



DEAN'S MESSAGE: What's On My Mind



What's on my mind this month is the new year. Two thousand nine promises to be bumpy in terms of the impact the national economy will have on our finances. However, there are extremely positive events in store for the School of Medicine in 2009, which I believe will help insulate us from some of the economic turmoil occurring in the rest of the country.

In March, the SOM will play host to the annual Fund for Medicine Gala, which is our primary philanthropic initiative to support our medical education, biomedical research, patient care and community service missions. The theme of this year's event is "Discovery Advancing Better Global Health." Thus, the Fund for Medicine Gala will highlight our outstanding clinical programs and faculty to national and international donors and the media.

Then in May, the SOM's Institute for Human Virology (IHV) will host an international scientific symposium and gala to mark the 25th anniversary of the co-characterization of the human immunodeficiency virus by Dr. Robert Gallo, IHV's director. This event is expected to draw several thousand researchers, clinicians and public health experts from around the globe as well as garner international media attention.

In addition to these major events, the SOM can look forward to its Institute for Genome Sciences (IGS) becoming fully operational this year. IGS already is extremely well-funded and has tens of millions of dollars in grants in the pipeline. Furthermore, our local, state and federal representatives continue to be extremely supportive of our need to build Health Sciences Facility III (HSF III). I am cautiously optimistic that we may even be able to break ground on HSF III in 2009.

While I continue to be greatly concerned about our economy and its impact not only on the SOM but on the personal lives of all of you, at the

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This September, the University of Maryland and Johns Hopkins University will co-host the World Stem Cell Summit, which will bring together the international stem cell community to foster collaborations, promote economic development and expedite the application of stem cell technologies to medical treatments. This international summit comes at a particularly important time for the SOM, as we recently recruited Dr. Curt I. Civin, a preeminent stem cell research pioneer, to lead our new Center for Stem Cell Biology and Regenerative Medicine. We are now poised to become an international leader in this field.

same time, I am excited about the prospects for this new year. We have a number of events this year that will bring attention and resources to the SOM and we've begun to attract significant additional resources and funding through the addition of some internationally-recognized researchers who have expertise in several extremely promising clinical disciplines.

I believe these activities, along with the 18-month contingency plan I described in last month's column, will put us in much better position to weather the vicissitudes of 2009 relative to the many other medical schools, where the economic downturn already has had severe negative impact.

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

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

Curt I. Civin, MD, to Lead New Center for Stem Cell Biology and Regenerative Medicine

Curt I. Civin, MD, a pioneer in cancer research who is known for developing a way to isolate stem cells from other blood cells, has joined the School of Medicine. Dr. Civin will be a professor in the Department of Pediatrics as well as associate dean for Research and the founding director of the new Center for Stem Cell Biology and Regenerative Medicine.

Dr. Civin comes from the Johns Hopkins University School of Medicine, where he served on the faculty since 1979. Dr. Civin currently leads projects totaling \$21.5 million in extramural research funding. He will bring his entire research team, including 15 postdoctoral fellows, graduate students and research technicians.

Dean E. Albert Reece, MD, PhD, MBA, said, "With the recruitment of Dr. Civin and the founding of the new Center for Stem Cell Biology and Regenerative Medicine, the University of Maryland steps into a leadership position in the burgeoning field of stem cell research and regenerative medicine—two areas which comprise key frontiers in

medicine. Adding Dr. Civin to our top-tier faculty and establishing the center will give us a tremendously influential position in the field of stem cell science."

Dr. Civin became well-known and earned the 1999 National Inventor of the Year Award for his groundbreaking scientific discovery in 1984 of a method for isolating stem cells from other blood cells, a critical step in studying them and for transplanting these cells into patients. Discoveries from his laboratory are used today in bone marrow stem cell transplantation and leukemia diagnosis. Dr. Civin's studies now focus on the genes expressed in stem cells. By understanding the inner mechanics of how stem cells work, he hopes to learn how to modify the key properties of stem cells in order to in-



Curt Civin, MD—Will direct the new Center for Stem Cell Biology and Regenerative Medicine

“Our dream for the new center is to make a significant impact on curing disease.”

crease their therapeutic potential. In addition, his research includes learning how normal stem cells become cancerous.

Dr. Civin envisions creation of a stem cell research initiative that will foster a broad range of interdisciplinary studies designed to understand and to directly affect human health and disease. Developing novel diagnostic methods, treatments and/or prevention for major human diseases can be a key, immediate part of each significant project.

His goals for the Center for Stem Cell Biology and Regenerative Medicine and for

the field of stem cell biology are twofold: it will explore how to manipulate stem cells to allow for much better transplantation and transfusion therapies and its scientists will work to understand how stem cells contribute to diseases in order

to develop ways to improve conventional treatment and prevention of these disorders. "Our dream for the new center is to make a significant impact on curing disease," he said. "That's really what biomedical research is all about—providing better diagnoses, treatments and preventions."

Partnerships with other researchers within the School of Medicine will be critical to achieving the goals of the scientists at the center. Those scientists will include the School of Medicine researchers who already study stem cell biology. The School of Medicine's stem cell research encompasses more than \$2 million in extramural funding annually, including several grants from the Maryland Stem Cell Research Fund.

"As I complete 30 wonderful years at Johns Hopkins, I'm confident I will maintain my friendships and working relationships with colleagues there," said Dr. Civin. "I want this new center and its work to have a global impact. To that end, I look forward to collaborating with colleagues at Johns Hopkins and other prestigious institutions, like the National Cancer Institute, as well as other scientists around the globe."


Thomas Blanpied, PhD, Wins Prestigious Presidential Honor

Thomas A. Blanpied, PhD, assistant professor, Department of Physiology, has won the Presidential Early Career Award for Scientists and Engineers, known as PECASE. Dr. Blanpied was honored in a ceremony at the White House in December 2008. The award recognizes Dr. Blanpied for his work using high-resolution imaging to study synapses, the connections between neurons in the brain. Changes in the brain's synapses play a key role in diseases like Alzheimer's, schizophrenia, depression and addiction. "An enormous number of people are affected by diseases caused by impaired synapses," said Dr. Blanpied. "To understand these conditions, we need to observe exactly how synapses are malfunctioning. This will help us to identify what causes the diseases and how better to treat them."

The PECASE Award is the US government's highest honor for scientists and engineers who are at the start of their careers. PECASE winners receive a citation, a plaque and federal funding for their research for up to five years. Each year, nine federal departments recommend scientists and engineers for the honor. The National Institutes of Health, part of the US Department of Health and Human Services, recommended Dr. Blanpied.

"Dr. Blanpied is really drilling down and pushing the limits of our ability to understand synaptic transmission," said Meredith Bond, PhD, professor and chair, Department of Physiology. "He is one of the rising stars at this institution, in both physiology and neuroscience. This award is a true honor for Dr. Blanpied, for the Department of Physiology and for the School of Medicine."

Dr. Blanpied and his research team are tracking the plasticity of the synapses, that is, how they change over time. Those changes affect how the synapses transmit signals between neurons, a process known as synaptic transmission. His technique of using state-of-the-art fluorescent microscopy allows Dr. Blanpied's team to examine changes in just one synapse at a time. Traditional methods of studying synapses through biochemistry, molecular biology and genetics only provide images of large groups of synapses. Even for traditional light microscopes, synapses are so small that they can barely be measured accurately.

Dr. Blanpied is the second University of Maryland School of Medicine faculty member to win the PECASE honor in recent years. Steven D. Munger, PhD, associate professor, Department of Anatomy & Neurobiology, received the award in 2004. "The fact that he is our second PECASE winner in just four years speaks to the strength of the research that goes on here," said Dr. Bond. 



Lawrence Tabak, DDS, PhD, acting deputy director, National Institutes of Health, Thomas Blandpied, PhD, and John Marburger, PhD, former science advisor to President Bush and director, White House Office of Science and Technology Policy, at the White House Award Ceremony.

Researchers Identify Common Gene Variant Linked to High Blood Pressure

Researchers at the School of Medicine have identified a common gene variant that appears to influence people's risk of developing high blood pressure, according to the results of a study which was published online December 29, 2008, in the *Proceedings of the National Academy of Sciences* (PNAS).

The STK39 gene is the first high blood pressure, or hypertension, susceptibility gene to be uncovered through a new technique called a genome-wide association study and confirmed by data from several independent studies. Located on chromosome 2, the gene produces a protein that helps to regulate how the kidneys process salt, which plays a key role in determining blood pressure.

"This discovery has great potential for enhancing our ability to tailor treatments to the individual—what we call personalized medicine—and to more effectively manage patients with hypertension. We hope it will lead to new therapies to combat this serious public health problem worldwide," said senior author, Yen-Pei Christy Chang, PhD, assistant professor, Departments of Medicine and Epidemiology & Preventive Medicine.

But, Dr. Chang cautions, more research is needed. "Hypertension is a very complex condition, with numerous other genetic, environmental and lifestyle factors involved. The STK39 gene is only one important piece of the puzzle," she said. "We want to determine how people with different variations of this gene respond to diuretics and other medications, or to lifestyle changes, such as reducing the amount of salt in their diet. This information might help us discover the most effective way to control an individual patient's blood pressure."

One in four Americans has elevated blood pressure which can lead to death or result in complications, such as cardiovascular disease, stroke and end-stage kidney disease. Doctors consider the ideal systolic and diastolic blood pressure to be less than 120/80. (The numbers reflect the pressure of the blood against the arteries when the heart beats and is at rest.) When blood pressure is elevated, doctors recommend lifestyle changes or prescribe medications, such as diuretics, which force the kidneys to remove water from the body, in order to treat the condition. However, patients respond differently to treatments and finding the best treatment among all the

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possible ones for specific patients is still a "try and see" process, according to Dr. Chang. Scientists believe multiple genes are involved in the most common form of high blood pressure called essential hypertension. But because so many factors affect blood pressure, including diet, exercise and stress levels, it has been difficult to pinpoint a specific gene or group of genes.

The researchers identified the link between the STK39 gene and blood pressure by analyzing the DNA of 542 members of the Old Order Amish community in Lancaster County, Pennsylvania, scanning approximately 100,000 genetic markers across the entire genome for variants known as single nucleotide polymorphisms, or SNPs, associated with systolic and diastolic blood pressure. The researchers found strong association "signals" with common variants of the serine/threonine kinase gene, or STK39, and confirmed their findings in another group of Amish people and in four other groups of Caucasians in the United States and Europe.

People with one particular variant showed slight increases in blood pressure compared to those with a more common form of the gene and were more likely to develop hypertension, researchers found. The researchers estimate that about 20 percent of Caucasians in the general population have this variant of the STK39 gene.


"With this new scanning approach—the genome-wide association study—we are able to uncover genes that have previously eluded us. The field of complex disease genetics

"Hypertension is a very complex condition, with numerous other genetic, environmental and lifestyle factors involved. The STK39 gene is only one important piece of the puzzle."

has undergone a revolution in terms of discovering new genes and understanding the genetic basis of common adult-onset diseases," said co-author Alan R. Shuldiner, MD, professor, Department of Medicine, and director of the Program in Genetics and Genomic Medicine.

The study is entitled "Whole-genome Association Study Identifies STK39 as a Novel Hypertension Susceptibility Gene" and appeared in the print edition of *PNAS* in January 2009. The Amish are ideal for such studies because they are a genetically homogeneous people whose forefathers came to Pennsylvania from Europe in the mid-1700s and share a similar diet and rural lifestyle. Because many in the Amish community don't have regular medical check-ups, they often don't know they have high blood pressure or take medications for it, according to Dr. Chang. The Amish appear to have as much hypertension as other Caucasians. As a result of the study, some of the participants learned that they had hypertension and were able to start treatment.

The research, which was funded by the National Institutes of Health, is a spin-off project of another University of Maryland study—the Amish Family Diabetes study—looking for genes that may cause type 2 diabetes. Researchers at the School of Medicine already have identified a number of genes that may play a role in the development of this type of diabetes.

Since 1993, University of Maryland researchers, led by Dr. Shuldiner, have conducted more than a dozen studies of the Amish in Lancaster County, searching for genes that cause a variety of medical problems, including osteoporosis and obesity as well as diabetes and hypertension. More than 4,000 members of the Amish community have participated in the studies. 



Yen-Pei Christy Chang, PhD

Keeping Asthma at Bay

Pediatric Asthma Collaborators Work with Their Young Patients



Keyvan Rafei, MD

The emergency department or hospital inpatient unit is no place for a child with persistent asthma to get regular treatment for the chronic condition, says Keyvan Rafei, MD, assistant professor, Department of Pediatrics. But for many asthmatic children, the hospital is the only place they receive treatment, and then, only in the case of an asthma attack or episode. The issue is particularly significant in Baltimore, which recently was named one of the Top 20 most challenging places to live with asthma by the Asthma and Allergy Foundation of America.

But School of Medicine faculty members, and their nurse and respiratory therapy colleagues, have come up with an innovative way to combat the problem at the University of Maryland Hospital for Children. It's a multidisciplinary education and treatment approach aimed at targeting patients in every stage of their care at the hospital, and it seems to be working.

Dr. Rafei, who is also head of the Division of Pediatric Emergency Medicine, and the pediatric asthma steering group meet monthly to serve a common goal—to get more of Baltimore's pediatric asthma patients on regular treatment regimens to control their attacks and keep them out of the emergency room or inpatient floors. "We're trying to get kids well as quickly and as safely as possible, and close the loop so they don't come back to the hospital for their asthma," said Jack Gladstein, MD, associate professor, Department of Pediatrics, and director of the Hospitalist Program at the University of Maryland Hospital for Children.

The Pediatric Asthma Program the School of Medicine faculty developed has proven so successful that in December 2008 it earned disease-specific accreditation for the second time from the Joint Commission on Accreditation of Healthcare Organizations. It earned such accreditation for the first time in December 2006. "Our approach to managing children's asthma is evidence-based and tied to a quality improvement process," said Dr. Rafei, whose collaborators on the steering committee include Dr. Gladstein, who handles inpatients, and Mary Beth Bollinger, MD, associate professor, Department of Pediatrics. Dr. Bollinger also operates the Breathmobile, a mobile doctor's office that brings asthma care directly to students at public schools in Baltimore City and Prince George's County.

"We keep records on our progress and discuss ways to improve," said Dr. Rafei. "We're really doing something different here."

The issue of asthmatic children in the hospital is of particular interest to School of Medicine pediatricians because of the urban location and patient population of the University of Maryland Hospital for Children. Inner city and African American children experience particularly high rates of asthma. Dr. Rafei has gathered the numbers for Baltimore: In Baltimore schools, there is a 20 percent asthma prevalence; asthma causes 640,000 missed school days each year in Maryland; hospitalization rates among asthmatic children in Baltimore are three times higher than the rest of the country; and about half of Baltimore children with asthma have had an emergency department visit in the prior six months.

"Here at the School of Medicine, we have the expertise to help with this problem," said Dr. Rafei. "But we can't do that with a fragmented approach."

The key to the Pediatric Asthma Program is consistency, says Dr. Gladstein. Coordinating the efforts of the nurses, respiratory therapists and faculty members in all departments ensures that patients receive the same message at all points in the hospital. "The patient education piece, which is often overlooked, is so critical to this effort," Dr. Gladstein said. "Consistency in patient education leads to better outcomes."

Families of patients in the emergency room or inpatient unit after an asthma attack are particularly open to education, said Dr. Rafei. Managing asthma takes a lot of dedication, and families require some convincing that it's necessary. Dr. Rafei should know—his three-year-old child suffers from asthma. "Asthma is an episodic illness," he said. "Most of the time, the child seems fine, since the attacks are periodic. If the patients and their families are not feeling the effects of the condition, it's hard to understand the importance of disease management. But after an attack, the reality of asthma is clear to a family. It's a unique, teachable moment to make an impact on their attitudes."

The Pediatric Asthma Program operates with a four-pronged approach. First, Dr. Rafei explains, the group works to ensure patients receive the highest quality acute care in the emergency department. That means that instead of nebulizer treatments, they receive metered-dose inhalers with corticosteroids, the latest technology

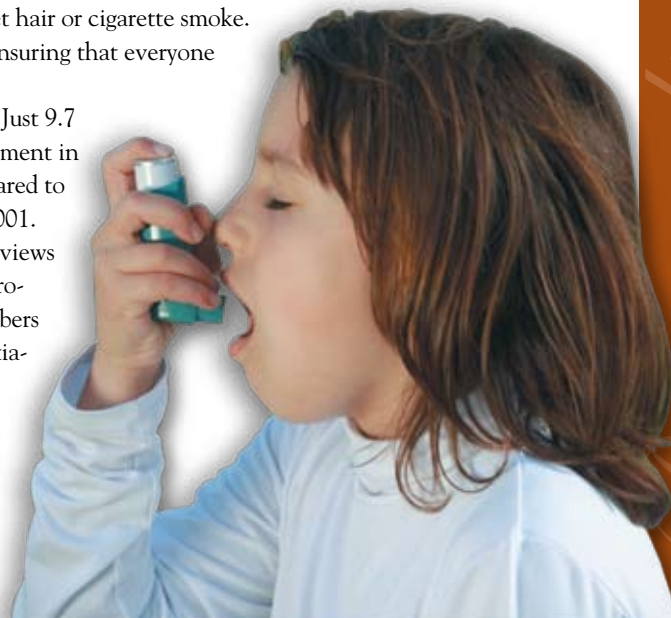
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in asthma care. Second, the emergency department physicians are charged not only with treating the acute episode, but with impacting the chronic condition. That means kids go home with a prescription for the corticosteroid inhaler they'll need to manage their condition. Ordinarily, Dr. Rafei says, the emergency room doctor would simply tell the family to go to their community physician for a follow-up.

Third, the goal is education. Parents and their families are given educational pamphlets loaded with information about asthma. The brochure explains why it's important to control the condition by administering the necessary medicines every day, even when there hasn't been an episode. It also explains how to prevent attacks by removing triggers such as pet hair or cigarette smoke. And fourth, the entire approach is multidisciplinary, ensuring that everyone is on the same page, delivering the same message.

The program is working, according to the numbers. Just 9.7 percent of patients who came to the emergency department in fiscal 2008 with acute asthma were hospitalized, compared to 11.1 percent the year before and 12 percent in fiscal 2001.

The steering committee monitors six metrics and reviews the program's progress each month to determine the program's strengths and work on its weaknesses. The numbers are good, but even if they were less impressive, the initiative—which costs virtually nothing—would be worth the effort, according to Dr. Rafei, who says asthma causes more than 5,000 deaths in the US each year. "Even if we impact only a small number of children with asthma, it's still so much better than before," he said.



Chrencik Promoted to CEO of University of Maryland Medical System

Robert A. Chrencik has been promoted to chief executive officer (CEO) of the University of Maryland Medical System (UMMS). Mr. Chrencik, who previously served as chief financial officer of UMMS, was named interim CEO of the medical system last August.



Robert A. Chrencik

After a national search, the UMMS

Board of Directors voted to approve Mr. Chrencik as its permanent CEO in December 2008. Then, in late December, the University System of Maryland Board of Regents approved his selection.

Mr. Chrencik has made it a priority to enhance the relationship between UMMS and the School of Medicine.

Mark Your CALENDARS!

The 17th Perspectives in Biomedical Science Symposium

Thursday, April 2, 2009
1:00–4:30 pm

MSTF Auditorium

Reception immediately following in MSTF Atrium

Coordinated by the Program in Genetics and Genomic Medicine

SPEAKERS INCLUDE:

- Mary-Claire King, PhD, University of Washington School of Medicine, a pioneer in breast cancer genetics, who discovered the BRACA-1 gene commonly used in breast cancer genetic testing
- Harry (Hal) Dietz, MD, Johns Hopkins University School of Medicine, an investigator researching the genetic factors predisposing aortic aneurysm as seen in Marfan Syndrome
- Victor Ambros, PhD, University of Massachusetts Medical School, the researcher credited with the discovery of microRNA

Registration is required. For more information and to register, contact Pamela Shinnick, program manager, Program in Genetics and Genomic Medicine, at pshinnic@medicine.umaryland.edu.

New Application System Increases the Pool of Prospective Physical Therapy Students


The Department of Physical Therapy & Rehabilitation Science (PTRS) constantly strives for new ways to grow its program. One of its most recent initiatives is a new application service, which helped broaden the scope of potential students applying to their three-year Doctor of Physical Therapy (DPT) program. The Physical Therapist Centralized Application Service (PTCAS), which was launched by the American Physical Therapy Association in August 2008, is a Web-based tool that allows prospective students to use one application and set of materials to apply to multiple physical therapist education programs. "That's huge, because in the past it was a totally separate process for each program you applied to," explained Mary Rodgers, PT, PhD, chair of the department and the George R. Hepburn Dynasplint Professor of Physical Therapy & Rehabilitation Science.

Not only did the old system require students to fill out multiple applications, they also had to navigate multiple prerequisites. "There was a lot of variety in terms of what the different programs required," Dr. Rodgers said. However, with the PTCAS system, the participating schools standardize their prerequisites, so students can apply to many different schools while only having to worry about fulfilling one set of requirements.

This change has made quite a difference in the pool of prospective students applying to the University of Maryland. "We're definitely seeing an increase in the number of applicants that we've had compared to this time last year, especially out-of-state applicants," stated Dr. Rodgers. "It's



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wonderful," she continued. "We look forward to growing our student base as much as we can with the aid of this system." In fact, applications were up 44 percent for this year's incoming class; these applications are currently being processed. The first class of DPT students resulting from the new application system will start in June 2009. 



Vincent Conroy, PT, DScPT, assistant professor, Department of Physical Therapy & Rehabilitation Science (PTRS), instructs current PTRS students in a teaching exercise. A new applications system is making it easier for hopeful physical therapy students to attend the University of Maryland.

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