

Medical Students and Their Families Experience a Memorable Day



Medical student Lesley Wojcik with her family at the first annual Medical Family Day.

One hundred fifty first year medical students took an important step in their journey toward becoming doctors at the University of Maryland School of Medicine's Ninth Annual White Coat Ceremony.

During the ceremony, each student was given a traditional white coat—long the symbol of the medical clinician and scientist. The presentation of coats by School of Medicine faculty recognizes the students' entry into the profession of medicine and welcomes them as junior colleagues.

In front of their families and friends, the students accepted the coats and vowed to always maintain professional attitudes and behaviors

in work and relationships with classmates, teachers, patients, and the community.

Dean Donald Wilson implored the students to always remember the eight pillars of professionalism—integrity, communication, caring, commitment, diversity, life-long learning, happiness and humility. "The White Coat Ceremony symbolizes the beginning of your very privileged journey into the profession of medicine. As future physicians and scientists, you will be granted extraordinary powers by your patients

and society. Therefore, you must be constantly on guard to protect, defend and advocate for your patients."

Several School of Medicine faculty members outfitted their own children, who are first year students, with white coats: Bartley Griffith, MD, professor of surgery, to his son Cullen, Michael Hise, MD, associate professor of medicine, presented his daughter Kathleen with her coat, and Reuben Mezrich, MD, professor and chair of the Department of Diagnostic Radiology & Nuclear Medicine, gave a coat to his son Jonathan.

Earlier in the day, the first annual Medical Family Day took place with Dean Wilson welcoming more than 250 family members of the first year medical students. These families spent the morning gaining insight into what their students will experience as a first year medical student and beyond.

They also enjoyed presentations about cutting-edge education and research in diagnostic radiology and heart replacement and participated in an interactive panel discussion between School of Medicine faculty members and medical families, led by Donna Parker, MD, associate dean for student affairs. Families then met other students and faculty members over lunch in the MSTF Atrium. 🏛️



Michael Hise, MD, associate professor of medicine, presents his daughter Kathleen with her white coat.

{STUDENT PROFILE}

Biochemical Warfare Studies Keep Student Working Overtime—Voluntarily

In this age of increased terrorism threats, researchers study ways to defend against the toxic effects of chemical weapons on Americans. David Yeung, a student assigned to the US Army Medical Research Institute of Chemical Defense (USAMRICD) at Aberdeen Proving Ground in Maryland is one of those researchers. Yeung's work, administered by the Oak Ridge Institute for Science and Education (ORISE), is sponsored by the US Army Medical Research and Materiel Command, a pre- and postgraduate fellowship program. Yeung is also a PhD student in the School of Medicine's Pharmacology and Experimental Therapeutics Program, under the guise of program chairs David Burt, PhD, professor, and William Randall, PhD, associate professor.

"The mission of USAMRICD is to develop medical countermeasures to chemical weapons," Yeung says. "I'm currently participating full time conducting dissertation research on the topic of defense against organophosphorus nerve agents. The overall goal of my dissertation research is to develop a potential prophylactic to defend or prevent against intoxication by these chemical warfare agents."

But this isn't your typical internship. ORISE internships at USAMRICD typically range from three months to three years. Yeung, however, has served his internship since 2002 and plans to continue working until he receives his PhD in the fall of 2006.

"There simply is no typical day performing research in the laboratory," Yeung says. "The research I do on any given day is almost entirely dependent on experimental results generated from the day before. This is perhaps the single best reason why I so enjoy being a scientist; it is impossible to predict what each day will bring."

Stemming from his research, Yeung authored two peer-reviewed open literature articles along the same subject line of his thesis, "Analysis of the Enzymatic Activity and Active Site Structure of Wild-type and Mutant Variants of Human Serum Paraoxonase (HuPON1)." Human paraoxonase 1 is a calcium-dependent enzyme that hydrolyzes esters and exhibits anti-atherogenic properties. Of great interest to Yeung is the capacity of HuPON1 to also hydrolyze organophosphorus compounds including pesticides and nerve agents. Yeung's work defining the amino acids used by PON1 to mediate destruction of nerve agents has advanced the field, bringing scientists closer to having a novel, highly effective way to protect both soldiers and civilians from nerve agent poisoning.

Yeung says, "I have gained valuable experience as a researcher, but I also now know the career path I wish to pursue. After graduation, I hope to start a post-doctoral position to establish myself as a capable senior researcher." 🏛️



David Yeung

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Core Facilities and Shared Resources Handbook Available


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The Office for Research and Graduate Studies has created the Handbook of Core Facilities and Shared Resources to make it easier for faculty and staff to learn about the 33 core facilities and shared resources available for their use. The 50-page handbook provides information on the scientific objectives, services and pricing offered by each core facility and shared resource. In addition to important background information, the handbook includes a quick reference guide with location and contact information.

Core facilities and shared resources provide access to state-of-the-art research equipment, instrumentation and biological products that might otherwise be too expensive or too specialized for a single lab to purchase or maintain. For a fee, faculty researchers can obtain lab support and expertise on an as-needed basis. Rather than spending money on equipment that may be prohibitively expensive or needed only occasionally, researchers can turn to a core facility for help. Core facilities and shared resources save time, money and staff resources.

“Upgrading and promoting core facilities is an important part of an overall strategic plan to maintain and improve the competitiveness of the research capabilities of our faculty,” says David J. Weber, PhD, professor of biochemistry & molecular biology and director of the Nuclear Magnetic Resonance Facility, one of the school’s newest core facilities. “Core facilities demonstrate our ability to conduct state-of-the-art research and keep pace with technological change, which helps us to attract grant funding.”

Dr. Weber leads a subcommittee of the Research Affairs Advisory Committee dedicated to improving core facilities and shared resources. The Handbook of Core Facilities and Shared Resources was created at the subcommittee’s recommendation. “We are constantly evaluating the needs of researchers to keep pace with technological change and ensure that faculty members have the resources they need to address the specific biological questions that arise in their research,” Dr. Weber says.


The Handbook of Core Facilities and Shared Resources can be downloaded from the School of Medicine website at <http://medschool.umaryland.edu/core/>. The website also includes links to each core facility website. 

“Upgrading and promoting core facilities is an important part of an overall strategic plan to maintain and improve the competitiveness of the research capabilities of our faculty...”

New Office of Professional Development

Nancy Ryan Lowitt, MD, EdM, previously associate dean for graduate and continuing medical education, recently was given a revised role as the School of Medicine’s new associate dean for professional development. In this capacity, she will lead the newly named Office of Professional Development, which will continue to encompass graduate and continuing medical education while also taking on responsibility for faculty and professional development.

In addition to its role in coordinating continuing medical education for faculty and physicians, the Office of Professional Development will now also sponsor programs to help faculty develop their skills as effective teachers and scholars, and to document their achievements for promotion. The office will maintain its roles in overseeing accreditation processes for continuing medical education at the School of Medicine, and for collaborative oversight of graduate medical education with the University of Maryland Medical System.

In the few months that Dr. Lowitt has overseen professional development, she and her staff have implemented a full schedule of faculty development programs, including a redesigned new faculty orientation and a new day-long research survival skills program. They also have implemented and distributed a teaching portfolio curriculum to all new faculty and are piloting distance education technologies in faculty development curricula. Look for programs for minority and women physicians and for clinician educators in the coming months. 



Nancy Lowitt, MD, EdM




Dean Donald E. Wilson, Claudia Baquet, MD, associate dean for policy & planning and professor, Department of Medicine, and David Satcher, MD, PhD, interim president of Morehouse School of Medicine and 16th Surgeon General of the United States at the November 15 symposium.

Former U.S. Surgeon General Addressed Health Disparities at SOM Public Health Institute

Former United States Surgeon General, David Satcher, MD, PhD, was the featured speaker at a University of Maryland School of Medicine Public Health Institute in November that was held to discuss local and national issues related to health disparities. The forum brought together leading researchers, public health practitioners, policy makers, community advocates, and industry and health professionals to discuss strategies for improving public health. The institute also addressed health disparities and fostering trust in clinical and community-based research.

At the forum, Dr. Satcher and other speakers provided a global outlook on how health disparities affect the nation, the role of research in addressing disparities and how health disparities among underserved populations are being addressed in Maryland and throughout the nation.

The Public Health Institute was sponsored by the University of Maryland School of Medicine’s Center for Health Disparities, whose mission is to eliminate disparities in health through quality research, outreach and training. 



Yvonne Maddox, PhD, deputy director, National Institute of Child Health and Human Development spoke at the Public Health Institute.



Save the Date!

The 2006 annual University of Maryland School of Medicine State of the School of Medicine Address

is scheduled for
Wednesday, January 25, 2006
3:00 pm

in the MSTF Auditorium.
A reception will be held
in the MSTF Atrium
immediately following the presentation.
All are welcome; please plan to attend.

UMB’s Martin Luther King, Jr. celebration
“Everyone Can Serve”

will be held on
Tuesday, January 17, 2006
starting at 12:00 pm
in the MSTF Auditorium.

An informal lunch will be served in the MSTF Atrium following the keynote speech from Congressman Elijah E. Cummings, who currently represents Maryland’s 7th District and is an advocate for UMB in Washington, DC. According to his Website, “Congressman Cummings has dedicated his life of service to uplifting and empowering the people he is sworn to represent.” He has modeled his public service after a Martin Luther King, Jr. quote: “Everyone can be great because everyone can serve.”

All are welcome; please join the celebration! Free tickets are available in the Dean’s Office or by calling the Office of Special Events at 6-8035.





QUICK STUDIES

► **Jan Cerny, PhD**, professor and chair, Department of Microbiology & Immunology, was awarded a one-year \$280,000 Maryland Industrial Partnerships award entitled “Study & Enhancement of Natural Immunity to Disease” and a one-year \$119,970 non-competitive renewal grant from the National Institutes of Health National Institute of Allergy and Infectious Diseases for his work entitled “Immunity and Infection.” ► **Hugo Gonzalez-Serratos, MD, PhD**, professor, Department of Physiology, has received a one-year \$10,000 Soy Health Research Program grant for his work entitled “Effect of Soybean Oil on the Complete Healing and Recovery of Large Membrane Injuries.” ► **Bruce K. Krueger, PhD**, professor, Department of Physiology, has received a one-year \$392,000 supplement funding grant from the US Army Medical Research and Materiel Command for his work entitled “Molecular Basis of BDNF-Mediated Neuroprotection and Cognitive Function.” ► **Margaret M. McCarthy, PhD**, professor, Department of Physiology, was awarded a five-year \$1,665,625 grant from the National Institutes of Health National Institute of Neurological Disorders and Stroke for her work entitled “Estradiol and Hippocampal Development.”

Artificial Sweeteners Mimic Table Sugar in Interactions with Taste Receptors



Steven Munger, PhD

In the highly competitive world of food science, the search for a non-caloric sweetener that actually tastes like natural sugar has led to the development of several name brand products. What hasn't been clear in the past is why these artificial sweeteners never seem to attain the same quality of taste as sugar.

Researchers at the University of Maryland School of Medicine have for the first time identified how sugars and artificial sweeteners such as sucralose (Splenda®) interact with taste receptors on the tongue—a development that could lead to the creation of synthetic sweeteners with a taste more like that of natural sugar. The November 8, 2005, issue of the journal *Current Biology* featured the research.

“A major goal of the food science industry has been to create a sweetener that tastes like sugar but isn't high in calories,” says Steven Munger, PhD, an assistant professor of anatomy & neurobiology and principal investigator on the project. “To do this, it would be invaluable to know how the natural substance interacts with taste receptors so that synthetic products can be created to mimic that interaction.”

Dr. Munger and colleagues identified the parts of two taste receptors on the tongue that seem to be critical for the detection of sucralose and natural sugars. Those receptors are called T1R2 and T1R3. “Previous research told us that the synthetic sweetener aspartame only interacted with T1R2, while another, cyclamate, only interacts with T1R3,” says Dr. Munger. “We found that sugars and sucralose interact with both T1R2 and T1R3, but at different levels of intensity. This suggests that sucralose interacts with the receptors in a similar way to natural sugars, and that sugars and sucralose may need to interact with both receptors to elicit a sweet taste.”

Understanding the molecular mechanisms of the sweet taste perception has been difficult to measure in the past. It is hard to obtain enough pure receptors for research because so few exist on the tongue and in the nose. “We developed a strategy that allowed us to use bacteria to make lots of the portion of the receptor that we believed interacted with sugars, and then purified those proteins,” says Dr. Munger. “The result was an abundance of receptors. This allowed us to characterize which part of the receptors play a key role in interacting with the sugars we introduced.”

He adds, “We hope that food scientists can use our research to create sugar alternatives that behave like natural sugar when interacting with taste receptors on the tongue. That would give the synthetic products a much more natural taste, while offering more options for consumers who rely on low-calorie products to help control diseases like diabetes and obesity.”

Dr. Munger was recognized last year with the Presidential Early Career Award for Scientists and Engineers, the nation's highest honor for professionals at the outset of their independent research careers. His current research is funded by the National Institute of Deafness and Other Communication Disorders at the National Institutes of Health and was conducted in partnership with Graeme Conn, PhD, at the University of Manchester in the United Kingdom.

School of Medicine Leads New Multidisciplinary Clinical Research Scholars Program

The University of Maryland School of Medicine has been awarded a \$13 million, five-year grant from the National Institutes of Health (NIH) to recruit up to 20 junior faculty who show early promise in patient-oriented research. The award is part of the NIH's Roadmap Initiative, which seeks to more quickly bring research from the laboratory bench to the bedside.

The funds will be used to establish a Multidisciplinary Clinical Research Scholars Program to support the early career development of junior faculty in all types of patient-oriented research. The program draws on expertise throughout the University of Maryland, Baltimore campus and is a collaborative effort of the University of Maryland School of Medicine, the Schools of Pharmacy and Nursing, the Dental School, the University of Maryland Institute of Human Virology and The Institute for Genomic Research in Rockville, Maryland.

“These young scholars will be on the cusp of a successful research career and this program will provide the impetus for them to rise to the next level of research funding.”

“Two years ago, the NIH announced the availability of funding for the recruitment of young investigators who showed promise in making a difference in the field of clinical research,” says Alan R. Shuldiner, MD, the John L. Whitehurst Professor of Medicine at the School of Medicine and director of the new Multidisciplinary Clinical Research Scholars Program. “We knew the University of Maryland, Baltimore had an advantage in applying for this award because of the research strength of our faculty and the robust training programs already in place on our diverse campus,” he says.

The new program will provide salary support and funding for multidisciplinary patient-oriented research for each scholar, as well as support for program administration. Every scholar will also have the opportunity to pursue educational offerings leading to a Master's Degree in Clinical Research, with courses on best practices in clinical research, research ethics and regulations, working in multidisciplinary teams and management and leadership skills. The goal is to prepare scientists from a broad range of disciplines, specialties and subspecialties for independent careers in patient-oriented research.

Potential candidates will have medical, dental, or pharmacy degrees, a PhD, or other health-related professional degrees and will be reviewed by the Multidisciplinary Advisory Committee (MAC) and evaluated based on their previous scientific research and their potential for future contributions. Once approved by the MAC and the NIH, the candidate will receive a faculty appointment in the School of Medicine, the Dental School, the School of Nursing or the School of Pharmacy.

“We are hoping to attract talented, focused young investigators who have a clear and proven interest in patient-oriented research,” says Dr. Shuldiner. “These young scholars will be on the cusp of a successful research career and this program will provide the impetus for them to rise to the next level of research funding.”

Deadline to apply for the new program is February 1. Candidates can apply online at <http://medschool.umaryland.edu/careerdev/>.

\$10 Million to Study Traditional Chinese Medicine



Researchers from the University of Maryland Center for Integrative Medicine have received two grants totaling \$10 million from the National Center for Complementary and Alternative Medicine, a component of the National Institutes of Health, to study the effectiveness and the mechanisms of action of traditional Chinese medicine such as herbal therapies and acupuncture.

“For centuries, millions of people have used the treatments of traditional Chinese medicine for all kinds of ailments. Now we have the opportunity to apply Western scientific standards to see if these therapies really help people and, if so, why,” says Brian Berman, MD, founder and director of the University of Maryland Center for Integrative Medicine and a professor of family medicine at the School of Medicine.

The first grant establishes a Center of Excellence for Arthritis and Traditional Chinese Medicine Research. With the nearly \$6 million award, researchers will conduct a clinical trial on an 11-herb Chinese formula known as HLXL to see if it can help patients with osteoarthritis of the knee.

Another part of the arthritis research will look at how acupuncture affects the pain response in the body. This study builds off the center’s previous research, published in the *Annals of Internal Medicine* in December 2004, which found acupuncture to be a safe and effective complementary therapy for osteoarthritis of the knee.

Dr. Berman says, “The acupuncture and osteoarthritis study followed 570 patients, and we found significant difference in the pain response for people receiving acupuncture compared to those who received a sham acupuncture treatment. Now we want to know why that is, which may help us to explain the physiological mechanism involved in acupuncture.”

The second grant, for almost \$4 million, establishes an International Center for Research on Complementary and Alternative Medicine. The School of Medicine will lead a team of international investigators to look at traditional

“The acupuncture and osteoarthritis study followed 570 patients, and we found significant difference in the pain response for people receiving acupuncture compared to those who received a sham acupuncture treatment.”

University of Maryland Center for Integrative Medicine has been a leader in applying rigorous science to the study of complementary medicine. Research includes investigations into many complementary and alternative therapies including acupuncture, mindfulness-based stress reduction, and yoga and herbs for conditions ranging from arthritis to cancer.

In November, Dr. Berman was named by the Bravewell Collaborative as recipient of the 2005 Bravewell Leadership Award for dedicating his medical career to the expansion of evidence-based integrative care. He was presented with the \$100,000 biannual award at a benefit at Chelsea Piers in New York City hosted by Sarah Ferguson, Duchess of York. The Bravewell Corporation is comprised of 29 philanthropists who work together strategically to support the growth of integrative medicine and accelerate change.

Sarah Ferguson, Duchess of York, congratulates Brian Berman, MD, at the 2005 Bravewell Leadership Award ceremony. Penny George, co-founder and chair of the Bravewell Collaborative, stands in the center.



Photo by Ellen Jaffe

Chinese medicine for treating functional bowel disorders, such as irritable bowel syndrome. The partner institutions for this center are Chinese University of Hong Kong, University of Illinois at Chicago, and University of Western Sydney in Australia. This new collaborative group will conduct multidisciplinary research on acupuncture and a traditional Chinese herbal preparation for irritable bowel syndrome.

Founded in 1991, the



QUICK STUDIES

► **Kevin Scott Ferentz, MD**, associate professor, Department of Family Medicine, was included in the Best Doctors in America 2005–2006, which marks his third time as a featured physician. The Best Doctors in America database includes the professional profiles of 31,000 doctors in the US, all selected through an intricate peer-review survey, making the selection a distinguished honor. ► **Timothy B. Gilbert, MD, MBA, MSc, FACC**, associate professor, Departments of Anesthesiology and Medicine, has been named medical director of the Center for Clinical Trials (CCT). In this position, his responsibilities will include providing strategic clinical oversight of the activities of the CCT, acting as a resource for School of Medicine faculty who perform clinical research and acting as a liaison between the CCT and faculty, department chairs, division/section chiefs, university officials, and University of Maryland Medical System officials. ► **Marc Hochberg, MD, MPH**, professor, Department of Medicine, has been elected to membership in the American Clinical and Climatological Association. ► **Kenneth P. Johnson, MD**, professor, Department of Neurology, chaired a session called “Improving on Existing MS Therapies” at the European Committee for Treatment and Research in Multiple Sclerosis/Americas Committee for Treatment and Research in Multiple Sclerosis Annual Meeting in Thessaloniki, Greece, while his colleague in the neurology department, **Horea Rus, MD, PhD**, assistant professor, presented his work on “Gray Matter Inflammatory Infiltrates in MS” at the same meeting. ► **James C. King, MD**, professor, Department of Pediatrics, co-published an article entitled “A Pilot Study of the Effectiveness of a School-based Influenza Vaccination Program” in the December 2005 issue of the journal *Pediatrics*. ► **Tom Lang, MD, PhD**, assistant professor, Department of Medicine, has been appointed as the new director of the Introduction to Clinical Medicine (ICM) course. The ICM course is a major reorganization of several other curricular elements including the former Introduction to Clinical Practice, Intimate Human Behavior, Human Behavior, Problem-Based Learning, Standardized Patients, and Physical Diagnosis. His leadership, along with that of the other faculty members, will prepare students for the complexities they are likely to face as physicians. ► **Barney J. Stern, MD**, professor, Department of Neurology, co-published an article in the September 2005 edition of *Neurology* entitled, “Carotid Endarterectomy—An Evidence-based Review.” ► **Carol O. Tackett, MD**, professor, Department of Medicine, has been elected to membership in the American Clinical and Climatological Association.

New Immunotherapy Approach Helps to Restore Immune System after Chemotherapy



Aaron P. Rapoport, MD

A new form of immunotherapy, which combines a vaccine with an infusion of a person’s own T cells engineered in the laboratory, helps to restore cancer patients’ ability to fight infection after

high-dose chemotherapy. University of Maryland School of Medicine cancer researchers reported their findings in a study published in the November issue of *Nature Medicine*.

Immune deficiency is a serious problem for cancer patients, especially those who receive intensive chemotherapy prior to bone marrow transplants. Patients are at high risk for developing infections and recurrence of their cancer.

In the clinical study, patients with advanced myeloma, a cancer of the plasma cells in the bone marrow, were treated with high-dose chemotherapy and a bone marrow transplant. They received a series of vaccinations against a common bacterial form of pneumonia as well as an injection of their own laboratory-enhanced T cells, or immune cells. Researchers found the therapy was most effective when they vaccinated patients before the bone marrow transplant to jump-start the immune system and then collected the “vaccine-primed” T cells, activated them in the lab and gave them back to the patients 12 days after the transplant.

Within a month, these patients, who also received booster shots of the pneumonia vaccine, showed significant improvement in their immune response, according to Aaron P. Rapoport, MD, associate professor of medicine and lead author on the study. The therapy not

only accelerated the production of T cells, but improved the cells’ response to the pneumonia vaccine and ability to protect the patients from infection.

“Giving these activated T cells early after transplant, followed by booster immunizations, appears to hold the key to more robust and sustained T-cell-dependent antibody responses,” says Dr. Rapoport, who is also an oncologist/hematologist at the University of Maryland Marlene and Stewart Greenebaum Cancer Center. “The response to the pneumonia vaccine among patients in the study was as good as that seen in many healthy adults.”

“These results are very promising and suggest this novel approach could be used to treat others with seriously compromised immune systems, such as those with HIV and the elderly, in addition to cancer patients,” Dr. Rapoport says.

He adds that now University of Maryland researchers and their collaborators at the University of Pennsylvania School of Medicine want to combine this T-cell therapy with a cancer vaccine that would target tumor cells. He says that researchers at both institutions have used activated T-cell injections using a patient’s own cells to try to boost the immunity of patients with blood cancers, but this is the first time that they have combined the therapy with any type of vaccine.

The 54 patients in the four-year clinical trial were treated at the University of Maryland Marlene and Stewart Greenebaum Cancer Center and the Abramson Cancer Center at the University of Pennsylvania in Philadelphia. They were divided into

four groups, with each group receiving the pneumonia vaccine and an infusion of their own T cells on a different schedule.

The patients with the best immune response received one dose of the vaccine prior to their bone marrow transplant and two doses afterward. They also received the T cells significantly earlier than other patients in the study—12 days after the transplant. Patients who received the vaccine on the same schedule, but did not receive the T cells until three months after the transplant, did not show the same response.

The University of Maryland Center for Vaccine Development also was involved in the research as was the U.S. Food and Drug Administration. Collaborators from the Department of Medicine include Alan Cross, MD, professor, Robert Edelman, MD, professor, Ashraf Badros, MD, associate professor, and Dean L. Mann, MD, professor, Department of Pathology.

The research was funded by the Leukemia and Lymphoma Society of America, the National Institute of Allergy and Infectious Diseases, the National Cancer Institute and the Multiple Myeloma Research Foundation, as well as gifts from the Jiji Foundation and Willard Hackerman.