

Michael Detamore has also developed a novel and cost-efficient method of creating microsphere-based three-dimensional materials with precise control over their spatial patterns/profiles of biomaterials, porosity and/or bioactive signals, which may be utilized in a variety of applications, such as tissue regeneration. Specifically, the technique can be used to create gradient constructs with diversified areas of tissue engineering applications, including nerve tissue engineering, study of chemotaxis, directed angiogenesis, spatial regulation of chemokines for modulating immune response, interfacial tissue engineering, etc. These matrices can produce a variety of both linear and non-linear concentration profiles, making it superior to current methods.

### Fuel Cell Simulation Module

PEM (proton exchange membrane) fuel cells are becoming widely used for a variety of applications. Trung Van Nguyen, Chemical and Petroleum Engineering, has invented a PEM fuel cell module that can accurately predict the performance of a fuel cell, including two-phase flow characteristics, better

than currently available PEM fuel cell modules. The module is an accurate computer aided design tool that can be used to design better fuel cells.

### Rubistar

Jennifer Holovoet and Marilyn Ault in the Center for Research on Learning/Altec have developed a customizable web-enabled rubric maker for educators with vetted rubric templates. The Rubistar teaching tool provides rubric templates that can be used as is, or edited (in part or in whole) by teachers. The templates are generally grouped around types of products rather than subject areas to encourage use of different types of projects. Rubistar can be expanded to design procedures to evaluate student products. In addition it could have future business applications for evaluating reports, projects, etc.

### Herpes Simplex Virus ICPO Phosphorylation Site Mutant

HSV-1 is a common and significant human pathogen which causes a variety of diseases, ranging from cold sores and potentially blinding ocular infections to life-threatening diseases like encephalitis. HSV-1 establishes lifelong latent infections in neuronal cells, which reactivate periodically. David Davido, Molecular Biosciences, has developed a mutant virus of herpes simplex virus type 1 (HSV-1), which can be used as a potential vaccine for HSV-1 and can be used as potential therapeutic targets in the development of anti-HSV drugs.

### OBIU: A Reusable Learning Object Creation and Management System

This invention developed by Ed Meyen, Special Education, and Ron Aust, Ed. Leadership and Policy Studies, is a software implementing several interrelated processes involved in the creation, query, and manipulation of reusable educational modules. The immediate uses are by online course developers in higher education, secondary schools and industry. It solves the problem of content based courses, that when such courses are in need of revision, there is no user-friendly tool to enhance the revision process. Object-Based Instructional Unit (OBIU) allows content to be revised and easily updated to a Learning Management System (LMS). OBIU can provide the same advantages for the evolution of texts over the life of editions of books as for courses. OBIU would allow publishers to more effectively and efficiently engage authors in the development and revision processes.

## Director's Corner

**Jim Baxendale, MS, MBA**

We are pleased to take this opportunity to recognize the newest start-ups from our campus. Our start-ups serve as important vehicles to advance our early-stage technologies to the marketplace. The number of licenses and options negotiated this last Fiscal Year increased from the previous year and will serve to enhance the number of technologies in our product development pipeline. We continue to receive very innovative invention disclosures across a number of disciplines as evidenced in this issue of our newsletter. I wish to thank Self Fellow Mark Bailey who served as an extern in our office this summer. Mark was very helpful to us in reviewing our technologies, contacting potential corporate partners and searching the U.S. Patent and Trademark Office website for pending and issued patents that relate to our newly disclosed inventions.