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Discovery Canada Visits

Another MBC researcher got the “star” treatment this April (See *Inside MBC* Volume 7, Number 5 to find out who was MBC’s first star). Dr. Chris Geddes was filmed and interviewed by Discovery Health Channel in Canada, who spent several hours at the MBC.

After being “miked” and lit up with theatrical lights, Dr. Geddes was “interviewed” by Jay Ingram, the host of the news program. However, appearances can be deceiving. Mr. Ingram and Dr. Geddes

have never met! The questions that Dr. Geddes answered were originally read to him in Baltimore by the sound technician. They then filmed him answering the questions. Later they filmed Mr. Ingram asking the questions. Then with a little video magic the two pieces of film were spliced

together to make it appear that Mr. Ingram was interviewing Dr. Geddes.

The video was shown both on the air in Canada and on the web site on April 28, 2005 and can still be viewed at <http://www.exn.ca/news/video/exn2005/04/28/exn20050428-contact.aspx>.



Top: The Discovery cameraman sets up lights and camera for a shot.
Bottom: Dr. Geddes has a microphone attached by the sound technician.



Research Ripples

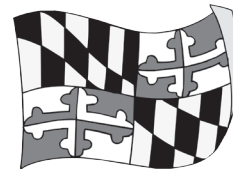
The cover of UMBI’s recently published strategic plan shows the ripple effect of a drop in water. This image is particularly appropriate on several different levels for the impact that MBC and the other centers may have. One example of how this works is what happens after research is reported in a scientific journal. In this article, two examples of the ripple effect are given. The first is Associate Professor Chris Geddes’ work on glucose sensing contact lenses (See the article above) and the second is Associate Professor Les Baillie’s work on producing specific antibodies using transgenic tobacco plants.

Discovery Canada picked up Dr. Geddes’ work from articles reviewing his discoveries (*Nature Materials* 3:76 and *Current Opinion in Biotechnology* 16:100). The review articles were based on several original articles written by Dr. Geddes and his collaborators. Those reviews also generated multiple comments on internet sites which monitor scientific breakthroughs such as www.newscientist.com, www.boingboing.net, www.impactlab.com, or www.newstarget.com.

“Those reviews [of Dr. Geddes’ work] also generated multiple comments on internet sites...”

Legislative Update

UMBI President Dr. Jennie Hunter-Cevera testified before the Senate Subcommittee on Education, Business & Administration on March 4, 2005. She testified at the House of Delegates counterpart in February (*Inside MBC*, Vol. 8, No. 1). This year's testimony has been particularly important in the light of the Board of Regents review of UMBI and its role within the University System of Maryland (*Inside MBC*, Vol. 7, No. 5). Dr. Hunter-Cevera's written testimony can be found on UMBI's web site ((<http://www.umbi.umd.edu/lu/index.htm>)).



UMBI's president was quite inspirational and the testimony should make every member of the UMBI community proud of their role in it. Dr. Hunter-Cevera said: "Through the tireless efforts of our talented scientists, students and administrators, who reach beyond the edge of today's science into tomorrow's vision, UMBI seeks to form lasting partnerships with laboratories around the world, and in so doing, keeps Maryland in the international limelight and on the biotechnology radar screen."

TEDCO Visit

Ideas generated by research that have potential commercial uses are called intellectual property. Moving those ideas from the laboratory to industry is called technology transfer. Academic scientists around the world have become more sensitive to issues surrounding these concepts but still require exposure to the nuts and bolts of the processes involved. The MBC Faculty got a quick course in technology transfer at the March Faculty Meeting when Steven Fritz, Ph.D., from the Maryland Technology Development Corporation (TEDCO) spoke to them. TEDCO was created by the State legislature in 1998 to "facilitate the creation of businesses and foster their growth in all regions of the State through the commercialization of technology."

Dr. Fritz explained the basic steps from research laboratory to actual commercialization. It is the university inventor or faculty member who must do the research and then develop what is known as "proof of concept", which is essentially testing to see whether it is feasible to take the idea from the bench top and move it to a more practical level. After that, it is time to move to an industrial model and away from the university. This may be through licensing to an existing

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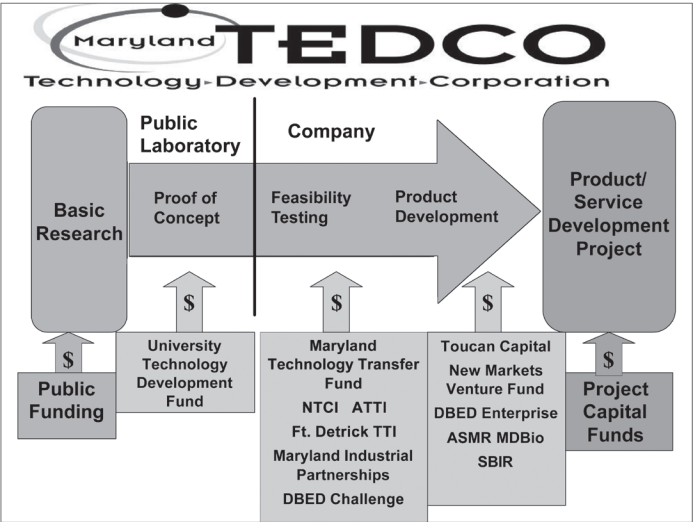
Congratulations!

Meng Meng Xu, daughter of Assistant Professor Xuehong Xu, won the Columbia, MD Festival of the Arts' artwork contest. Her winning poster will be used to advertise the festival. In addition to seeing her work all over Columbia, Meng Meng received a certificate and \$500. She was also highlighted in the Baltimore Sun, Howard County Section on March 27, 2005. Dr. Xu says he is very proud of his daughter.

firm, starting a new company or creating a partnership with an existing firm. The State of Maryland, through TEDCO, supports several of the steps to full commercialization. Many good ideas never become products because the funding is not available at the most critical times of development. Dr. Fritz described the various funding mechanisms available from TEDCO for university technology transfer.

Dr. Joseph Kao, MBC’s Associate Director, has received such support from TEDCO (*Inside MBC*, Vol. 6, No. 2) to test a proof of concept.

As part of UMBI’s mission is to foster economic development through biotechnology, intellectual property considerations and technology transfer are a priority. Dr. Fritz’s presentation was very useful in filling in the gaps between a mission statement and fulfilling it.



Ripples Continued

com among many. Indeed, the internet has become one of the major conduits for secondary reporting of scientific discoveries.

The original report need not be in a scientific journal. Dr. Les Baillie’s work started as a poster at the annual meeting of the American Society for Microbiology which was held in Baltimore on March 20-23, 2005. The work demonstrated that human antibodies against anthrax can be made by a tobacco plant, what the researchers called “plantibodies.” To create the “plantibodies,” Baillie and his colleagues first collected the cells that make antibodies from individuals who had been vaccinated against anthrax. Then genes that encode the antibody itself were inserted into a bacterium that transfers the gene into the plant cells. “The plant makes the antibody for you in a few days,” says Baillie. Antibodies are used in assays or as therapeutic agents.

Most of the above description of Dr. Baillie’s work came from a press release that ASM gave out during the meeting. These press releases, which are also on the Society’s web site (<http://www.asm.org/>), are either used by media representatives at the meeting or picked up later from the web site by additional scientific news sites like www.sciencedaily.com or www.agbiotech.net. These are then picked up by other, sometimes less professional sites, like botanicalgirl.blogspot.com, where a reference to Dr. Baillie’s work can be found.

Information dissemination is increasingly swift but has a major downside. Misinformation is just as swiftly disseminated. Faculty members have to be increasingly vigilant to make sure their work is represented correctly and that they and their institutional affiliations are accurately stated.

“Faculty members have to be increasingly vigilant to make sure their work is represented correctly...”

MBC Happenings

Comings and Goings

Kyleen Graham has joined the MBC as an Administrative Assistant and receptionist. Kyleen is the daughter of **Mary Graham**, MBC's long-time Accounting Associate.

Grants and Contracts

Dr. Ilia Baskakov, NIH, "Reconstitution of Prion Infectivity," 4/1/2005, \$171,703, yr 2 of 2.

Dr. Bruce Vogel, NIH, "The Molecular Genetics of Hemocytin," 4/1/2005, \$249,480, yr 4 of 5.

Publications

Lukomska J, **Gryczynski I**, Malicka J, Makowiec S, **Lakowicz JR**, Gryczynski Z. Two-photon induced fluorescence of Cy5-DNA in buffer solution and on silver island films. *BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS* 328 (1): 78-84 MAR 4 2005

Aslan K, Leonenko Z, **Lakowicz JR**, **Geddes CD**. Fast and slow deposition of silver nanorods on planar surfaces: Application to metal-enhanced fluorescence. *JOURNAL OF PHYSICAL CHEMISTRY B* 109 (8): 3157-3162 MAR 3 2005.

Zhang R, Khoo MSC, Wu YJ, Yang YB, Grueter CE, Ni GM, Price EE, Thiel W, **Guatimosim S**, **Song LS**, Madu EC, Shah AN, Vishnivetskaya TA, Atkinson JB, Gurevich VV, Salama G, **Lederer WJ**, Colbran RJ, Anderson ME. Calmodulin kinase II inhibition protects against structural heart disease. *NATURE MEDICINE* 11 (4): 409-417 APR 2005.

Aslan K, **Lakowicz JR**, **Geddes CD**. Rapid deposition of triangular silver nanoplates on planar surfaces: Application to metal-enhanced fluorescence. *JOURNAL OF PHYSICAL CHEMISTRY B* 109 (13): 6247-6251 APR 7 2005.

Hull AK, Criscuolo CJ, Mett V, Groen H, Steeman W, Westra H, Chapman G, Legutki B, **Baillie L**, Yusibov V. Human-derived, plant-produced monoclonal antibody for the treatment of anthrax. *VACCINE* 23 (17-18): 2082-2086 MAR 18 2005.

Tomson FL, Viswanathan VK, Kanack KJ, Kanteti RP, Straub KV, Menet M, **Kaper JB**, Hecht G. Enteropathogenic *Escherichia coli* EspG disrupts microtubules and in conjunction with Orf3 enhances perturbation of the tight junction barrier. *MOLECULAR MICROBIOLOGY* 56 (2): 447-464 APR 2005.

Breydo L, Bocharova OV, **Baskakov IV**. Semiautomated cell-free conversion of prion protein: Applications for high-throughput screening of potential antiprion drugs. *ANALYTICAL BIOCHEMISTRY* 339 (1): 165-173 APR 1 2005.

Badugu R, **Lakowicz JR**, **Geddes CD**. Enhanced fluorescence cyanide detection at physiologically lethal levels: Reduced ICT-based signal transduction. *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY* 127 (10): 3635-3641 MAR 16 2005.

Tsai P, Weaver J, Cao GL, Pou S, Roman LJ, Starkov AA, **Rosen GM**. L-Arginine regulates neuronal nitric oxide synthase production of superoxide and hydrogen peroxide. *BIOCHEMICAL PHARMACOLOGY* 69 (6): 971-979 MAR 15 2005.

Baillie L, Hibbs S, Tsai P, Cao GL, **Rosen GM**. Role of superoxide in the germination of *Bacillus anthracis* endospores. *FEMS MICROBIOLOGY LETTERS* 245 (1): 33-38 APR 1 2005.

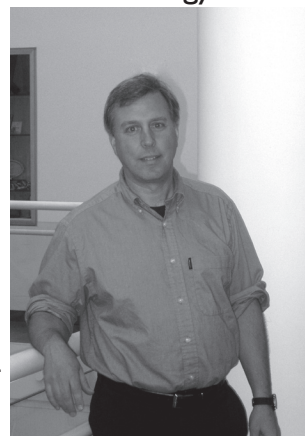
Aslan K, **Lakowicz JR**, **Geddes CD**. Nanogold plasmon resonance-based glucose sensing. 2. Wavelength-ratiometric resonance light scattering. *ANALYTICAL CHEMISTRY* 77 (7): 2007-2014 APR 1 2005.

Zhang J, Malicka J, **Gryczynski I**, **Lakowicz JR**. Surface-enhanced fluorescence of fluorescein-labeled oligonucleotides

Seminars and Symposiums

The 15th Annual Perspectives in Biomedical Science Symposium, hosted by the Molecular and Cell Biology Program was held on March 24, 2005. A number of MBC faculty participate in this well-respected UMB training program. The annual symposium is much anticipated as each year it attracts five well-known scientists to speak. This year's program was no exception, drawing experts in transcription, cancer development and RNA biology.

March also included a seminar by Dr. Glenn Millhauser from the University of California, Santa Cruz. He spoke on "Why we all have the prion protein: Insights into PrP's function as a metalloprotein." Prion protein is the infectious agent for such diseases as Mad Cow Disease in cattle, Scrapies in sheep and Brain Wasting Disease in deer, along with their rare human counterparts. It is



Dr. Millhauser

actually a normal protein that has become misfolded and in that process also infectious. However, the normal function of the protein, which is highly conserved in mammals, has not yet been discovered. Thus, Dr. Millhauser's work is of great interest to prion biologists like MBC's Ilia Baskakov, who hosted the seminar.

capped on silver nanoparticles. *JOURNAL OF PHYSICAL CHEMISTRY B* 109 (16): 7643-7648 APR 28 2005.

Zhang J, Matveeva E, **Gryczynski I**, Leonenko Z, **Lakowicz JR**. Metal-enhanced fluoroimmunoassay on a silver film by vapor deposition. *JOURNAL OF PHYSICAL CHEMISTRY B* 109 (16): 7969-7975 APR 28 2005.

Aslan K, Badugu R, **Lakowicz JR**, **Geddes CD**. Metal-enhanced fluorescence from plastic substrates. *JOURNAL OF FLUORESCENCE* 15 (2): 99-104 MAR 2005.

Badugu R, **Lakowicz JR**, **Geddes CD**. Wavelength-ratiometric near-physiological pH sensors based on 6-aminoquinolinium boronic acid probes. *TALANTA* 66 (3): 569-574 APR 30 2005.

Talks and Travels

Ilia Baskakov, Seminar, Department of Biochemistry and Molecular Biology, University of Maryland, Baltimore, "The First Synthetic Mammalian Prion," March 7, 2005.

W. Jonathan Lederer, Symposium Speaker, Mechanisms for Maintaining Intracellular Na^+ and Ca^{2+} Homeostasis in the Mammalian Heart: Implications for Ischemia and Left Ventricular Dysfunction, " $\text{Na}^+/\text{Ca}^{2+}$ Exchange in Cardiac Muscle," La Jolla, CA, March 29-31, 2005.

W. Jonathan Lederer, Symposium Speaker, Experimental Biology 2005, Division for Systems and Integrative Pharmacology Programming: 20 Years of Calcium Imaging: A Revolution in Cell Physiology to Dye For, "Calcium and Striated Muscle", San Diego, CA, April 2-6, 2005.