SOMnews
University of Maryland School of Medicine
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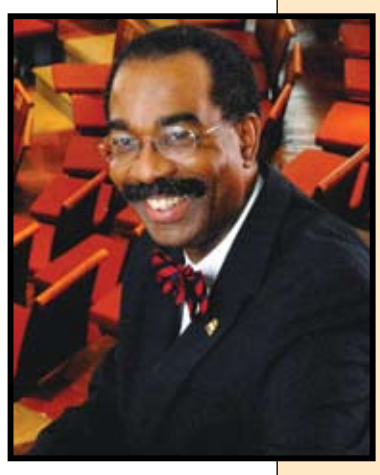
DEAN'S MESSAGE: What's On My Mind



What's on my mind this month is our new Office of Postdoctoral Scholars (OPS). The Graduate Program in Life Sciences and the Office of Research Career Development have collaborated to create the University of Maryland Office of Postdoctoral Scholars. This office will fill a critical niche by providing the approximately 300 postdoctoral scholars in the School of Medicine as well as those in the Schools of Dentistry, Nursing and Pharmacy with a centralized resource for both professional and personal development. The goal of the office is to welcome new postdoctoral trainees into a community of scientists, provide them with the skills needed to maximize their research potential during this unique phase of their career and to ensure that they develop the necessary attributes for scientific independence.

The world of biomedical research requires an extensive period of training prior to full independence. A multitude of skills must be mastered, including scientific and technical expertise, exceptional manuscript and grant writing abilities, laboratory and time management skills, personnel training and leadership. Postdoctoral fellows are in the penultimate stage of training and are distinct members of the University of Maryland, Baltimore (UMB) and School of Medicine communities, being neither faculty, staff nor student. By definition the postdoctoral period is transitory, and successful progression to the next stage requires acquisition of all the necessary skills.

The School of Medicine adheres to the Association of American Medical Colleges Compact between Postdoctoral Appointees and Their Mentors (www/aamc.org/research/postdoccompact) that recognizes the responsibility of the university and the mentor and mentee. The establishment of the Office of Postdoctoral Scholars is an important step in fulfilling the responsibility of all parties and assuring that an environment most conducive to postdoctoral training is established and maintained.

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The Office of Postdoctoral Scholars will be administered by co-directors Tom McHugh and Derek Haseltine, both of whom have extensive experience in research training and career development. Under their direction, the OPS will provide general and personalized services. A Post-Doc Net Website (postdoc.umaryland.edu) devoted to issues specific to postdoctoral scholars as well as the entire UMB research community will provide timely information on current events, funding opportunities, core facilities, job openings and alerts from the National Postdoctoral Association. Each postdoctoral scholar is invited to create their own homepage to be housed on the site, and use of social networking media such as FaceBook and Twitter will be developed. Training workshops on grant writing, laboratory management and presentation and communication skills will be enhanced and expanded. A Postdoctoral Advisory Board will include wide representation of faculty and postdoctoral fellows and will assist in identifying the dominant issues and ongoing concerns of University of Maryland Postdoctoral Scholars.

Postdoctoral scholars are an important part of the School of Medicine community. I very much look forward to more fully welcoming them into the School of Medicine family.

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

E. Albert Reece, MD, PhD, MBA
Acting President, University of Maryland, Baltimore
John Z. and Akiko K. Bowers Distinguished Professor and Dean, School of Medicine

"New Waves in Medicine" was the theme of this year's Fund for Medicine Gala, held March 27, 2010, at the Baltimore Marriott Waterfront Hotel. More than 700 guests attended the gala, which raised more than $376,000 for the School of Medicine. The funds will provide critical funding for both translational research and clinical initiatives.

John and Tee Kelly were the hosts for this year's gala. John is a member of the School of Medicine's Board of Visitors.

Dean Reece and wife Sharon (center) with Dr. Robert Fischell and wife Susan (left), who were hosts of last year's gala, as well as Dr. Stephen Bartlett and his wife June (right).

Former state senator Frank Kelly (second from right) spoke with (left to right) School of Medicine faculty Guesly Delva, MD, Andrew Pollak, MD, and Tom Scalea, MD, about the humanitarian work they've been doing in Haiti since January's earthquake.

Dr. Jordan Warnick and his wife Hazel enjoyed dancing the night away to the sounds of Mood Swings, featuring Dr. Jack Vaeth, Class of '92.

Human Respiratory Form of Chlamydia Originally Transmitted from Koalas

Photo credit: Robert Friedler, Lone Pine Koala Sanctuary

A University of Maryland Institute for Genome Sciences researcher has identified an unusual link between humans and koala bears—Chlamydia. At some point in the past, koala bears infected humans with the common respiratory disease Chlamydia pneumoniae, according to a new study co-authored by Garry Myers, PhD, assistant professor, Department of Microbiology and Immunology.

Not the same as the sexually-transmitted type of Chlamydia, Chlamydia pneumoniae is a common bacteria that causes widespread respiratory illness in humans. The new study, published in the *Journal of Bacteriology*, is a collaboration between Dr. Myers and Peter Timms, PhD, a microbiologist and professor, Queensland University of Technology in Australia.

> "Chlamydia pneumoniae is a major human pathogen that causes acute respiratory disease and has been linked to a variety of chronic diseases."

Garry Myers, PhD

"Chlamydia pneumoniae is a major human pathogen that causes acute respiratory disease and has been linked to a variety of chronic diseases," said Dr. Myers.

Dr. Myers and his colleagues sequenced the genome of a sample of Chlamydia pneumoniae that had been collected from an Australian koala. In the genomic information that resulted, the researchers found evidence that the human version of the infection had come from an animal source. Infections transmitted from animals to humans are known as zoonotic infections, and are serious threats to human health. Recent examples include H1N1, which at some point passed from swine to humans.

The study found that, like H1N1, Chlamydia pneumoniae originally infected humans zoonotically. The researchers found evidence that Chlamydia pneumoniae originated from amphibians such as frogs. Over time, it infected other animals and eventually transmitted to humans from koalas. The animal form of the bacteria then adapted genetically to transmit between humans, rather than simply from animals to people.

Considering the H1N1 pandemic that originated in swine last year, the findings reveal that Chlamydia pneumoniae is yet another example of a disease that originated in animals and now has caused public health concerns in humans. The research demonstrates the serious risk to human health that animal infections can pose, according to Dr. Myers.

"This pathogen was originally derived from an animal source, but no longer requires an animal host for transmission," said Dr. Myers. Zoonotic infections that can genetically adapt to transmit to humans and then further adapt to transmit between humans are considered to be a particular threat to human health, he added. "This represents another example of how zoonotic pathogens represent a significant public health burden in human populations," he said.

The study indicates a need for developing better diagnostic tests and vaccines and educating people on how to take appropriate precautions to prevent the spread of zoonotic infections, the researchers said.

Cancer Researchers Study Role of "Microtentacles" on Tumor Cells in Spread of Cancer

"Microtentacles," or extensions of the plasma membrane of breast cancer cells, appear to play a key role in how cancers spread to distant locations in the body, according to a new study published in the journal *Oncogene* and authored by a School of Medicine scientist. Targeting these microtentacles might prove to be a new way to prevent or slow the growth of these secondary cancers, said the study's senior author, Stuart S. Martin, PhD, associate professor, Department of Physiology.

Dr. Martin and his colleagues found that a protein called "tau" promotes the formation of these microtentacles on breast tumor cells which break away from primary cancers and circulate in the bloodstream. While twisted remnants of tau protein have been seen in the brain tissue of patients with Alzheimer's disease, this is the first report that tau could play a role in tumor metastasis by changing the shape of cancer cells. These tau-induced microtentacles can help the cells reattach to the walls of small blood vessels to create new pockets of cancer.

"Our study demonstrates that tau promotes the creation of microtentacles in breast tumor cells. These microtentacles increase the ability of circulating breast tumor cells to reattach in the small capillaries of the lung, where they can survive until they can seed new cancers," said Dr. Martin, a research scientist at the University of Maryland Marlene and Stewart Greenebaum Cancer Center.

Healthy cells are programmed to die—a process called apoptosis—after they break off of epithelial layers that cover internal organs in the body. They also can be crushed if they are forced through small capillaries. However, cancer cells are able to survive for weeks, months and even years in the body. Once they are trapped in small blood vessels, the cells can squeeze through microscopic gaps in the vessels' lining and spread to organs such as the brain, lung and liver.

"We hope that through our research, we will be able to identify drugs that will target the growth of these microtentacles and help to stop the spread of the original cancer. Drugs that reduce tau expression may hold potential to inhibit tumor metastasis," Dr. Martin said.

He noted that metastatic cancers are the leading cause of death in people with cancer, but methods used to treat primary tumors have limited success in treating metastatic cancer. In breast cancer, metastases can develop years after primary tumors are first discovered.

Tau is present in a subset of chemotherapy-resistant breast cancers and is also associated with poor prognosis, but Dr. Martin added, "While tau expression has been studied in breast cancers for contributing to chemotherapy resistance, the protein's role in tumor cells circulating in the bloodstream hasn't been investigated. And that's the focus of our research."

> "We hope that through our research, we will be able to identify drugs that will target the growth of these microtentacles and help to stop the spread of the original cancer."

Stuart S. Martin, PhD

In this recent study, the University of Maryland researchers analyzed breast tumor cells from 102 patients and found that 52 percent had tau in their metastatic tumors and 26 percent (27 patients) showed a significant increase in tau as their cancer progressed. Twenty-two of these patients even had tau in metastatic tumors despite having none in their primary tumors.

Dr. Martin said more studies are needed to determine if tau is a clear predictor of metastasis. Given the complex nature of tumors, there most likely are other factors involved in causing cancers to spread, he said.

The University of Maryland, Baltimore, has filed patents on the microtentacle discoveries of Dr. Martin's lab group and is looking to partner with biopharmaceutical companies on new drug development. The researchers identified these cell extensions while they were studying the effects of two drugs that prevent cell division, or mitosis. Most chemotherapy drugs target cell division, aiming to slow or stop tumor growth.

Dr. Martin said his team found that a popular chemotherapy drug, taxol, actually causes cancer cell microtentacles to grow longer and allows tumor cells to reattach faster, which may have important treatment implications for breast cancer patients. Their studies are continuing.

"We think more research is needed into how chemotherapies that slow down cell division affect metastasis. The timing of giving these drugs can be particularly important. If you treat people with taxol before surgery to shrink the primary tumor, levels of circulating tumor cells go up 1,000 to 10,000 fold, potentially increasing metastasis," he added.

Vatican Funds Partnership Between School of Medicine and Italian Scientists to Study Intestinal Stem Cells


Alessio Fasano, MD

The Vatican is funding a new partnership between School of Medicine faculty members and Italian scientists to explore the therapeutic potential of intestinal stem cells. The International Intestinal Stem Cell Consortium is being coordinated by Alessio Fasano, MD, professor, Departments of Pediatrics, Medicine and Physiology, director, Mucosal Biology Research Center and director, Center for Celiac Research. The consortium also will include researchers from the Istituto Superiore di Sanita, the Italian equivalent to the National Institutes of Health, the University of Salerno in Dr. Fasano's hometown of Salerno, Italy, and the Bambin Gesú in Rome, the largest children's hospital in Europe. It also will include scientists from the University of Maryland School of Medicine's Center for Stem Cell Biology and Regenerative Medicine.

The Vatican is providing funding to the consortium for collaborative research on the stem cells found in the intestines, a promising field of stem cell science that has been largely neglected until now, according to Dr. Fasano. "This new coalition brings together scientists from both sides of the Atlantic to ensure we are exploring every avenue of stem cell research in order to bring real treatments as quickly as possible to patients suffering from deadly conditions such as Alzheimer's disease and multiple sclerosis," said Dr. Fasano. "All the partners have put a tremendous amount of energy and enthusiasm into putting this consortium together, and we are thankful to the Vatican for making this research possible."

> "This new coalition brings together scientists from both sides of the Atlantic to ensure we are exploring every avenue of stem cell research in order to bring real treatments as quickly as possible to patients . . ."

The ideal type of stem cells for medical use, says Dr. Fasano, has unlimited pluripotency—that is, the stem cells are virtual blank slates that can differentiate or become any kind of cell, from heart cells to blood cells to skin cells to intestinal cells and so on. Embryonic stem cells and the newer induced pluripotent stem (iPS) cells are prized for their pluripotency, which makes them promising for use in treating anything from heart disease to cancers, and much more. Adult stem cells are not as pluripotent, but harvesting them from a patient's skin or muscle or bone marrow or intestine is an important alternative, according to Dr. Fasano. "We just want to take advantage of what nature is already doing in the intestines," he said.

Intestinal stem cells are highly active stem cells that support the shedding and replacing of all the cells in the intestinal lining once every four to seven days. They are multipotent, already programmed to generate all the various kinds of cells—such as mucus cells and epithelial cells—necessary to line the 20-foot length of the intestine, a highly complex organ. Importantly, intestinal stem cells can be easily harvested using endoscopy, a simple procedure used regularly for intestinal biopsies. Because these stem cells are harvested with relative ease, patients could have their own intestinal cells harvested and used to treat bowel disease. If patients receive treatments using their own stem cells, there could be less risk of rejection or a reaction to the transplant, Dr. Fasano explained.

"These cells are very promising, at least on paper," he said. "To study this, though, takes multidisciplinary teams of experts in stem cell research, experts in gastrointestinal medicine, experts in molecular biology and bioengineering. You need all the pieces of the puzzle and you need to communicate freely, sharing your ideas and findings. That is what we're doing with this consortium."

The group will work to answer two critical questions about intestinal stem cells. One mystery is how the cells can be kept alive and made to replicate in the laboratory. Another key question to be explored is how, once the cells are healthy and flourishing, scientists can induce them to transform into different types of cells. If the laboratory research goes well, the consortium could move on to clinical research, testing intestinal stem cell treatments in patients.

"I am confident that this partnership will facilitate new discoveries about intestinal stem cells that also will lead us to a better understanding of all types of stem cells, their function and potential to treat disease," said Curt Civin, MD, professor of pediatrics, director of the Center for Stem Cell Biology and Regenerative Medicine and associate dean for Research. "The University of Maryland Center for Stem Cell Biology and Regenerative Medicine is dedicated to pursuing every promising avenue of stem cell science using multidisciplinary research partnerships between our faculty and the construction of core facilities to support all types of stem cell research. We hope this new funding will help us reach our goals."

New Immediate Care Clinic Will Serve Faculty, Staff and Students

The faculty of the Department of Family and Community Medicine is poised to open a new immediate care clinic that will give faculty, staff and students on the West Baltimore university and hospital campus a more convenient way to access non-emergency health care services.

UMaryland Immediate Care is scheduled to open this month at 408 West Lombard Street, a space just around the corner from the Family and Community Medicine offices at 29 South Paca Street.

The clinic will be open five days a week, from 7 a.m. to 5 p.m., for only faculty, staff and students of the University of Maryland, Baltimore, the University of Maryland Medical System and University Physicians Inc.

Immediate Care has a twofold mission. One of its goals is to provide campus employees and students with quick, convenient care with short waiting times. At the same time, the clinic aims to keep referrals among School of Medicine faculty rather than with outside specialists.


Kevin S. Ferentz, MD

"Increasingly, patients are looking to convenient care clinics to fulfill their everyday health needs," said Kevin S. Ferentz, MD, associate professor, Department of Family and Community Medicine and Department of Epidemiology and Preventive Medicine. "A walk-in clinic near a patient's workplace can be more convenient for busy schedules than an appointment with a primary care provider. We want to make non-emergency, non-chronic care more convenient for those of us on campus. We also hope the clinic will help keep campus employees, students and faculty within the University of Maryland family for their specialty care. It's a solution that benefits all of us," says Dr. Ferentz, who will serve as medical director of the new initiative.

The clinic is intended to treat non-emergency and non-chronic issues—headaches, fevers, colds, ear infections, nausea, heart palpitations. If a problem requires specialty care, the doctors and nurse practitioner will refer patients to specialists at the School of Medicine. For chronic conditions, patients will be sent to their primary care physician for ongoing care. Students, however, will be able to receive primary care at the clinic—the Department of Family and Community Medicine already provides those services to students, and will do so at the new clinic as well.

The specialists on campus have agreed with the Department of Family and Community Medicine that patients referred by the new clinic will get top priority for appointments. That means patients the clinic refers will have much shorter waits for scheduling appointments with specialists on campus, rather than the weeks or even months they might have to wait for outside doctors.

Bill Elliott, chief operating officer at University Physicians Inc. (UPI) says, "We've made a commitment here at UPI to get appointments with specialists scheduled in an accelerated time frame to keep people here on campus for their medical care."

Getting appointments with specialists quickly "is a real value-added service," says Kathy Maddock, senior administrator of the Department of Family and Community Medicine. "We'll also be implementing electronic medical records for students, faculty and staff to connect their care between the clinic, their specialists and the hospital. We've designed the clinic as a portal for their care."

The new facility, with eight exam rooms, will open at 7 a.m. with patients' work schedules in mind. "We've set the hours so that people can be seen before they come into work," says Ms. Maddock. "We're going to try to get them in and out as quickly as possible so they do not have to wait."

The clinic is physically connected to the Department of Family and Community Medicine's Paca Street offices, so doctors will be able to move smoothly between the two facilities. "We hope that by making it more convenient for people to seek care, we'll be able to take care of small health issues and refer patients to specialists before these little things become larger health issues," says Mr. Elliott. "This will be good for all of us."

SOM WELCOMES NEW MEDICINE CHAIR

Frank Calia, MD, MACP, vice dean for Clinical Affairs (right) and former chair of medicine, helped welcome Stephen N. Davis, MBBS, as the Theodore E. Woodward Endowed Professor and Chairman of the Department of Medicine, at a reception in his honor on April 1, 2010.

{Student Profile}

Third-Year Student Matthew Loftus is a Man on a Mission

Working with children in Africa and around the globe has helped Matthew realize that family medicine is the career path for him.

Living in service to others has long been a way of life for Matthew Loftus, a third-year student who has already embarked on several mission trips to help people in need around the world. "I decided to go to medical school because I wanted to work with people and do missions work overseas," says Matthew. At first he thought his calling was as a research chemist, "but I wasn't very good at research!" Matthew admits. After reading about the obstetrical needs of women in Africa, "I realized that my science knowledge could be used to that end," he says.

This summer, Matthew and his wife Maggie, a nursing student who hopes to eventually become a certified nurse-midwife, are heading to Soddo Christian Hospital in Ethiopia, a trip arranged with the Institute for International Medicine. "It is a nonprofit that connects students and health professionals with clinical opportunities overseas and health courses on international/tropical medicine," Matthew explains. "They have connections with dozens of sites all over the world, and our interactions with them so far have been very helpful and professional. They found a site right away that was perfect for us, and it satisfies my AHEC requirement!"

Ethopia's warm weather will be a nice change for Matthew and Maggie, whose planned December 19, 2009, wedding was thrown a curve when a blizzard dumped 21 inches of snow on Maryland that day. Still, the show went on, just not quite as planned. "We ended up getting married in my parents' living room!" says Matthew. "We then had the big church wedding the next day. It was a great time, and we got to have the fun spread out over two days."

During his time in Soddo, Matthew will be working with patients of all ages, which should go a long way in preparing him for the specialty he has already chosen—family medicine. "I love talking with patients, developing long-term relationships, and investing a lot of work over a long period of time," says Matthew. "I think it ties together well with my other career goals, like community health and church planting, as I want to help focus on the whole person in health care, helping people becoming healthier physically, emotionally, socially and spiritually."

Matthew and Maggie didn't let a blizzard keep them from becoming husband and wife.

Faith is of great importance to Matthew in both his life and his work. "There's a strong emphasis in my church & community on *shalom*—the Hebrew word for "peace"—and how peace is more than just the cessation of hostilities, but also the healing of all aspects of the community and the restoration of all things that are broken," he says. "I think that family medicine provides a very strong support for that framework and a worldview that seeks to bring about *shalom* and not just treat a disease."

Being comfortable with even the smallest patients should not be a challenge for Matthew, who already has quite a bit of experience caring for young ones. "I am the oldest of 15 children—there are six boys and nine girls, ranging in age from me at 23 to the youngest at eight months old," he says. Matthew concedes that such a crowded household was sometimes complete chaos, "but we all love each other very, very much and feel like growing up in such a big family was a huge blessing," he says. "I learned a lot about responsibility, forgiveness and love from all of my family members, and I wouldn't change a thing about how I grew up."

New School of Medicine Website Design Now Online

An all-new design for the School of Medicine Website is now live online at www.medschool.umaryland.edu. The updated design provides more screen space for school news and better highlights upcoming events including workshops and seminars. The new homepage also features student profiles, a campus photo tour and several new videos, including New Waves in Medicine, which premiered at the 2010 Fund for Medicine Gala. At the top of every page, you will find a link to a new interactive campus map and a search box that enables you to search the faculty profiles, the campus phone directory or the entire site.

"The new design is wider to accommodate more content and the larger screen resolutions used on new monitors," says Larry Roberts, director of Web Communications. "If you can't see the whole page, then the screen resolution on your computer should be changed to 1024 X 768 for optimal viewing."

Now that the upper level of the Website is complete, the redesign of official School of Medicine sites will be phased-in over several months. A Web team representative will contact you when it is time to begin the upgrade of your site. As part of the redesign initiative, the school is adopting new content management software. Training in the use of this software will take place after your site is upgraded to the new design.

{PHOTO OF THE MONTH}

Photo by Mark Teske

Cemetery entrance, Galisteo, New Mexico

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2010 Convocation and Commencement Ceremonies

School of Medicine Convocation

When: Friday, May 21, 2010, at 11:00 am (Reception immediately following the ceremony.)
Where: Baltimore Hilton, 401 W. Pratt Street
Keynote Speaker: Pediatrician Neal Baer, MD, executive producer of the NBC television series *Law & Order: Special Victims Unit*
Parking: Some street and on site parking are available. Parking at the Hilton will be EXTREMELY limited. Please encourage guests to park in campus parking facilities which are within walking distance of the Hilton or you can use Lot C at Camden Yards. The cost will be $8 and a shuttle will run in the morning to the Hilton and in the afternoon from the Arena back to Lot C.
Tickets: Tickets are required and can be obtained from Dawn Roberts in the Office of Student Affairs at droberts@som.umaryland.edu.

University of Maryland, Baltimore Commencement

When: Friday, May 21, 2010, from 3:00 to 5:00 pm
Where: 1st Mariner Arena, Baltimore and Howard Streets
Keynote Speaker: Congressman Elijah E. Cummings
Parking: All around the area, but it will be a busy time, so leave plenty of time to find parking.
Tickets: None are necessary. The ceremony is open to all.