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 the upcoming "FESTIVAL OF SCIENCE," on November 22, 2013, which will give us an opportunity to highlight our outstanding research programs. This year, we will feature the research in three of our major academic units: the Institute for Genome Sciences, the Department of Pharmacology, and the Department of Surgery. World-renowned external scientific experts will provide constructive feedback on the direction of our pursuits.

The vibrant research ongoing in the School of Medicine is crucial to the advancement of our academic mission, and elevates the quality of our clinical care and educational programs. Since the School's founding over 200 years ago, we have had a history of remarkable achievements: from contributing to the research which found that yellow fever was caused by mosquitos in the late 1800s; to the research which led to the development of a new class of breast cancer treatments, and the discovery that HIV causes AIDS in the 1990s; to work in genomics and personalized medicine which is revolutionizing how patients are treated today. **Our accomplishments present us with the indisputable imperative that we must not only sustain our leadership in academic medicine, but move to the next level of excellence.**

More than ever before, there is an intense interest in the biomedical research community on rapidly translating discoveries made in basic science laboratories into clinical care. **My vision for research is for the School of Medicine to become known for its uniquely transforming research. Part of this vision is the *Accelerating Discovery and Innovation in Medicine (ACCELMed)* initiative, which we will launch at the "Festival of Science."**

As I shared with you in the VISION 2020 summary, which highlights the shared goals of the School of Medicine and Medical System for the coming years, **we have an ambitious plan to significantly increase our federally funded biomedical research.** I look forward to our programs competitively securing federal funding in excess of $500 million, as a testament of the superlative nature and quality of our scholarship. We wish to accomplish this by creating a culture where "big science" questions are tackled by collaborative research teams, spanning our entire campus, that are well-positioned to seek out and receive a sizable funding base. Working toward this goal will have a positive impact on all our mission areas, as well as the health and well-being of citizens in our state and region, and this cannot be overemphasized.

Launching ACCELMed at this time may seem unrealistic. As my 2013 State of the School address at the end of last month indicated, we have been critically affected by the cuts to the National Institutes of Health budget. Our federal funding, just like the federal funding for most of our peer institutions nationwide, has fallen since last fiscal year. However, we are not going to use this as an excuse to surrender, but as fuel to spur our efforts to work smartly, strategically and opportunistically.

Genome Sciences Claire Fraser, PhD

Pharmacology Margaret McCarthy, PhD

Surgery Stephen Bartlett, MD

The inaugural "Festival of Science" is a good example of this approach. The day will be filled with presentations from faculty in the Institute for Genome Sciences and the Departments of Pharmacology and Surgery. It will showcase how we are moving ahead, and how we are thriving in these challenging times. Simply by hosting the Festival in the late fall, a time when many may start to naturally "wind down" and reflect back on the events of the year, **we will use the upcoming Festival as a jumping-off point for new directions in our work and for thinking differently about how to approach scientific research questions.** The discussions that will ensue with our distinguished members of the Scientific Advisory Council should serve to inspire not just the Festival presenters but your own pursuits. While the Council members are visiting us, you will have a unique opportunity to hear various perspectives about the School of Medicine's research. I encourage you to apply the Council's comments to your own work.

One of our greatest strengths, which has enabled us to advance our leadership in biomedical research, lies in the school's Research Affairs Advisory Committee (RAAC). This group facilitates interaction among investigators within the School of Medicine. Part of the ACCELMed Initiative is to expand our leadership to include a new group of Research Resource Advisors who will work closely with the RAAC, department chairs, program, center and institute directors, division heads and other investigators to nurture an even more vibrant research enterprise, and to make enhanced federal funding for research a priority. **Together, we will work to develop strategic innovations to further enrich the research momentum and research culture already prevalent at the school.** This projected robust growth will coincide with the space available in the new SOM Research Building, which we anticipate to fill with federally funded investigators working together to create an exceptional environment to maximize our biomedical research output.

Our continuum of exceptional academicians has positioned us among the very best in medicine and biomedical research. **We have every reason to be excited and confident about the future of the School of Medicine.** Without question, there are challenging times ahead, but working in partnership, we will meet these challenges and continue to make discoveries that will significantly change the direction of scientific research and health care today and tomorrow.

In the relentless pursuit of excellence, I am

Sincerely yours,

E. Albert Reece

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

"One of our greatest strengths, which has enabled us to advance our leadership in biomedical research, lies in the school's Research Affairs Advisory Committee (RAAC). This group facilitates interaction among investigators within the School of Medicine."

► BY CAELIE HAINES

DR. BANKOLE JOHNSON
Named Chair of the Department of Psychiatry

University of Maryland School of Medicine Dean E. Albert Reece, MD, PhD, MBA, has appointed Bankole Johnson, DSc, MD, MPhil, a leading expert in neuroscience and the psychopharmacology of addiction research, as the new Chair of the Department of Psychiatry. He will also lead the new Brain Science Research Consortium Unit (RCU).

Dr. Johnson comes to the School of Medicine from the University of Virginia, where he was the Alumni Professor and Chairman of the Department of Psychiatry and Neurobehavioral Sciences.

"As a distinguished, National Institutes of Health (NIH)-funded neuroscientist and psychiatrist, Dr. Johnson is the ideal person to lead our world-renowned Department of Psychiatry, and our new Brain Science RCU," says Dean Reece. "Throughout his career, Dr. Johnson has balanced his award-winning research in addiction with his clinical responsibilities, while excelling at various leadership roles within his institutions and in the international medical community at large. His career represents a wonderful example of the missions of the University of Maryland School of Medicine."

Dr. Johnson replaces Anthony F. Lehman, MD, MSPH, who is now Senior Associate Dean for Clinical Affairs. "We are most grateful to Dr. Tony Lehman for leading our Department of Psychiatry to new heights over his 15 years as chair," says Dean Reece. "His excellence in research, clinical care and administrative leadership has set the bar high for his fellow faculty. His assistance has been instrumental during the search for his replacement, and we are so thankful for his help in making this transition a smooth one."

Dr. Johnson's research expertise is in the psychopharmacology of medications for treating addictions.

"I am thrilled to join a nationally and internationally renowned university and School of Medicine with such a tremendous reputation for utilizing research as the foundation upon which to provide the very best clinical care, and to train the leading doctors of tomorrow. I am particularly delighted to have the opportunity to lead these truly outstanding programs and initiatives to the next level of academic and clinical excellence," says Dr. Johnson.

Dr. Johnson graduated from the University of Glasgow in Scotland in 1982 with a Medicinae Baccalaureumet Chirurgie Baccalaureum degree, (MBChB), the qualifying degree for a physician in the UK. He trained in Psychiatry at the Royal London and Maudsley and Bethlem Royal Hospitals. In 1991, Dr. Johnson graduated from the University of London with a Master of Philosophy degree (MPhil.) in neuropsychiatry. He then went on to conduct doctoral research at Oxford University and obtained the Medicinae Doctorem (MD) degree in biomedical sciences from the University of Glasgow in 1993. Most recently, in 2004, Dr. Johnson earned a Doctor of Science degree (DSc) in medicine—the highest doctoral degree that can be granted in science by a British university—from the University of Glasgow, specializing in neuroscience and neuropharmacology.

His primary area of research expertise is the psychopharmacology of medications for treating addictions. Dr. Johnson is a Board-certified psychiatrist throughout Europe and in the United States. He is the Principal Investigator on NIH-funded research studies using neuroimaging, neuropharmacology, and molecular genetics techniques. Dr. Johnson's clinical expertise is in the fields of addiction, biological, and forensic psychiatry. He has been honored with positions on numerous NIH review and other committees, including special panels.

Dr. Johnson is the recipient of many awards and honors in his field. Most recently, he was named as a Fellow in the American College of Neuropsychopharmacology in 2010. In 2013, Dr. Johnson was the recipient of the Jack Mendelson Award from the NIH. The Mendelson award is bestowed annually to an outstanding alcohol investigator whose clinical research has made a substantial contribution to our understanding of alcoholism susceptibility, alcohol's effects on the brain and other organs, and prevention and treatment of alcohol-use disorders.

Dr. Johnson recently served for two years as Field Editor-in-Chief of *Frontiers in Psychiatry* and currently serves on the editorial boards of *The American Journal of Psychiatry* and *Alcoholism: Clinical and Experimental Research*, among others. In addition to reviewing for over 30 journals in pharmacology, neuroscience, and the addictions, Dr. Johnson has been published in over 200 peer-reviewed publications and has edited three books: *Drug Addiction and Its Treatment: Nexus of Neuroscience and Behavior; Handbook of Clinical Alcoholism Treatment; and Addiction Medicine: Science and Practice*. Dr. Johnson also received national media attention for his appearance in the Home Box Office (HBO) original documentary *Addiction*, which won the prestigious Governors Award, a special Emmy Award, from the Academy of Television Arts and Sciences.

"We look forward with great anticipation to Dr. Johnson joining our leadership team here at the University of Maryland School of Medicine," says Dean Reece.

► BY CAELIE HAINES

Leadership Transition in the Department of Physical Therapy & Rehabilitation Science

University of Maryland School of Medicine Dean E. Albert Reece, MD, PhD, MBA, announced in August that Mary Rodgers, PT, PhD, FAPTA, FASB, the George R. Hepburn Dynasplint Professor and Chair in the Department of Physical Therapy & Rehabilitation Science (PTRS), has chosen to step down from her position as Chair, effective September 1, 2013. Mark W. Rogers, PT, PhD, an internationally recognized expert in neuromotor control and rehabilitation research, has been appointed Interim Chair of the department.

Dr. Rodgers is stepping down as chair so that she is able to pursue a temporary appointment from the National Institutes of Health to work at the National Institutes of Biomedical Imaging and Engineering (NIBIB), while remaining on the School of Medicine faculty. Dr. Rodgers' work at NIH started when she took a year-long sabbatical in 2009 in order to participate in an AAAS fellowship with NIBIB. She will now divide her time between NIBIB and the School of Medicine, where she will remain with the department in the new administrative role of Vice Chair, representing the department as needed by the Interim Chair. Dr. Rodgers will also continue her teaching and research activities, and will remain Co-Director of the Pilot Studies Core for the Claude D. Pepper University of Maryland Older Americans Independence Center (UMOAIC).

"It is with mixed emotions that I make this announcement about Dr. Rodgers," said Dean Reece, who is also Vice President for Medical Affairs at the University of Maryland and the John Z. and Akiko K. Bowers Distinguished Professor at the University of Maryland School of Medicine. "She has led our Department of Physical Therapy and Rehabilitation Sciences to new heights, and we are so glad that she will remain with the School of Medicine as Vice Chair of the department. Her leadership is a model for others at our school, and we are sorry to lose her as Chair. At the same time, we are thrilled for her as she embarks on this new temporary opportunity at the NIH. We are grateful to Dr. Mark Rogers for stepping up as Interim Chair, and I am confident that he is the right choice to continue the department's record of success as we search for a permanent department Chair."

Dr. Mary Rodgers has been a faculty member at the School of Medicine since 1994 and Chair of PTRS since 1998. During her 15 years of leadership, PTRS has risen from an unranked program nationally to earn a spot among the top 10 percent of PT programs in the country; grown its research focus with the initiation of the PhD in Physical Rehabilitation Science; transitioned the Masters in PT curriculum to a Doctor of PT education program; and initiated Doctor of Science in PT, transitional DPT, and DPT/PhD degree programs. Dr. Rodgers also recruited the department's first R01 investigator, Dr. Mark Rogers; procured the department's first two endowed professorships; and provided national and international leadership in Biomechanics Societies, as well as the American Physical Therapy Association. She has been a dedicated School of Medicine citizen in many ways, serving on numerous SOM Chair searches and committees, including the Appointments, Promotion and Tenure committee.

"I appreciate Dean Reece's support for this career opportunity, and I share his confidence that these administrative changes are positioning PTRS and the School of Medicine for continued success," said Dr. Rodgers. "I am very proud of all that this department has accomplished in the 15 years that I have served as chair and thank everyone for their support during this leadership transition."

Dr. Mark Rogers joined the School of Medicine in 2008 as a tenured professor. He came to the University of Maryland from Northwestern University, where he had been steadily moving up the ranks in the Department of Physical Therapy & Human Movement Sciences at their Feinberg School of Medicine since 1986. Currently, he is also Vice Chair for Research in the department; Director of the PhD Program in Physical Rehabilitation Science (PRS); Director of the National Institute for Disability Rehabilitation Research's (NIDRR) University of Maryland Advanced Neuromotor Rehabilitation Research Training (UMANRRT) Program in the department; and Co-Director of the Mobility Function & Neuroplasticity Core at the Claude D. Pepper Center. He will continue in all of these roles, except as Director of the PhD Program, which will now be led by Larry Forrester, PhD, Associate Professor.

"I enthusiastically look forward to working with the faculty, staff, students, and other colleagues in this new capacity as we continue to focus on our department goals for research," said Dr. Mark Rogers. As Interim Chair, his plans are to "drive our strategic plan initiatives and continue to work with Dr. Rodgers, the Vice Chair, as well as our program directors, faculty, students and staff to accomplish our program objectives."

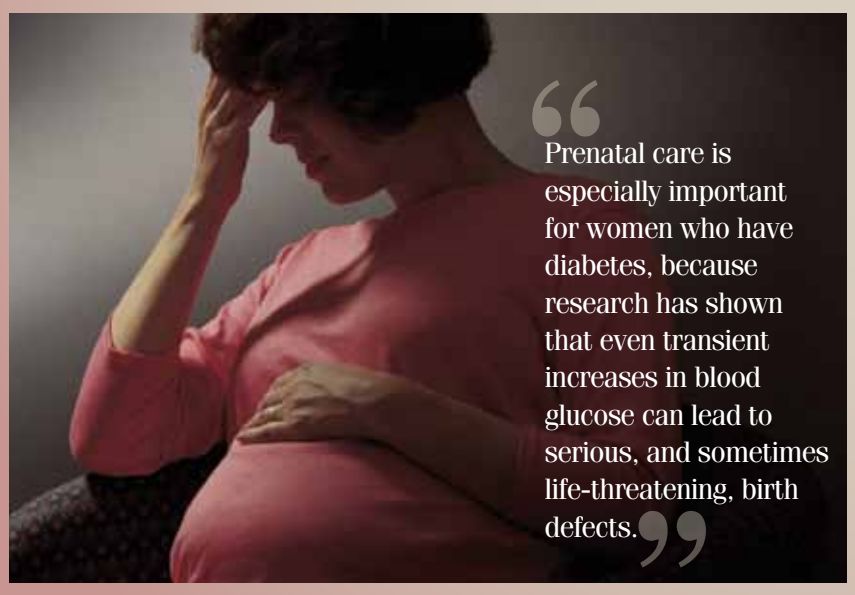
► BY KAREN ROBINSON

New Approach to Preventing Diabetes-Induced Birth Defects

A research team at the University of Maryland School of Medicine has identified a cell-signaling pathway that plays a significant role in causing developmental defects of the fetal spinal cord and brain in babies of women with diabetes. Using an animal model of disease, the team's results point to a potential new therapeutic target for preventing these defects in pregnant women having pre-existing diabetes. The results of this study were published in the August 27th issue of *Science Signaling*.

"Providing the best possible care for women before and during early pregnancy is a significant challenge, because the first trimester is such a crucial time of development, and many women may not be aware that they are pregnant," says Dean E. Albert Reece, MD, PhD, MBA, Vice President for Medical Affairs, University of Maryland and the John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine. "Prenatal care is especially important for women who have diabetes, because research has shown that even transient increases in blood glucose can lead to serious, and sometimes life-threatening, birth defects."

According to the U.S. Centers for Disease Control and Prevention, approximately 1 in 33 babies in the United States is born with a birth defect. Neural tube defects (NTDs), which occur when the fetal spinal column does not close completely in the first trimester, are among the most common type of birth defects and affect about 3,000 pregnancies each year. Women with diabetes prior to pregnancy are 3- to 10-times more likely to have a child with NTDs than women without disease. Folic acid (vitamin B; folate) has been shown to prevent NTDs in approximately 70 percent of pregnancies, but is not effective for everyone.



"Recent studies have reported that too much folic acid during pregnancy may increase the risk of breast cancer in offspring later in life, so it has become increasingly important to find additional or adjunctive therapies to prevent NTDs," says Peixin Yang, PhD, Associate Professor, Department of Obstetrics, Gynecology & Reproductive Sciences, who led the current study. "For women with diabetes, whose risk of having an infant with a birth defect is much higher than in the general population, having additional preventive methods could significantly improve a baby's development."

Previous work has revealed that a cell-signaling pathway which leads to programmed cell death, known as apoptosis, greatly contributes to NTDs. High levels of maternal glucose in diabetic pregnancies lead to abnormal cell death during fetal development. Although much of this work has been conducted in animal models of diabetic pregnancy, the authors also confirmed that the same pathway is present in human fetal tissues with NTDs.

Because thioredoxin is small and naturally-occurring, it may be possible to develop it into a dietary supplement, much like folic acid, which women can take prior to and during pregnancy.

In the current study, investigators under the direction of Dr. Yang and Dean Reece at the University of Maryland School of Medicine observed that high levels of glucose initiate the apoptotic pathway by activating a protein called apoptosis signal-regulating kinase 1 (ASK1). Once activated, ASK1 turns on a cell death pathway by activating other pro-cell death proteins. The team found that reducing ASK1 activity, either by deleting the ASK1 gene or by giving diabetic pregnant mice an ASK1 inhibitor, also reduced the incidence of NTDs.


Peixin Yang, PhD


E. Albert Reece, MD, PhD, MBA

Although the majority of these experiments were also conducted in an animal model, the team observed similar expression of ASK1 and other apoptotic proteins in NTDs obtained from human samples. These findings suggest that human NTDs might occur using a similar cell death pathway as in diabetic pregnancy animal models.

One of the most promising results from this study is that the ASK1 inhibitor the team used is a small protein called thioredoxin, which people naturally produce. Thioredoxin is thought to act as an antioxidant and has been used commercially as an anti-aging agent in some cosmetics.

"Because thioredoxin is small and naturally-occurring, it may be possible to develop it into a dietary supplement, much like folic acid, which women can take prior to and during pregnancy," says Dr. Yang. "Thioredoxin and folate might even have a combinational effect, providing greater protection for the fetus against NTDs, but also allowing women to take less folic acid, thereby preventing possible folate-induced damage to their children."

More work is needed before trials to test thioredoxin supplements in people could begin. The team does not know exactly how thioredoxin blocks ASK1 activation, or if the antioxidant has any side effects. "This work contributes greatly to our understanding of how high blood glucose causes birth defects and identifies specific targets that could be exploited to prevent diabetes-induced NTDs," says Dr. Reece. "The findings on thioredoxin's inhibitory effects also have implications for other diseases, such as cancer or kidney disease, which are caused or exacerbated by cell death."

► BY KAREN ROBINSON

Marijuana Use in Adolescence May Cause **Permanent Brain Abnormalities**

Regular marijuana use in adolescence, but not adulthood, may permanently impair brain function and cognition, and may increase the risk of developing serious psychiatric disorders such as schizophrenia, according to a recent pre-clinical study from the University of Maryland School of Medicine. Researchers hope that the study, published in *Neuropsychopharmacology*—a publication of the journal *Nature*—will help to shed light on the potential long-term effects of marijuana use, particularly as lawmakers in Maryland and elsewhere contemplate legalizing the drug.

"Over the past 20 years, there has been a major controversy about the long-term effects of marijuana, with some evidence that use in adolescence could be damaging," says the study's senior author Asaf Keller, PhD, Professor, Department of Anatomy & Neurobiology. "Previous research has shown that children who started using marijuana before the age of 16 are at greater risk of permanent cognitive deficits, and have a significantly higher incidence of psychiatric disorders such as schizophrenia. There likely is a genetic susceptibility, and then you add marijuana during adolescence and it becomes the trigger."

"Adolescence is the critical period during which marijuana use can be damaging," says the study's lead author, Sylvina Mullins Raver, a PhD candidate in the Program in Neuroscience in the Department of Anatomy & Neurobiology at the University of Maryland School of Medicine. "We wanted to identify the biological underpinnings and determine whether there is a real, permanent health risk to marijuana use."

The scientists—including co-author Sarah Paige Haughwout, a research technician in Dr. Keller's laboratory—began by examining cortical oscillations in mice. Cortical oscillations are patterns of the activity of neurons in the brain and are believed to underlie the brain's various functions. These oscillations are very abnormal in schizophrenia and in other psychiatric disorders. The scientists exposed young mice to very low doses of the active ingredient in marijuana for 20 days, and then allowed them to return to their siblings and develop normally.

"In the adult mice exposed to marijuana ingredients in adolescence, we found that cortical oscillations were grossly altered, and they exhibited impaired cognitive abilities," says Ms. Raver. "We also found impaired cognitive behavioral performance in those mice. The striking finding is that, even though the mice were exposed to very low drug doses, and only for a brief period during adolescence, their brain abnormalities persisted into adulthood."


Asaf Keller, PhD

The scientists repeated the experiment, this time administering marijuana ingredients to adult mice that had never been exposed to the drug before. Their cortical oscillations and ability to perform cognitive behavioral tasks remained normal, indicating that it was only drug exposure during the critical period of adolescence that impaired cognition through this mechanism. The researchers took the next step in their studies, trying to pinpoint the mechanisms underlying these changes and the time period in which they occur.

"We looked at the different regions of the brain," says Dr. Keller. "The back of the brain develops first, and the frontal parts of the brain develop during adolescence. We found that the frontal cortex is much more affected by the drugs during adolescence. This is the area of the brain controls executive functions such as planning and impulse control. It is also the area most affected in schizophrenia."

Dr. Keller's team believes that the results have indications for humans as well. They will continue to study the underlying mechanisms that cause these changes in cortical oscillations. "The purpose of studying these mechanisms is to see whether we can reverse these effects," says Dr. Keller. "We are hoping we will learn more about schizophrenia and other psychiatric disorders, which are complicated conditions. These cognitive symptoms are not affected by medication, but they might be affected by controlling these cortical oscillations."

Groundbreaking Ceremony Held for HSF III Research Facility

ON SEPTEMBER 17, E. Albert Reece, MD, PhD, MBA, Vice President for Medical Affairs, University of Maryland and the John Z. and Akiko K. Bowers Distinguished Professor and Dean, University of Maryland School of Medicine, joined Jay A. Perman, MD, President, University of Maryland, Baltimore (UMB), in announcing that the university is breaking ground on a 428,970-square-foot, 10-story, $305.4 million research facility that will enable the School of Medicine to retain its position as one of the leading biomedical research institutions in the world. This will be the largest building on the UMB campus.

The facility will provide both the laboratory space and new technology for the School of Medicine to continue to advance scientific discovery and breakthroughs in addressing the most critical disease categories. Maryland Governor Martin O'Malley, Maryland Lieutenant Governor Anthony Brown, Baltimore Mayor Stephanie Rawlings-Blake and many other dignitaries joined University System of Maryland Chancellor William E. "Brit" Kirwan, PhD, Dr. Perman and Dean Reece in a ceremonial groundbreaking at the site of the new building.

"This facility is an investment not just in Baltimore but in the future of all Marylanders. We continue to make the better choices necessary to keep Maryland on the cutting-edge of science, discovery and innovation while creating jobs," said Governor O'Malley. "Not only will this new facility at the University of Maryland School of Medicine create nearly 600 permanent jobs and nearly 3,000 construction jobs, but it will also prepare generations of Marylanders for the jobs of our 21st century global innovation economy."

"I'm very excited to celebrate this important day for the University of Maryland and the School of Medicine, both important fixtures of the biomedical research industry here in our state," said Lt. Governor Brown. "To keep strengthening Maryland's economy, we must continue to make job-creating investments in our biomedical research facilities like this. The construction of the Health Sciences Facility III is an indicator of a bright future for these institutions and this industry in our state."

The University of Maryland, together with its affiliated hospital systems and practices, generate more than $7 billion in annual economic activity. For each dollar of state funding that the University receives, it generates more than $15.

> "When this facility opens, our students and research scientists will have access to the most cutting-edge of scientific facilities, as well as easier access to each other, encouraging collaboration across disciplines."

"This new, multimillion dollar facility will go a long way toward cementing the city of Baltimore's reputation as a major national center for medical innovation and discovery," said Mayor Rawlings-Blake. "It is a valuable project that will help to boost the entire city of Baltimore and especially the people of our city's west side. We look forward to continued collaboration with the University of Maryland, Baltimore in developing new projects to keep our city strong and flourishing."

"When this facility opens, our students and research scientists will have access to the most cutting-edge of scientific facilities, as well as easier access to each other, encouraging collaboration across disciplines," said Chancellor Kirwan, PhD. We hope to see new interdisciplinary partnerships develop, leading to a better understanding of human health and disease and a fully comprehensive education for our students."

The building, which is set to open in January 2018, is the medical school's first new research building since the 2003 opening of the Health Sciences Facility II, a $78 million, 101,000-square-foot facility at the corner of Penn and Lombard streets. The first Health Sciences Facility opened in 1995, and is adjacent to the second building.

"The University of Maryland, Baltimore, has undertaken many projects in recent years to facilitate robust growth and development on our campus and among our schools," said Dr. Perman. "In 1975, we occupied about 1.9 million square feet of space. In 2013, we occupy 5.9 million square feet. Every step of this expansion has enabled us to bring new jobs and millions of dollars in research and education funding to the state of Maryland. The Health Sciences Facility III, the largest facility in our campus history, further strengthens our footprint in West Baltimore and our economic impact on the city and state. We are proud to be able to help revitalize this region of Baltimore and the state of Maryland, while enabling biomedical research and education that has the potential to save lives."

"With this groundbreaking, we are ushering in a revolution in biomedicine here at the School of Medicine, where fundamental research and advancement in technology converge to create new pathways and new opportunities for science and technology to dramatically impact the health and well-being of the citizens of Maryland, and the region, while positively impacting the economy of our state," said Dean Reece. "Within the portals of this building will be conducted robust collaborative research that will expand across the University of Maryland, Baltimore campus, where School of Medicine investigators will engage collaboratively with other colleagues across the campus and beyond—especially scientists at the School of Dentistry and the School of Pharmacy."

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