# School of Medicine Control of Maryland School of Medicine Control of Maryland School of Medicine Control o



May 2011 Vol.12 No.9

#### DEAN'S MESSAGE: What's On My Mind

hat's on my mind this month is professional development, and a new initiative to help our junior and senior faculty members reach their full potential as physicians and scientists. Recently, I began hosting a monthly breakfast meeting to foster the career development of our junior faculty. All tenure track assistant professors were invited to participate in this pilot program. During the meetings, junior faculty had the opportunity to interact with key School of Medicine leaders, develop collaborative relationships and learn about the resources available to assist them with their aspirations.

The meetings were an opportunity for junior faculty to ask questions, connect with

Just as a good breakfast provides the energy for a productive day, these faculty breakfast meetings will be a catalyst for achieving excellence in all we do.

mentors, and identify potential collaborators in an informal setting. In addition to establishing new research and clinical relationships, junior faculty members received

support and guidance in their research endeavors and in their quest to garner grants and contracts. The breakfast meetings provided a forum for discussing these challenges and for sharing solutions.

The breakfast meetings also gave me an opportunity get to know our junior faculty and better understand the special challenges they face. For young researchers, the new responsibilities and demands on their time can be overwhelming. New faculty members feel the urgency to submit grant proposals, conduct important research, publish their findings and achieve distinction in their field. The physician-scientist must tackle these demands while simultaneously fulfilling their clinical responsibilities.

To build on the success of these monthly breakfast meetings, I am expanding the breakfast program to include all faculty. We will alternate the meetings between junior and senior faculty and focus on themes of interest to each group. These meetings will highlight our multidisciplinary approach to research, education and patient care, with special presentations designed to spark collegial, candid discussions on a wide range of important topics. Faculty members will be invited to sessions that focus on their particular specialty or research interest. We will hear from highly successful senior faculty members and explore innova-

tive research opportunities. These meetings represent an opportunity to tap into our vast expertise, share our knowledge and emulate the very best programs and ideas.

The pilot program increased awareness of the many career development programs available for junior faculty at the School of Medicine. Under the leadership of Assistant Dean Wendy Sanders, MA, the Office of Research Career Development (RCD) offers a wide range of classes and workshops. RCD classes include grant proposal writing, writing a biomedical research paper and interactive sessions on presenting research. Academic Coordinator Stacie Mendoza helps junior faculty members to identify funding sources. The research career development

program has become a mainstay of junior faculty development, reflected by the extraordinarily high level of participation. Total enrollment in RCD classes and workshops now exceeds 2,000 per year. The program in research career development reflects the vision of Executive Vice Dean Bruce Jarrell, MD, who is a tireless advocate for our junior faculty.

I plan to begin the expanded breakfast program in the next academic year, and I have established a website for you to suggest topic ideas for consideration. If we are to attain the vision set forth in our strategic plan and

take a quantum leap forward, we must continue to provide high quality professional development programs. Just as a good breakfast provides the energy for a productive day, these faculty breakfast meetings will be a catalyst for achieving excellence in all we do. I encourage your attendance and look forward to seeing you at a future faculty breakfast.

In the relentless pursuit of excellence, I am Sincerely yours.

L. allest Rece

E. Albert Reece, MD, PhD, MBA Vice President for Medical Affairs, University of Maryland John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine

To suggest a topic for a future faculty breakfast meeting, visit: http://medschool.umaryland.edu/career/breakfast/

To learn more about the Office of Research Career Development, visit: http://medschool.umaryland.edu/career/

#### The President of Bosnia and Herzegovina Visits the University of Maryland to $Build\ Partnerships$

► BY LARRY ROBERTS

BAKIR IZETBEGOVIC, THE PRESIDENT of Bosnia and Herzegovina visited the University of Maryland Medical Center on March 22, to establish a cooperative relationship with the University of Maryland Medical System (UMMS) and the University of Maryland School of Medicine. The Bosnian delegation met with Dean E. Albert Reece, MD, PhD, MBA, and UMMS President and CEO Robert A. Chrencik, as well as other representatives of the School of Medicine and the Maryland National Guard, which has had a long standing partnership with Bosnia and Herzegovina.

President Izetbegovic acknowledged that the Bosnian War was a traumatic experience, but emphasized that it ended more than 15 years ago, and since then the Bosnian economy has recovered. "This is something people don't know about," he said.

The Bosnian delegation included representatives from hospitals in Sarajevo and Tuzla. Each expressed interest in the University of Maryland Shock Trauma Center, the most sophisticated trauma center in the world. As a result of the Bosnian War, their country has considerable expertise in trauma care. Noting a rise in cancers of all types in Bosnia, the delegation also expressed interest in the University of Maryland's advanced oncology programs.

Mr. Chrencik provided a thorough overview of the University's hospital system. Dean Reece was hopeful that the dialogue would lead to a long-term relationship with Bosnia and Herzegovina, similar to relationships already in existence with other countries. "The School of Medicine is Baltimore based, but our reach is global," said Dean Reece. "We already have a presence in 23 countries."

The Maryland delegation included School of Medicine Executive Vice Dean Bruce Jarrell, MD, who invited a special guest—first year medical student Vedrana Hodzic, a native of Bosnia. Hodzick greeted President Izetbegovic in Bosnian.

Hodzic was born in Bosnia, and lived through much of the war during the early 1990's. Thanks to connections in the United States, Hodzic's mother obtained a visa.

Only women and children under the age of seven were allowed to leave, and they managed to make it to the U.S. a day before Hodzic's seventh birthday. She grew up in Maryland, and attended the University of Maryland College Park before coming to the School of Medicine.

The formal meeting concluded with the signing of a cooperative agreement to pursue partnerships and exchanges that would be mutually beneficial. Following a tour of the Shock Trauma Center, the delegation met with Governor Martin O'Malley in advance of a two-day business summit at the University of Baltimore.



The President of Bosnia and Herzegovina, Bakir Izetbegovic (fourth from left), and members of his delegation, stand atop Shock Trauma during a tour given by UMMC Senior Vice President, External and Community Relations John Spearman (far left), UMMS President and CEO Bob Chrencik (second from right), and Executive Vice Dean Bruce Jarrell, MD (far right).

## Dr. Alan Shuldiner Named Associate Dean and Director for Personalized Medicine

Alan R. Shuldiner, MD, has been named associate dean and director of the new Program in Personalized Medicine. Dr. Shuldiner is the John L. Whitehurst Professor of Medicine, and head of the Division of Endocrinology, Diabetes and Nutrition. The new Program in Personalized Medicine will be integrated with the Program in Genetics and Genomic Medicine, which Dr. Shuldiner now directs.

"I know Dr. Shuldiner will do an outstanding job in assuming this additional leadership responsibility," said Dean E. Albert Reece, MD, PhD, MBA. "I am confident that with his talent, leadership and passion to bring personalized medicine to patients, Dr. Shuldiner will lead the University of Maryland Program in Personalized Medicine to a position of national and international prominence."

Personalized medicine is widely regarded as the future of medicine, in which a patient's genomic and other information will be used to tailor care to each patient's individual needs. Dr. Shuldiner will develop and lead this new program, involving innovative educational, basic and clinical research and patient care initiatives. The new program is a major new joint commitment of the School of

Medicine and the University of Maryland Medical Center.

"Recent advances in our knowledge of how genomes vary from person to person has provided great insight into the causes of many common diseases such as diabetes, cardiovascular disease, cancer, and psychiatric illness," said Dr. Shuldiner. "Knowledge of an individual's genetic make up will allow physicians to predict disease risk, and to tailor medication, diet and lifestyle to more effectively prevent or treat disease and minimize adverse treatment effects. In short, personalized medicine enables physicians to prescribe the



Knowledge of an individual's genetic make up

will allow physicians to predict disease risk,

more effectively prevent or treat disease and

minimize adverse treatment effects.

right intervention for the right patient at the right time to prevent or treat disease."

He continued: "I envision a time in the not-to-distant future when all patients at the University of Maryland will have their full genome sequenced. "This massive amount of genetic information will be embedded in the electronic medical record and used to individualize health care over the patient's lifetime. The University of Maryland will be a leader in this emerging field that promises to revolutionize health care while cutting down on health care costs."

Dr. Shuldiner received his M.D. degree from Harvard Medical School in 1984. He was a resident in internal medicine at Columbia University Medical Center in New York City and a medical and senior fellow in endocrinol-

ogy and metabolism in the Diabetes Branch at the National Institutes of Health (NIH). In 1997, Dr. Shuldiner was recruited to the University of Maryland School of Medicine. His major research interests are in the molecular basis and genetics of type-2 diabetes, obesity, cardiovascular disease and pharmacogenomics—the study of how genes affect responses to medications. He has published

more than 200 peer-reviewed articles.

In 2009, Dr. Shuldiner was among the first to identify a common genetic variant in a gene that predicts response to the commonly prescribed medication clopidogrel (Plavix). This knowledge is not being applied to better treat patients undergoing coronary artery stent procedures to prevent heart attacks. Dr. Shuldiner and associates in his lab have more than \$40 million in total current extramural funding for research, including support from the NIH, the American Diabetes Association and the American Diabetes Foundation.



Jacques Ravel, PhD



avid Rasko PhD

BI MAKEN KUBINSUN

### Institute for Genome Sciences Publish Paper on 2001 Anthrax Attacks

RESEARCHERS at the Institute for Genome Sciences (IGS) have published the first scientific paper based on their investigation into the anthrax attacks of 2001. The case was groundbreaking in its use of genomics and microbiology in a criminal investigation. More than 20 people contracted anthrax from *Bacillus anthracis* spores mailed through the U.S. Postal Service in 2001, and five people died as a result of the attacks. Research scientists from the Institute for Genome Sciences played a key role in the investigation known as Amerithrax. The work is a pioneering advance in the new field known as microbial forensics, a science that would likely play a key role in the investigations of any future bioterror attacks. The paper was published online in the *Proceedings of the National Academy of Sciences*.

The paper describes how the IGS faculty and collaborators from the FBI found that the anthrax samples used in all the attacks were genetically identical. Later, another group of scientists—also including IGS faculty—would trace the anthrax spore used in the letters back to a flask of *Bacillus anthracis* and

several samples taken from that flask. The primary custodian of the flask was Bruce Ivins, PhD, a scientist at a U.S. Army biodefense laboratory in Maryland. With this key investigative lead from the scientific team, the FBI used additional police work to conclude that Dr. Ivins was the perpetrator of the mail attacks. Dr. Ivins killed himself before the case could go to court. The FBI has since closed the Amerithrax investigation.

"This paper and the Amerithrax investigation really marked the beginning of a new approach for the science we call forensic genomics," said senior author Jacques Ravel, PhD, associate professor, Department of Microbiology & Immunology, and associate director for Genomics, IGS. "The science was a critical component of the Amerithrax case. Without genomics, it would have been extremely difficult to narrow the pool of potential suspects."

"Before Amerithrax, no one appreciated the precision, accuracy and reliability that this type of genomics can offer as a microbial forensic technique," said first author David Rasko, PhD, assistant professor, Department of Microbiology & Immunology, and a research scientist at IGS. "To this day, this is still the only case in which microbiology and genomics have been used in a criminal investigation. Microbial forensics would be a critical investigative tool if another bioterror attack were ever to strike the U.S."

The newly published paper describes the work that the FBI assigned to Institute for Genome Sciences faculty members including Drs. Ravel and Rasko as well as the institute's director, Claire Fraser-Liggett, PhD, professor, Departments of Medicine and Microbiology & Immunology, from 2001 through 2003. The scientists worked with a team of collaborators at the FBI, the U.S. Army Medical Research Institute of Infectious Diseases, Northern Arizona University and the University of Maryland, College Park.

The scientific investigation began by asking if the anthrax used in all the letters had come from the same source. The spores in each letter had been prepared differently, making them look different from one another to the naked eye. Military scientists at the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) at Fort Detrick, Md., took spores from each letter and grew them in the laboratory. Looking with an expert eye at the samples they had grown, the scientists could see that a small number of the bacterial colonies looked very different from the ordinary appearance of most of the anthrax bacteria. The scientists isolated those unusual spores and grew them alone. As the spores replicated, the scientists saw that the differences or variations persisted, indicating that they were not some kind of aberration.

"Samples from the letters had the same combination of variants in the spores," said Dr. Ravel. "That was one of the first things that began to link the letters."

Next, IGS researchers were charged with sequencing the genome of those populations of variant bacterial colonies—just those spores that looked unusual. They wanted to find out if there were genetic differences that were making the colonies of bacteria look unique. There were, and those same genetic differences were found the spore preparations from all the letters, conclusively linking them to the same source. There were four types of these variations found in the anthrax that came in the letters. Scientists eventually discovered that the anthrax used in the attacks was the product of at least two different production batches of anthrax that had been mixed together, each with its own unique distribution of variants. Mixing the batches created a unique combination of genetic signatures that later helped them track the spore preparations back to the source flask in the lab of Dr. Ivins.

"This data we uncovered acted like a genetic fingerprint," said Dr. Rasko. "It could link microbial evidence to its potential source."

"This science was one technique used to generate leads as part of a larger FBI investigation," said Dr. Ravel. "Science tells us the spore came from that particular flask, but it's important to note that the science never pointed to Bruce Ivins. It was police work that did that."

As one of the first and most high-profile investigations of its kind, Amerithrax has helped to shape the emerging field of microbial forensics. Since the case, Dr. Ravel, Dr. Rasko and their colleagues at the Institute for Genome Sciences have been leaders in the scientific community's effort to expand the field by contributing to the development of standards and guidelines for future investigations.

"We were figuring this out as we went along," said Dr. Rasko. "For example, to produce evidence that will hold up in criminal court, you need a very high standard of accuracy with well validated methodologies. It is a much higher standard than our own academic research. Your results need to be completely foolproof and stand in a court of law. Those are the kinds of standards and guidelines we're developing now, so that microbial forensic scientists can be prepared in the event of another biological attack."

#### SOM Physician Selected by President Obama

#### TO SERVE ON NATIONAL CANCER ADVISORY BOARD

Kevin J. Cullen, MD, professor, Department of Medicine, and director, University of Maryland Marlene and Stewart Greenebaum Cancer Center, has been selected by President Barack Obama to serve on the National Cancer Advisory Board, an advisory committee to the U.S. National Cancer Institute (NCI). The appointment will be for six years.

DR. CULLEN, A HEAD AND NECK CANCER SPECIALIST, is one of five people the president appointed to the cancer advisory board. "These dedicated individuals bring a wealth of experience and talent to their new roles and I am proud to have them serve in this Administration. I look forward to working with them in the months and years to come," President Obama said.

The National Cancer Advisory Board advises the secretary of the U.S. Department of Health and Human Services and the NCI director on issues that relate to the activities of the institute, including reviewing and recommending support grants and cooperative agreements. It consists of 18

members appointed by the president from leading health and scientific disciplines as well as other fields such as economics, public policy, health policy, economics, management and the environment.

Dr. Cullen has been the director of the University of Maryland Marlene and Stewart Greenebaum Cancer Center since January 2004. Under his leadership, the cancer center has significantly expanded its clinical and research programs and was named an NCI-designated cancer center in 2008. The Greenebaum Cancer Center is part of the University of Maryland Medical Center and University of Maryland School of Medicine.

"Dr. Cullen is an outstanding clinician and physician-scientist with an impressive record as the leader of our cancer center. He will bring a wide range of knowledge to this important leadership position on the National Cancer Advisory Board, and I heartily congratulate him on this much-deserved honor," said Dean E. Albert Reece, MD, PhD, MBA.

Before coming to the University of Maryland, Dr. Cullen was affiliated with the Lombardi Cancer Center at Georgetown University in Washington, DC, for 15 years and served as interim director for two years. He was a professor of medicine, oncology and otolaryngology at the Georgetown University School of Medicine.

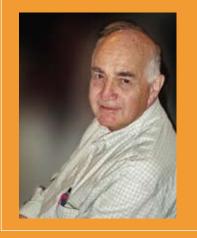
Dr. Cullen serves on the national board of the American Cancer Society and on the external advisory boards of several NCI-designated cancer centers. He is the author of numerous journal publications and has served on review panels for the NCI, the Veterans Administration Research Program and other organizations. He has received the NCI's Special Achievement Award, the American Cancer Society South Atlantic Division Service Award and the Ulman Cancer Fund for Young Adults Hope Award. He has been named a Top Doctor by *Baltimore* and *Washingtonian* magazines.

A graduate of Dartmouth College and Harvard Medical School, Dr. Cullen completed his internship and residency at Beth Israel Hospital in Boston and received additional training at the NCI.



ത്ത

memorial service will be held to honor the life of Hugo Gonzalez-Serratos, MD, MSc, PhD, on Monday, May 16, 2011, from 2:00 to 4:00 p.m. in Westminster Hall. Dr. Gonzalez was a professor for over 32 years, first in the former Department of Biophysics until 1994 and then in the Department of Physiology. His major research interests were muscle, excitation-contraction coupling and magnesium regulation as well as the early and late mechanisms that cause fatigue development in skeletal muscle. He passed away on April 1, 2011, following postsurgery complications at Sinai Hospital.



► BY KAREN ROBINSON

New, Advanced Hybrid Pediatric Cath Suite Collaboration

A new, advanced hybrid pediatric cardiac catheterization suite is helping School of Medicine pediatric cardiac surgeons and cardiologists to work effectively together to treat and diagnose congenital heart conditions.

Congenital heart defects are the most common birth defects, affecting 1 percent of infants born each year in the United States. For some children with the most complex forms of congenital heart disease, the standard care environments are technically inadequate to meet the patients' needs. This past October, the Department of Pediatrics opened the most advanced hybrid pediatric cardiac catheterization suite to address these unmet needs. The suite is the first combined pediatric cardiac catheterization laboratory and surgical suite of its type in the mid-Atlantic region.

Cardiac catheterization is a technique in which a doctor inserts a small plastic tube, or catheter, into the heart to

evaluate a child for congenital heart defects. Cardiac catheterization can also be used to implant devices to correct problems with the heart without performing open heart surgery. In the past, a child would go to the cardiac catheterization laboratory for a diagnostic or interventional catheterization procedure, and they might then be scheduled for a surgical procedure. These surgical procedures were typically done several days to weeks following the initial catheterization procedure.

However, this new innovative hybrid suite is designed to make treating patients more efficient and effective according to Geoffrey L. Rosenthal, MD, PhD, professor, Department of Pediatrics.

The unique care environment allows the multidisciplinary team of care providers to perform diagnostic work, interventional catheterization techniques, and surgical interventions simultaneously and collaboratively on the



(L-R) Marcelo Cardarelli, MD, Diana and Brian Roberts, Peter Gaskin, MD, and Geoffrey Rosenthal, MD, PhD (far right), pose with other University of Maryland health care staff inside the new hybrid suite.

same day. It also enables the team to spare children and babies, the most vulnerable of patients, from undergoing multiple procedures requiring general anesthesia. The suite's cutting edge imaging equipment also means that patients don't need to be moved to other areas of the hospital if the doctor needs a CT scan, for example.

"The good news is for the patient," said Marcelo G. Cardarelli, MD, assistant professor, Departments of Surgery and Pediatrics. "When everything is done at the same time, their overall length of stay in the hospital is shorter. Families can go home sooner. This is the future—a hybrid suite in which doctors can combine sciences to solve a problem."

"This really enables me to perform my job to my greatest ability," said Peter Gaskin, MD, assistant professor, Department of Pediatrics. "I have all the state-of-the-art equipment I could possibly need at my fingertips."

### Med Student Meets President of Her Home Country



(L-R) Dean E. Albert Reece, MD, PhD, MBA, Vedrana Hodzic, MSI, the President of Bosnia and Herzegovina Bakir Izetbegovic, and Executive Vice Dean Bruce E. Jarrell, MD.

On March 22, 2011, first-year medical student Vedrana Hodzic joined a delegation from the University of Maryland School of Medicine in welcoming Bakir Izetbegovic, the president of Bosnia and Herzegovina, to campus. President Izetbegovic was here to discuss establishing a cooperative relationship with the University of Maryland Medical System and the School of Medicine. Vedrana was selected to attend the event because of her own ties to Bosnia and Herzegovina.

"I was born in Sarajevo, Bosnia, where I lived until March 1995," Vedrana explained. "I came to America just before I turned seven, after living in a besieged Sarajevo for three years. In the Fall of

1994 I started first grade there and continued in that grade after arriving in Maryland, [even though] I did not speak a word of English when I came to America."

As she developed her English skills, Vedrana also developed a love of science, eventually attending a specialized science and technology high school. After high school, she attended the University of Maryland College Park, where she earned her undergraduate degree in physiology/neurobiology. "The courses I took at College Park deepened my curiosity about the complexity of the human body and my desire to learn and apply this understanding towards helping people and doing good in the world."

It wasn't difficult for her to remain loyal to Maryland when choosing a medical school. "At College Park, I heard nothing but good things about the University of Maryland School of Medicine," Vedrana recalled. "And as a product of Maryland's public school system, and it being my in-state school, it was an obvious choice. "

What is not so obvious, at least not yet, is the specialty in which Vedrana would like to practice. "I think it is too early to know right now," she said. "I am currently open to everything and enjoy what I am learning, so I am still discovering in what I am most interested. I think third-year rotations and the experiences I will have then will help me decide. None of us know what will happen in the future. Life can change a great deal very suddenly."

For instance, one day you might find yourself meeting the president of your homeland. "It was very exciting," she said of the encounter. "Meeting the president of any country is an honor and a privilege. It was a great experience."



Pixieland Topiary Epcot-Disney World Flower and Garden Show 2011
Photo by: Yimei Wu, manager, Faculty Affairs & Special Projects, Department of Epidemiology & Public Health

### **SOMnews**

University of Maryland School of Medicine May 2011 Vol.12 No.9

► E. Albert Reece, MD, PhD, MBA, Vice President for Medical Affairs, University of Maryland, and

Dean, University of Maryland School of Medicine ► Larry Roberts, Executive Editor

► Heather Graham Phelps, Managing Editor ► Tom Jemski and Mark Teske, Head Shot Photos

► Brushwood Graphics Design Group, Design ► Submitting information to SOMnews:

Please email your submission six weeks prior to the month you wish to see your submission included to Heather Graham Phelps, Public Affairs Manager, at heraham@som.umaryland edu. ► Printed using environmentally-responsible low VOC inks.



Maryland School of Medicine on Facebook, http://www.facebook.com/ Maryland.Medicine or follow us on Twitter @ UMmedschool.

