



# Maryland Technology Transfer Offices Partnership Newsletter

University of Maryland College Park • The Johns Hopkins University • University of Maryland Baltimore County  
University of Maryland Baltimore • Morgan State University • University of Maryland Biotechnology Institute  
The Johns Hopkins University/Applied Physics Lab

---

July 2006

Volume 3, Issue 2

---

## IN THIS ISSUE:

OTC Awards 19th Annual Inventions of the Year  
Interviews with OTC Award Winners  
150 Years of Research at UMCP  
JHUAPL Names Inventions of the Year  
UMB Hosts MARCE Consortium  
UMB's New Deals Face New Challenges  
Working Group Bangs Head on 'Dashboard' ... with positive results  
Governor Keynotes UMBI's 20th Anniversary Gala

## PLUS:

News & Notes  
Calendar

## INTRODUCTION

The rains on the East Coast are moving out, the sun has arrived, and perhaps now we can get on with summer. This issue of the MDTTO does not have a theme but touches on many of the issues of technology transfer.

---

## FEATURES

### OTC Awards 19th Annual Inventions of the Year

The University of Maryland Inventions of the Year for 2005 are an improved data correction strategy for analyzing metabolomic profiles in, for example, toxicology screening; a novel class of biomaterials for use in tissue engineering; and an improved catalyst for hydrogen fuel cells.

The winners were announced Monday, April 10 at an annual reception to honor the inventions and inventors of 2005. Each year a panel of judges, including University of Maryland personnel and industry experts, selects one winner from groups of finalists in each of three categories: information science, life science and physical science. The winners are chosen based on the creativity, novelty and potential benefit to society of each of the inventions.

Two of this year's winners won in categories beyond their departmental appointments. The winning inventors of the life science technology have departmental appointments in the A. James Clark School of Engineering; the winning technology in the physical science category includes inventors from the College of Chemical & Life Sciences and the A. James Clark School of Engineering. This is a shining example of the multidisciplinary science and research being conducted at the University of Maryland.

Also announced at the reception was the Award for Entrepreneurship, which honors a technology that has received significant interest from venture capitalists. The award is sponsored by the Maryland Technology Development Corporation (TEDCO) and was presented to NetImmune, Inc., a Maryland start-up company established with technology developed by University of Maryland inventors Mehdi Khandani and Mark Shayman.

## **Interviews with OTC Invention of the Year Award Winners**

### *Life Science Invention of the Year*

Department of Chemical and Biomolecular Engineering Assistant Professor John P. Fisher and his team of students won the Life Science Invention of the Year for “Novel Degradable Biomaterials.”

“Essentially, we developed a degradable biomaterial, termed EHD, that can be implanted into the body,” Fisher said. “The biomaterial, when exposed to a water environment such as the body, will slowly degrade away without harming the surrounding tissue. EHD would be used mostly to transplant a cell population into a host tissue or organ.”

Jennifer Moreau, a master’s student who worked on the winning project, said the biomaterial can be used for tissue engineering applications. “We are exploring the use of the biomaterial in various forms for tissue engineering applications, including the repair of cleft palates, bone injuries and hernia repair,” she said.

As of July 1, Fisher is making a leap to the Fischell Department of Bioengineering. Moreau graduated in May with her master’s from the chemical engineering department. Sachiko Kaihara, another graduate student on the project, has since returned to Japan.

Parth Modi, another member of the team, is a senior at the University studying biological resources engineering. Modi will graduate next spring, and in the meantime is working “on the hydrogel form of the invention.” Modi plans to go to medical school after graduation.

Next up for Fisher in his research: “developing EHD based materials for the regeneration of bone, cartilage and muscle tissue.” Fisher’s Web site is: <http://www.ench.umd.edu/~jpfisher>.

### *Physical Science Invention of the Year*

Bryan W. Eichhorn, a professor in chemistry and biochemistry and Distinguished Scholar-Teacher Award Recipient, was the lead inventor for the 2005 Physical Science Invention of the Year: “Heteroaggregate Nanoparticles for Heterogeneous Catalysis.” His team also included a chemistry and biochemistry graduate student from China, Shenghu Zhou, and mechanical engineering associate professor Gregory S. Jackson.

Jackson, who has been at the University for nine years, said he has “worked on catalysis and fuel processing for fuel cells since my days at a small company, Precision Combustion, before coming to [Maryland] for an academic position.”

The next step for this particular research, Jackson said, is possible tests with the team’s fuel cell partner, Ballard Power Systems.

Zhou, who is in China waiting for a visa to return to his studies at Maryland, said the next step of his research is finishing experiments on reaction conditions. After being at the University for more than three years, Zhou said he plans to graduate in December and wants to either accept a postdoctoral position or a research position in industry.

### *Information Science Invention of the Year*

Maria I. Klapa, adjunct assistant professor of chemical & biomolecular engineering, and graduate research assistant Harin Kanani received the Information Science Invention of the Year Award for “Data Normalization Strategy for Metabolomic Profiling Analysis.”

Klapa, originally from Greece, joined the faculty in August 2002 as an assistant professor and has been an adjunct assistant professor since August 2005, leading the metabolic engineering and systems biology laboratory.

“Metabolomics is the most recent high-throughput technique of the post-genomic systems biology era monitoring cellular function at the metabolic level,” Klapa said. “Metabolomics is expected to become the main analytical platform in biotech and pharma within the next three years, revolutionizing research in diagnostics, personalized medicine, metabolic engineering, drug discovery, nutrition and toxicology.”

The winning invention provides “for the first time ever, a data correction and normalization methodology that can decrease the quantification error of Gas Chromatography-Mass Spectrometry (GC-MS) metabolomics by at least an order of magnitude for some metabolites,” Klapa said.

Kanani, originally from India, has been at the University for four years working towards his Ph.D., engaged in an NSF-sponsored project aiming at the integrated metabolomic and transcriptomic analysis of the plant primary metabolism. Their winning invention was also a runner-up in the University’s \$50K Business Plan Competition conducted by the Maryland Technology Enterprise Institute (MTECH).

## **150 Years of Research at UMCP**

For the last year, the University of Maryland College Park has been celebrating its sesquicentennial (150th) anniversary. On March 6, 1856, the Maryland General Assembly chartered the Maryland Agricultural College. The first students studied agriculture and engineering starting in October 1859.

The Maryland Agricultural College grew into the Maryland State College, and finally, the University of Maryland. Today, as the flagship of the state’s 13-campus university system, Maryland counts 2,874 faculty members who teach 25,000 undergraduate students and nearly 10,000 graduate students. The university is now one of the nation’s top 20 public research universities and an economic catalyst for the state.

The Office of Technology Commercialization anchored its 19th Annual Invention of the Year Awards around this 150-year celebration and produced a set of posters depicting the evolution of research through the University's rich history. The information is available on OTC's Web site for download, <http://www.otc.umd.edu/newsevents/2005ioyphotos.html>. More information about the University's 150-year celebration activities, which are still in full swing, is available at <http://www.150years.umd.edu>.

### **JHUAPL Names Inventions of the Year**

A device that will allow an amputee to control a prosthetic device with his brain, a mask that can detect an infectious disease before it spreads, a system that can predict the occurrence of dust storms, and a next-generation micro-sensor that can help satellites perform multiple measurements were announced as the Johns Hopkins University Applied Physics Laboratory's Inventions of the Year. The annual awards event, held on the APL campus in Laurel, Md., showcased technologies submitted in 2005 that were developed by APL staff members.

Top inventions were selected by an independent panel of 25 representatives from industry and patent law, based on their benefit to society, improvement over existing technology, and commercial potential. APL Director of Technology Transfer Wayne Swann and Steve Fritz of the Maryland Technology Development Corporation (TEDCO) presented plaques and cash awards to teams in the categories of Physical Sciences, Information Science and Innovative Contributions to Space.

### **UMB Hosts Middle Atlantic Regional Center of Excellence for Biodefense and Emerging Infectious Disease Research (MARCE) Consortium**

UMB hosted the annual spring meeting of the MARCE Consortium in June, which featured a full day of scientific presentations before the illustrious External Scientific Advisory Board (ESAB) made up of representatives from Sanofi Pasteur, Merck-Pediatric Affairs, MedImmune, Vaxinnate and the Food & Drug Administration.

Significant progress was reported to ESAB on vaccines for tularemia by UMB and the University of Virginia; for smallpox by University of Pennsylvania; for anthrax by UMB; for Nipah and Hendra viruses by Uniformed Services University of the Health Sciences; and on a rapid detection methodology for pathogens by Johns Hopkins and Ibis Biosciences.

The funding received by National Institute for Allergies & Infectious Diseases for the MARCE projects has enabled valuable collaborations, spawned valuable intellectual property, and supported critical basic and translational research of these and other projects, many of which are now poised for further investigation in primates. To find out more about MARCE, see <http://marce.vbi.vt.edu>.

### **UMB's New Deals Face New Challenges**

UMB is laying the groundwork for an economic engine to complement its ivory tower. This new engine is derived from UMB's rapidly growing number of collaborations with members of the corporate world. As these collaborations mature, UMB is seeing two major outcomes: (1) expansion in the sheer number of commercial deals and (2) increasing complexity of corporate deals.

UMB entered into 16 license agreements during fiscal year 2006 - the largest number of new licenses for UMB in any single year to date. But with success comes new challenges - as UMB's Technology Commercialization Group (TEC-COM) found that each new license was more complex than its predecessor.

Two significant issues were consistently raised in these licensing deals - issues which, until now, were generally reserved for deals between industry partners. Specifically, licensees requested terms that included: a) imposing restrictions on UMB's ability to receive sponsored research from other for-profit entities, and b) sublicense survival of any termination of the parent license without UMB's approval.

Industry-sponsored research conducted at UMB should provide a "direct benefit" for UMB and its research mission. Restricting such research would be a threat to UMB's academic environment. Given the significant impact such restrictions would have on the research mission at UMB, the TEC-COM group determined that no concessions should be made regarding these proposed restrictions.

With respect to the sublicensing issue, the TEC-COM group decided to be more creative so that UMB might realize the potential benefits associated with sublicenses. Specifically, TEC-COM structured license agreements to accommodate sublicense survival subject to certain financial and other qualifications. These qualifications, which must be met before a sublicense agreement is executed, are intended to provide evidence that a sublicensee is able to successfully commercialize the technology. The same qualifications must also be met in those instances where, upon termination of the primary license agreement, a sublicensee requests a direct license to the technology.

TEC-COM believes flexibility and creativity in licensing deals is important provided UMB's mission is not compromised. This level of creativity also ensures effective management of UMB's relationships with industry for successful technology transfer and commercialization. More information on UMB's commercialization activities can be found at [www.ord.umaryland.edu](http://www.ord.umaryland.edu).

### **Working Group Bangs Head on 'Dashboard' ... with positive results**

The Board of Regent's Working Group on Technology Commercialization is addressing an issue that has confounded universities and other institutions for years. Namely, how does one accurately measure success in technology transfer and commercialization? To that end, the working group appointed a subcommittee to develop metrics, or a "dashboard," for tracking the University System's success in technology commercialization. The subcommittee is comprised of Jim Poulos, Executive Director of UMCP's Office of Technology Commercialization; Mike Rollor, Assistant Vice President of Technology Commercialization at UMB; Stephen Auvil, Director of the Office of Technology Development at UMBC; and Dean Drake,

Associate Vice President in the Office of Research & Development at UMBI.

“It’s not as simple as you might think,” Drake said. “The Association for University Technology Managers (AUTM) has been collecting and summarizing information from technology transfer offices for some time. Despite the wealth of available data, you still have to come to terms with what you consider to be successful technology transfer. The definition of success depends heavily upon your institution’s goals and mission.”

Poulos said the AUTM data has its “shortcomings.”

“For better or worse, the AUTM data is the only game in town if you want to compare your institution’s success to its peers,” Poulos said. “Our subcommittee entertained several new ideas for developing metrics but, at the end of the day, we had to be able to compare to the AUTM data. Otherwise, there’s no frame of reference for success against other institutions.”

So the subcommittee members rolled up their sleeves and dug into the AUTM data.

“It didn’t take long for us to realize that the best approach is to derive new metrics from the basic AUTM data,” Auvil said. “We derived measures for our investment in technology commercialization and for our efficiency in converting that investment into licenses. Cumulative patent expenditures provide a nice measure of our investment in the patenting process over time. Cumulative recovery of patent expenses through licensing activity illustrates our efficiency in turning investment into potential future revenue.”

Rollor added, “Our new metrics show that, collectively, USM tech transfer offices are constrained by limited funds for filing patent applications. Despite this limitation, we are performing as well as many of our peer institutions in terms of recovering expenses through license agreements.”

The Regents’ working group met in early June to review the subcommittee’s recommendations for the new “dashboard.” And based on the outcome of that meeting, Rollor was quick to point out “the job is not yet finished.”

“The working group was receptive to our initial recommendations regarding metrics for basic technology transfer efforts – specifically, patenting and licensing activities,” Rollor said. “However, they also challenged us to develop new metrics for the impact our offices have on the broader mission of the University System of Maryland. In other words, can we measure our contribution to expanding the research base of the USM, to the improvement of human health and to economic growth within the state and at a regional level?”

Regent R. Michael Gill said he expects the subcommittee is “up to the task.”

“These directors collectively have the institutional knowledge to explain their offices’ impact on the System. It’s just a matter of sorting out the data available to quantitatively measure that impact. I have no doubt that when all is said and done we will have a clearer picture of the impact of tech transfer and intellectual property development on our University System.”

### **Governor Keynotes UMBI’s 20th Anniversary Gala**

At a gala dinner June 3, Maryland Gov. Robert L. Ehrlich, Jr., praised the University of Maryland Biotechnology Institute as a highway “for the biotechnology industry in Maryland connecting amazing research with the economic development priorities of the state.” The event celebrated the 20th Anniversary of UMBI’s founding.

“Maryland is proud of UMBI,” Ehrlich said.

In introducing Ehrlich, Human Genome Sciences Vice President Jerry Parrott called Ehrlich “a friend of the biotechnology industry.”

Former UMBI President Rita Colwell, Ph.D., a distinguished professor at the University of Maryland, was named president emeritus of UMBI by University System of Maryland Board of Regents Chairman David Nevins. USM Chancellor William E. Kirwan joined in presenting the designation. Colwell, after serving as the first UMBI president, went on to become President of the National Science Foundation.

Cetas Corporation founder Ron Cape, Ph.D., received a *Biotechnology Founders Award* presented by Jim Burns, President of EntreMed, Inc., in Rockville, and UMBI President Jennie C. Hunter-Cevera, Ph.D.

“Few know that Ron Cape co-founded the first US biotechnology enterprise,” Lehman Brothers, Inc., Vice Chairman Frederick Frank said in comments read by Burns. “Cape’s Cetas followed Genentech with the second IPO in the industry in the early 1980s. Cetas’ successful offering raised \$122 million for the Company, truly a Herculean achievement for an early-stage research enterprise at that time.”

Claire M. Fraser-Liggett, Ph.D., president of Rockville’s The Institute for Genomic Research (TIGR), was honored with a first-ever *Presidents Award* for advancing the research and business of biotechnology and for her service on UMBI’s Board of Visitors. Fraser-Liggett’s award was presented by UMBI Board Chairman William M. Gust of Anthem Capital Management in Baltimore.

Founder and president of Dynamac Corporation Diana MacArthur was honored with a *Biotechnology Industry Award* presented by MdBio Foundation President C. Robert Eaton and retired biotechnology executive J. Stark Thompson.

U.S. Sen. Barbara Mikulski was presented a *Biotechnology Advocacy Award* for her support of the industry. In presenting the award, Maryland Secretary of Business and Economic Development Aris Melissaratos said, "Mikulski championed the Blue Crab Restoration Project at UMBI's Center of Marine Biotechnology beginning five years ago. Now that 200,000 juvenile blue crabs have been released in the Bay, Mikulski's foresight and passion for the Bay, the watermen and our environment is paying off in tangible ways."

The family of former Maryland Delegate Howard "Pete" Rawlings (D-Baltimore) accepted an award in his memory. Delegate Rawlings was an early champion of UMBI and the biotechnology industry in Baltimore from his powerful position as Chairman of the Maryland House Appropriations Committee.

The gala raised more than \$127,000 for UMBI research. Major sponsors include Human Genome Sciences, Dynamac Corporation, Fisher Scientific, Maryland Technology Development Corporation (TEDCO) and MdBio.

With research centers in Baltimore, Rockville, and College Park, the University of Maryland Biotechnology Institute is the newest of 13 institutions forming the University System of Maryland. UMBI has 85 ladder-ranked faculty members and a 2006 budget of \$60 million. For more information visit [www.umbi.umd.edu](http://www.umbi.umd.edu).

---

## NEWS & NOTES

### UMCP Launches New Research Digest

The Impact Research Newsletter is a new publication containing exciting research news and happenings at the University of Maryland. The current issue is now available for download at <http://www.umresearch.umd.edu/impact/index.html>.



---

## CALENDAR

- |                 |   |
|-----------------|---|
| July 12         | <b>Dingman Center; Speech by Daniel K. Hudak, Assistant Academic Director UMUC</b><br>11 a.m.-12 p.m.: <a href="http://www.rhsmith.umd.edu/dingman/events.html">http://www.rhsmith.umd.edu/dingman/events.html</a>  |
| July 14         | <b>TEDCO Funding Briefing</b><br>2-3:30 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=72">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=72</a><br><b>TEDCO Funding Briefing - Silver Spring Innovation Center</b><br>2-3:30 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=74">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=74</a>  |
| July 14-15      | <b>A Tale of Two Cities - Realizing Your Entrepreneurial Dreams</b><br>8 a.m.-5 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=98">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=98</a>   |
| July 19         | <b>Building Your Dreams Through Entrepreneurship</b><br>9:30 a.m.-1 p.m.; Largo, MD: <a href="http://www.pgcedc.com/">http://www.pgcedc.com/</a>  |
| July 28         | <b>TEDCO Funding Briefing - Aberdeen Proving Ground - HEAT Center</b><br>2-3:30 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=73">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=73</a><br><b>TEDCO Funding Briefing - PG County Economic Development Corp - Largo</b><br>2-3:30 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=75">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=75</a>  |
| August 1        | <b>Entrepreneur Invitational Golf Tournament</b><br>P.B. Dye Golf Club; Ijamsville, Md.: <a href="http://www.entrepreneurinvitational.com/">http://www.entrepreneurinvitational.com/</a>  |
| August 11       | <b>TEDCO Funding Briefing</b><br>2-3:30 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=76">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=76</a><br><b>TEDCO Funding Briefing - techcenter@UMBC</b><br>2-3:30 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=77">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=77</a><br><b>TEDCO Funding Briefing - Southern Maryland Higher Education Center</b><br>2-3:30 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=78">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=78</a> |
| August 15       | <b>Tech Connect Summer Festival</b><br>2-6 p.m.; Gaithersburg, Md.: <a href="http://www.mdhitech.org/Calendar/html/542.html">http://www.mdhitech.org/Calendar/html/542.html</a>   |
| September 8     | <b>TEDCO Funding Briefing</b><br>2-3:30 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=79">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=79</a><br><b>TEDCO Funding Briefing - Chesapeake Innovation Center</b><br>2-3:30 p.m.: <a href="http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=82">http://www.marylandtedco.org/calendarofevents/detail.cfm?eventID=82</a>   |
| September 10-14 | <b>Licensing Executive Society Annual Meeting</b><br>New York Marriott Marquis: <a href="http://www.usa-canada.les.org/meetings/2006annual/">http://www.usa-canada.les.org/meetings/2006annual/</a>   |
| September 21    | <b>UMBI Shady Grove Grand Opening</b><br><a href="http://www.umbi.umd.edu/nande/events.html">http://www.umbi.umd.edu/nande/events.html</a>  |
| October 23-24   | <b>NSF Regional Grants Conference</b><br><a href="http://www.umresearch.umd.edu/nsfconf/index.html">http://www.umresearch.umd.edu/nsfconf/index.html</a>  |

---

## CONTACTS

James A. Poulos, III  
Office of Technology Commercialization  
University of Maryland College Park  
6200 Baltimore Avenue, Suite 300  
Riverdale, MD 20737  
(301) 403-2711  
jpoulos@umd.edu

Stephen P. Auvil  
Office of Technology Development  
University of Maryland Baltimore County  
1000 Hilltop Circle  
Baltimore, MD 21250  
(410) 455-3481  
auvil@umbc.edu

Michael Rollor  
Technology Commercialization Group  
University of Maryland Baltimore  
515 West Lombard Street, 4th Floor  
Baltimore, MD 21201  
(410) 706-1875  
mrollor@umaryland.edu

R. Keith Baker  
Licensing & Technology Development  
The Johns Hopkins University  
100 N. Charles Street, 5th Floor  
Baltimore, MD 21201  
(410) 516-8300  
kbaker@jhmi.edu

Claude Nash  
Office of Research & Development  
University of Maryland Biotechnology Institute  
Columbus Center  
701 East Pratt Street, Suite 200  
Baltimore, MD 21202  
(410) 385-6328  
nash@umbi.umd.edu

Wayne Swann  
Office of Technology Transfer  
Applied Physics Laboratory  
The Johns Hopkins University  
11100 Johns Hopkins Road  
Laurel, MD 20723  
(443) 778-5000  
wayne.swann@jhuapl.edu

James E. Lewis, Sr.  
Morgan State University  
Office of Sponsored Programs  
Montebello Complex, Room 302D  
Argonne Drive at McCallum Drive  
Baltimore, MD 21251  
(443) 885-3988  
jlewis@moac.morgan.edu