

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

What's on my mind this month is the continued excellence of the School of Medicine and the University of Maryland, Baltimore. In the month since I assumed the role of acting president of UMB, I have had the opportunity to see the University and the School of Medicine with "new eyes," and have been privileged to forge enhanced working relationships with the deans, vice presidents and other campus leadership as we navigate together the path to continued excellence.

In this transition period, during which I will remain in my role as dean of the School of Medicine, our challenge will be to maintain the momentum that we have worked so hard to achieve. The School of Medicine's senior leadership has gracefully agreed to expand their efforts to ensure that the medical school's goals and objectives are met, if not exceeded, while I am fulfilling my duties in the president's office.

Last month I attended hearings before the Maryland House of Delegates and Senate budget committees. In both venues it was evident that the leadership of the two legislative chambers recognize and greatly appreciate UMB's and the School of Medicine's tremendous contributions and our importance to the state, in terms of our economic impact and our service to the people of Maryland.

Indeed, UMB and the School of Medicine have made extraordinary strides in the last decade. The School of Medicine, in particular, has enjoyed unprecedented growth in research funding and philanthropic giving, to name just two areas. I am fully aware that this high level of performance is due to the commitment, hard work and dedication of you, our faculty, staff and students.

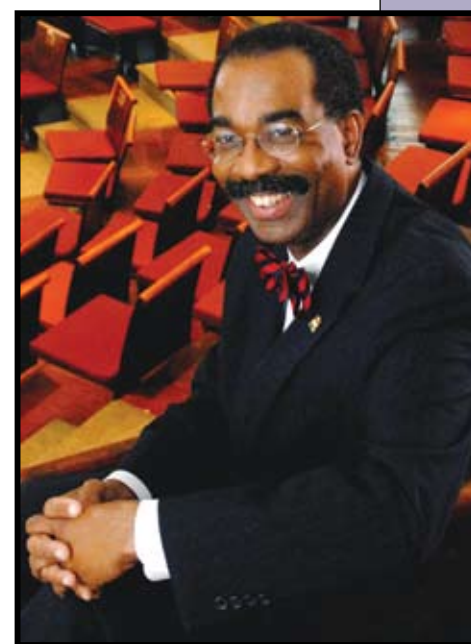
The next few months will be exceedingly busy ones. Last month we hosted another successful Fund for Medicine Gala, where we celebrated the outstanding accomplishments of our scientists and physicians and raised much-needed funds for our **unprecedented \$500 million capital campaign**. In addition, we just established a **new Office of Postdoctoral Scholars** for graduate students and postdoctoral fellows (more on this in the May issue of SOMnews), and we are finalizing our 2010–2015 strategic plan entitled **"Taking a Quantum Leap Forward."**

I have expanded my work schedule to ensure that my responsibilities are met and our goals are achieved, and to ensure that we lose no ground. I look forward to welcoming Dr. Jay Perman back to the University of Maryland when he assumes the presidency on July 1. Until then, we have an opportunity before us. I challenge us all to rise to the occasion.

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  
Dean, School of Medicine



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## Elijah Saunders Receives UMB Diversity Award

Elijah Saunders, MD, FACC, FACP, FAHA, professor of medicine at the University of Maryland School of Medicine, was awarded a Diversity Recognition Award as Outstanding University of Maryland, Baltimore Faculty/Staff member at a February 3, 2010 Black History Month Event commemorating Dr. Martin Luther King. "The annual Martin Luther King, Jr. lecture series event is very important, because it commemorates the principles Dr. King stood for," said

E. Albert Reece, MD, PhD, MBA, acting president, University of Maryland, Baltimore, and the John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine "These principles are guiding lights for our students, faculty and our community at large."

Dr. Saunders was the first black resident in internal medicine at the University of Maryland School of Medicine, from which he graduated in 1960. He was also the first black cardiologist in Maryland and was integral in abolishing segregated hospital wards at what was then University Hospital (now the University of Maryland Medical Center). Dr. Saunders created


the Association of Black Cardiologists, and was co-founder of the International Society on Hypertension in Blacks.

Dr. Saunders has also been greatly involved in community outreach. In 2006 he launched the Hair, Heart and

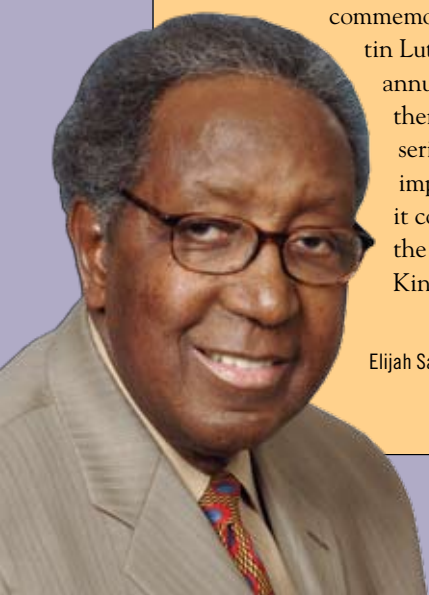
garnered the respect of his colleagues both nationally and internationally," said Dr. Reece. "He is a physician who cares about and supports his community by willingly giving his expertise and time for the betterment of its citizens."

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Health program, which trains barbers and hairstylists to pre-screen their customers for hypertension and make appropriate referrals for medical care. "Dr. Saunders is an outstanding practitioner and clinical researcher who has

Dr. Saunders, who was out of town giving a lecture, was unable to accept his award personally. Sharon E. Saunders, MD, clinical assistant professor of medicine, accepted the award from Dean Reece on her husband's behalf. 

Elijah Saunders, MD, FACC, FACP, FAHA





# Hip Fracture a Critical Issue Facing Senior Men

University of Maryland School of Medicine researchers have addressed some critical issues facing senior men. Hip fractures—traditionally an injury more often seen in women—is an increasing problem for male patients, especially as baby boomers age. The number of men who will fracture their hips is expected to double over the next four decades. A recent symposium examined how men with hip fracture differ from women.

“Because most of the clinical research is aimed at women, little is really known about the consequences and long-term effects of hip fracture in men,” said Jay Magaziner, PhD, MSHyg, professor and chair, Department of Epidemiology and Pre-

ventive Medicine. Dr. Magaziner is also the director of the Baltimore Hip Studies (BHS), a research initiative that has been ongoing for the past 25 years and has enrolled over 3,000 hip fracture patients admitted to Baltimore area hospitals. “In the research we are

conducting, we plan to increase the knowledge about hip fractures in men to the same level we see for women,” continued Dr. Magaziner, who is also co-director of the University of Maryland Center for Research on Aging.

“We need to identify potential differences between men and women,” said Denise Orwig, PhD, assistant professor, Department of Epidemiology and Preventive Medicine, and associate director of the BHS. One current study, funded by the National Institute

on Aging, plans to enroll 400 hip fracture patients, half of them men. Eligible patients are enrolled within 15 days of being admitted to one of eight study hospitals in the BHS network. Study participants undergo a comprehensive assessment of physical functioning, cognitive testing, measures of bone (density, strength and quality) and body composition. Follow-up data are collected two, six and 12 months post-admission. Dr. Orwig said, “We examined various measures of memory and concentration, depression, frailty, bone mineral density, and body composi-

tion at time of fracture, which may play a role in eventual recovery one year later.”

Ann Gruber-Baldini, PhD, associate professor, Department of Epidemiology and Preventive Medicine, Marc Hochberg, MD, professor, Departments of Medicine and Epidemiology and Preventive Medicine, and Dr. Orwig looked at baseline psychosocial differences between men and women who had hip fractures. Study participants were given neuropsychiatric testing to look at visual integration and psychomotor speed test, which is important in balance, movement and risk of falling. The men did not

perform as well on tests as the women. This study also found that men were more likely to be married or living with others and seemed to be less physically active before their fractures.

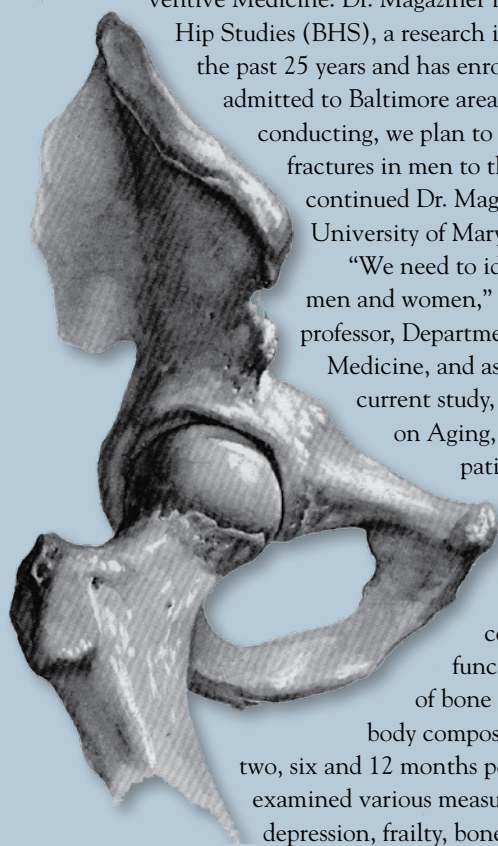
Contrary to a previously held hypothesis that women are frailer than men, prior to hip fracture women were actually more robust than men, according to a study by Daniel Andersen, PhD, academic post doctoral fellow at the University of Maryland National Study Center for Trauma and EMS, Ram Miller, MD, CM, assistant professor, Department of Epidemiology and Preventive Medicine, and Dr. Orwig. Men in this study were found to have a higher proportion of weakness, exhaustion and lower amounts of physical activity.

Bone mineral density is another area where male and female patients differ, according to a study by Julia Chan, MS, doctoral student in the Department of Epidemiology and Preventive Medicine, William Hawkes, PhD, assistant professor, Department of Epidemiology and Preventive Medicine, along with Drs. Miller, Hochberg and Orwig. The scientists were surprised to find that men tended to have less osteoporosis and greater bone mineral density scores at the femoral neck and total hip at the time of fracture. Dr. Miller also looked at thigh muscle composition two months after admission to the hospital from a hip fracture, as a measure of post-injury atrophy. This study found that men appeared to have less atrophy than women on the side of the fracture, which presumably should have a positive impact on physical performance and recovery.

While these studies highlight the different challenges men face with hip fractures, the information is still applicable to everyone. According to Dr. Magaziner, “Our hope is to eventually design interventions and treatments to enhance the recovery of all hip fracture patients.”



Jay Magaziner, PhD, MSHyg



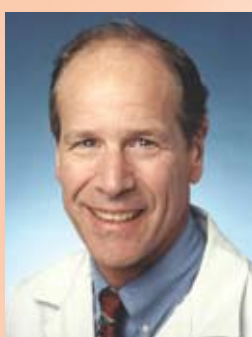
## UM to Test Lifesaving Devices to Help Babies Born with Congenital Heart Defects

A new contract from the NIH's National Heart, Lung, and Blood Institute (NHLBI) will support preclinical testing of new, lifesaving devices to help children born with congenital heart defects or those who develop heart failure. Bartley P. Griffith, MD, professor, Department of Surgery, will lead the project. The \$5.4 million, four-year grant called Pumps for Kids, Infants, and Neonates (PumpKIN) is part of a broader \$23.6 million national research program among four facilities.

“The tiny devices that result from the PumpKIN research will make all the difference in the world for infants with these serious cardiac problems, particularly babies who have not responded to surgical or other measures to correct their heart defects,” said Dr. Griffith, who is the principal investigator for the Maryland arm of the project.

Dr. Griffith has been working for several years with one of the other grantees in the pumpKIN project, Robert Jarvik, M.D., developer of the Jarvik heart pump for adults, to develop a child-sized pump.

The NHLBI launched the Pediatric Circulatory Support Program in 2004 by funding the development of five novel circulatory support devices for infants and young children with congenital and acquired cardiovascular disease. The PumpKIN program is the next



Bartley P. Griffith, MD

phase of NHLBI support for the development and clinical realization of these devices. The program's goal is to complete the needed animal studies and other tests in artificial environments for the most promising devices in order to gain approval from the Food and Drug Administration to begin clinical testing.

The adult heart is about the size of a fist but a child's heart is much smaller; in an infant, the heart is about the size of a large walnut. Devices in the PumpKIN program will provide circula-

tory support for newborns, older infants, and children weighing less than 55 pounds who experience heart failure due to congenital and acquired cardiovascular disease. The devices must supply

adequate blood flow to prevent organ damage while minimizing the risk of blood vessel damage, infection, breakdown of red blood cells, excessive bleeding, brain damage and dangerous blood clots. The devices are intended to support circulation in pediatric patients for one to six months, be sufficiently small and reasonably portable, and be able to be routinely positioned and functioning in less than one hour, among other specifications.

The program will test ventricular assist devices (VADs) and advanced extracorporeal membrane oxygenator (ECMO) devices. The VADs in the PumpKIN program are very small rotary pumps which are implanted to provide circulatory support for extended periods of use. They work by drawing blood from the heart and pumping it to the body. ECMO devices circulate and supply oxygen to the blood, and are commonly used for patients who need both heart and lung support. For ECMO devices, tubes connecting the patient to the device are placed directly into large blood vessels near the base of the neck. Blood is drawn from the right side of the heart, pumped through the oxygenator, and then returned to the body on the left side of the heart so the oxygen-rich blood can be delivered throughout the body.

Each year in the United States, nearly 1,800 infants die as a result of congenital heart defects and another 350 develop heart disease, which leads to heart failure for many. Approximately 60 infants and children under five years old who are placed on the heart transplant waiting list die each year before receiving one. Mechanically assisted circulatory support could be used to sustain these young patients as they seek to recover or wait to receive a heart transplant.

“For the first time that I am aware, this grant virtually guarantees the realization of a concept that we started literally with a sketch on a napkin,” said Dr. Griffith, who is also chief of the Division of Cardiac Surgery.

In addition to Drs. Griffith and Jarvik, the PumpKIN contractors include Harvey S. Borovetz, PhD, University of Pittsburgh, and Mark Gartner, PhD, Ension, Inc., Pittsburgh, Pa.

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# Study Finds New Malaria Vaccine Produced Strong Immune Response in Children

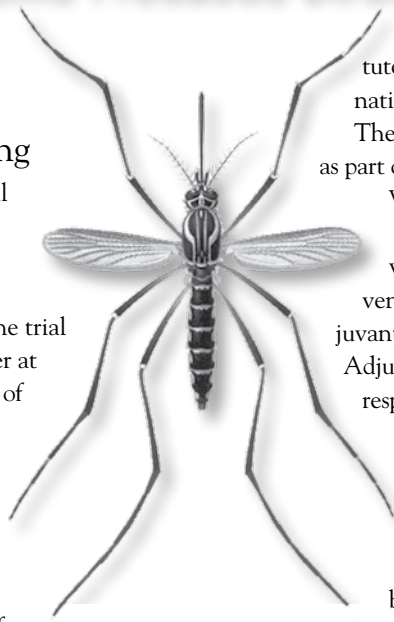
A new vaccine to prevent the deadly malaria infection has shown promise to protect the most vulnerable patients—**young children**—against the disease, according to an international team of researchers led by the University of Maryland School of Medicine's Center for Vaccine Development. Christopher V. Plowe, MD, MPH, professor, Department of Medicine, and chief, Malaria Section, Center for Vaccine Development, led the trial in collaboration with the Malaria Research and Training Center at the University of Bamako in Mali, West Africa. In a new study of the vaccine in young children in Mali, the researchers found it stimulated strong and long-lasting immune responses. In fact, the antibody levels the vaccine produced in the children were as high or even higher than the antibody levels found in adults who have naturally developed protective immune responses to the parasite over lifelong exposure to malaria.

"These findings imply that we may have achieved our goal of using a vaccine to reproduce the natural protective immunity that normally takes years of intense exposure to malaria to develop," said Dr. Plowe, a lead author of the study published in February in *PLoS ONE*, the journal of the Public Library of Science. Dr. Plowe also is an investigator with the Howard Hughes Medical Institute and a Doris Duke Distinguished Clinical Scientist.

In areas of the world such as Africa, where malaria is particularly rampant, the young are most vulnerable to the disease since they have not built up the same natural immunity as adults. According to the World Health Organization, a child dies of malaria every 30 seconds. There are about 300 million malaria cases worldwide each year, resulting in more than one million deaths, most of them African children.

Malaria is caused by a parasite spread to humans through mosquito bites. There is no approved vaccine to protect against the condition, though using bed nets or killing mosquitoes with insecticides can prevent infection. The parasite is treatable using medications, though drug resistance is a relatively common problem. Eradicating the disease has become a priority for scientists and health officials worldwide. An effective and broadly protective vaccine is a key step toward that goal.

In addition to the Howard Hughes Medical Institute's support of Dr. Plowe's research, the study was sponsored by the U.S. Army and funded by the National Institute of Allergy and Infectious Disease (NIAID), part of the National Insti-



tutes of Health, and the United States Agency for International Development (USAID).

The new vaccine, called FMP2.1/AS02A, was developed as part of a longstanding research collaboration between the Walter Reed Army Institute of Research (WRAIR) and GlaxoSmithKline Biologicals (GSK). The vaccine consists of a form of the AMA-1 protein, invented and manufactured by WRAIR, and the AS02 Adjuvant System, developed and manufactured by GSK. The Adjuvant System is a compound that boosts the immune response to the vaccine. Previous studies in the U.S. and in Mali already have found the vaccine to be safe and to produce strong immune responses in adults.

The vaccine, based on a single strain of the falciparum malaria parasite—the most common and deadliest form of the parasite found in Africa—targets malaria in the blood stage. The blood stage is the period after the mosquito bite, when the parasite multiplies in the blood, causing disease and death. Other blood stage vaccines have been tested but none has shown the ability to prevent malaria disease.

For the study, the CVD team collaborated with a group of Malian researchers from the Malaria Research and Training Center, led by Mahamadou Thera, MD, PhD, and Ogobara Doumbo MD, PhD. The study also included collaborators WRAIR, GSK, NIAID and USAID.

The scientists tested the vaccine in 100 Malian children ages 1–6 at the Bandiagara Malaria Project in rural Mali. The children were randomly assigned to receive either one of three escalating doses of the malaria vaccine or a control rabies vaccine. All three doses of the vaccine proved to be safe and well tolerated, and all three doses also showed very strong antibody responses that were sustained for at least a year.

Based on the vaccine's apparent success in this early trial, the same international team of U.S., Malian and European investigators now are subjecting it to further study in a much larger trial of 400 Malian children to evaluate its effectiveness against malaria disease. That study also will examine whether the vaccine—though it is based on a single strain of malaria—can protect against the broad array of malaria parasites that exist. The scientists hope the vaccine could be combined with other vaccines to create a multi-component immunization that is highly protective. 🏠



Christopher V. Plowe, MD, MPH

## Prenatal Cocaine Exposure Not Severely Damaging to Child's Growth, IQ



Maureen Black, PhD

Children exposed to cocaine in the womb face serious consequences from the drug, but fortunately not in certain critical physical and cognitive areas as previously believed, according to a new comprehensive review of research on the subject from Maureen Black, PhD,

professor, Department of Pediatrics. The review was published March 1 in the journal *Pediatrics*.

When a pregnant woman uses cocaine, it can interrupt the flow of nutrients and oxygen to the baby, putting such children at risk for premature birth, low birth weight and many other problems. The new review of multiple major studies conducted on cocaine-exposed, school-aged children found this negative impact significantly affected children in subtle areas such as sustained attention and self-regulated behavior. The research, however, showed surprisingly little impairment directly from cocaine in key areas such as growth, IQ, academic achievement and language functioning.

Many of the children did have low IQ and poor academic and language achievement. The research suggested, though, that these apparent impairments were often caused by the troublesome home environment that goes along with cocaine use, rather than directly from the cocaine itself. The developmental areas that the cocaine exposure seemed to directly impact—sustained attention and self-regulated behavior—could become significantly problematic as children grow into adults. It is the first review of cocaine-exposed school-age children six and older; a previous review looked at younger children.

When rates of cocaine use began to grow in America in the 1980s, there was concern that children who had been exposed to the drug or its derivative,

crack cocaine, in utero were doomed for a lifetime of poor health, sub-par performance in school, behavior problems and eventually for substance abuse themselves. The new review indicates otherwise, and could change the way medicine and social science approach outreach to and study of cocaine-exposed children, said Dr. Black.

**... little impairment directly from cocaine in key areas such as growth, IQ, academic achievement and language functioning.**

"Cocaine can disrupt fetal growth and development, but this review tells us that just because a child has been exposed to cocaine, it is not a foregone conclusion that they're going to be in trouble," said Dr. Black. "No one is saying cocaine use is good. We need prevention programs so women don't use cocaine in the first place. Children experience serious negative effects from drug exposure in the womb. It looks, though, as if cocaine doesn't work alone. Women who use cocaine are often from poor and dysfunctional families, where children do not receive the care and enrichment they need. In addition, women who use cocaine while pregnant often smoke cigarettes and drink alcohol as well, exposing their unborn children to legal substances with extremely negative consequences."

Dr. Black and her colleagues reviewed 32 major studies of school-age children, ages six through their teenage years, conducted between 1980 and 2008. All of the studies compared children who had been exposed to cocaine to those who had not. Dr. Black and postdoctoral fellows John P. Ackerman, PhD, and Tracy Riggins, PhD, aggregated the data and organized them into charts comparing the healthy children to those who had been exposed to cocaine. The areas where children showed significant negative impact

from cocaine—sustained attention and in self-regulating behavior—could lead to serious problems for children in adolescence or adulthood. "They might have difficulty with impulse control and they might be risk-takers," said Dr. Black. "They might be more likely to be involved with drugs themselves." Innovative techniques, including neuroimaging, have suggested that cocaine exposure impacts specific brain structures and functions. The cocaine-exposed children seem to have differences in both white and gray matter, for example.

The results suggest that the prevention efforts should continue to target reducing drug use among women, especially during pregnancy, but such outreach should continue after the child's birth. "Education and support to help caregivers improve the child's environment might be very beneficial to children exposed to cocaine," Dr. Black says. The research will continue to examine the specific areas of the brain that may be vulnerable to cocaine exposure in the hopes of linking neural differences with behavioral outcomes.

"A review is an efficient way to examine the larger picture of a public health issue, going beyond just one study," says Dr. Black. A review is particularly useful in a field of research that has not existed for very long, such as the study of cocaine-exposed children. "If you have findings from a single study, you cannot be sure of their significance until the study is replicated," Dr. Black said. "The benefit of a review is that it takes what's in the literature as a whole, puts it together and tries to make sense of it." 🏠






# Online Resource for Research Collaboration Now Available

The School of Medicine's Office of Research and UMB's Office of Research and Development have partnered with Collexis™ to develop University of Maryland "Research Profiles," a Web-based resource that captures detailed information about faculty publications and expertise. This powerful data source can be used to identify collaborators and their associated works by searching robust, up-to-date research profiles of School of Medicine and School of Pharmacy faculty. "We are excited to launch this new tool to help researchers and departments identify who is working in major life science areas within the university," says Tom Hooven, MA, executive director, Research Administration in the School of Medicine's Office of Research and Graduate Studies.

This pilot includes 1,300 faculty profiles from the School of Medicine, 60 from the School of Pharmacy and 140 life science and bioengineering faculty from the University of Maryland, College Park. Faculty from the School of Nursing and Dental School will soon be added as well. In addition to highlighting individual research expertise, the research profiles tool is useful in identifying existing connections among School of Medicine researchers and can assist in identifying potential collaborators internally and at other organizations. This tool can also help find mentors and key knowledge holders, making connections between faculty, students and staff easier.

Collexis' Research Profiles uses MEDLINE publication data (PubMed) to create a "fingerprint" of a researcher's subject expertise. This fingerprint is updated weekly and automatically as publications enter the MEDLINE database, meaning researchers are not required to manually maintain their individual profiles.

The interface enables searches by faculty name, department and institute, and by subject expertise. A search can be narrowed by selecting additional terms such as procedures, chemicals or drugs, for example. "The tool will assist companies and foundations to identify potential collaborators at UMB for clinical trials and sponsored research projects," says Jim Hughes, vice president for Research and Development at UMB.

For any questions about the SOM information shown in the profile, please contact Cathleen Smith, Office of Research and Graduate Studies, at [csmith@som.umaryland.edu](mailto:csmith@som.umaryland.edu). The faculty research profiles can be viewed at <http://www.researchprofiles.collexis.com/maryland/> 

## MATCH DAY



At this year's Match Day, held March 18 in Davidge Hall, Nidhi Goel (left), who is staying here at the University of Maryland Medical Center for a med/peds residency, hugs Leah Gitajn, who learned she's heading to Boston for an Orthopaedic Surgery residency at Harvard/Massachusetts General Hospital.

## {PHOTO OF THE MONTH}



Sherwood Gardens, Baltimore

Photo by Tom Jemski

# SOMnews

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE APRIL 2010 VOL.11 NO.8

SOMnews is produced by the University of Maryland School of Medicine, Office of Public Affairs  
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