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**IBB's "COMMERCIALIZE IT" SUCCESS STORIES: THE CREATION OF TWO NEW BIOTECH COMPANIES**

In collaboration with the Houston Technology Center, the Rice Alliance and the Rice Office of Technology Transfer, IBB piloted the "Commercialize It" Program this year to help IBB researchers commercialize their ideas. For this program, the Houston Technology Center, the Rice Alliance and the Rice Office of Technology Transfer makes one or more of their bioscience and bioengineering commercializing specialists available for sessions throughout the semester to discuss and evaluate commercialization options for devices and processes that are emerging from the IBB with any faculty, staff or senior students. These informal sessions are either one-on-one or with small group discussions and additional or subsequent meetings can be set up as necessary.

IBB's Commercialize It has helped spawn two new biotech companies in Houston: Nano 3-D Biosciences (n3D) and Houston Medical Robotics (HMR). The IBB faculty involved with n3D include: **Dr. Tom Killian**, Associate Professor of Physics and Astronomy, and **Dr. Robert M. Raphael**, Associate Professor of Bioengineering. Interestingly, Drs. Killian and Raphael first collaborated together with support from an IBB Hamill Innovation Award given in 2006. The IBB faculty involved with HMR includes **Dr. Marcia K. O'Malley**, Assistant Professor of Mechanical Engineering. Thanks to connections formed via Commercialize It, n3D and HMR are client companies of the Houston Technology Center.



**Dr. Tom Killian (left) and Dr. Robert M. Raphael (right), IBB Faculty & Two of the CoFounders of Nano 3-D Biosciences**

Along with Dr. Killian and Dr. Raphael, n3D is also based on the work of **Dr. Glauco R. Souza** from U.T. MD Anderson Cancer Center. The new company is headed up by **Mr. David J. Lee**, a business veteran with 18 years management and marketing experi-

ence. n3D's goal is to commercialize and develop products and services utilizing their new Bio-Assembler technology. This new 3 dimensional cell-culturing technology will overcome current research and development obstacles created by the lack of an *in vitro* or test-tube cell-culturing platform that mimics the natural or *in vivo* environment. The most common method for culturing cells today is on the 2 dimensional (2D) surface of a Petri dish. But 2D culturing significantly modifies cell properties, which leads to inaccurate drug-screening results on poten-

tial efficacy and toxicity. Furthermore, tissues grown in 2D often lack the characteristics needed for developing tissue regeneration therapies. n3D's Bio-Assembler offers *in vitro* culturing of three-dimensional tissue samples using magnetic levitation, which overcomes the drawbacks of existing 3D cell-culturing technologies. Among other capabilities, it allows manipulation of tissue sample shape in a scaffoldless architecture that offers new opportunities for regenerative medicine. This exciting new company hopes to create the industry standard for three dimensional, *in vitro* cell culturing and apply this technology to drug discovery and regenerative medicine.

Along with the unique robotic and micro mechanical design and control skills of Dr. O'Malley, HMR has assembled a highly respected group of medical professionals. The team also consists of renowned cardiothoracic surgeon and medical device innovator **Dr. William E. Cohn**, distinguished pulmonary / critical care physician **Dr. J. Patrick Herlihy**, and critical care / ICU nurse **Mr. K. Wayne Rennicks**.



**Dr. Marcia K. O'Malley, IBB Faculty & A CoFounder of Houston Medical Robotics**

HMR, working closely with the Houston Technology Center, is developing a medical device that will allow rapid, safe and accurate access to central venous circulation. The primary goal of the device is to safely expedite the placement of a plastic tube or catheter to enable the monitoring of hemodynamic parameters, and to allow the delivery of medicines, intravenous fluid, and blood and blood products to the patient. Currently when vascular access like this is required, complications often develop. The procedure is very often time consuming and multiple attempts are involved. Even with the high degree of skill necessary to perform this procedure, and under the best circumstances when ultrasound imaging is used to locate a suitable blood vessel, the risk elements are not entirely eliminated. HMR's technology will automate much of the central venous access process. Vascular images will be integrated into the control of robotic elements. The automated system will interpret the images, make penetration judgments, and deploy the needle and catheter components. The automation of vascular catheter placement will reduce risks and the time to life saving therapy. This device will become a welcome addition to the tools used by physicians in operating rooms, intensive care units and emergency departments and is sure to be very well received by patients who undergo the procedure.

IBB is delighted with the success of Commercialize It and plans to continue this program. The next Commercialize It is scheduled for January 29, 2009 from 2-3 PM at Rice's Brochstein Pavillion.



**UPCOMING IBB EVENTS**

- November 11, 2008**  
**IBB's NIH Biotech Seminar**  
**Mr. Brent Tarver**  
Keck Hall 102, Rice U.,  
11:00 AM- 12:15 PM
- December 2, 2008**  
**IBB's NIH Biotech Seminar**  
**Dr. Eric Nicolalde**  
Keck Hall 102, Rice U.,  
11:00 AM- 12:15 PM
- January 14, 2009**  
**IBB's Internship Fair**  
RMC Grand Hall, Rice U.,  
11:30 AM-1:00 PM
- January 29, 2009**  
**IBB's "Commercialize It"**  
Brochstein Pavillion, Rice U.,  
2 PM - 3 PM

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