Research Biomedical Basic in the first place. we conduct research and, ultimately, why our raison d’etre care. Indeed, it is improving patient care. Indeed, it is our raison d’etre and, ultimately, why we conduct research in the first place.

Of course, we know there are and will continue to be persistent challenges in conducting clinical research—including infrastructure issues, human subject protection and other roadblocks along the way. However, we cannot let these impede our progress. We must work together to creatively overcome these challenges. Imagine that the traffic is stalled in the way to work because of an accident. Do we turn around and go home? Absolutely not! We will find an alternate route to get there.

I am pleased to report that we are making progress in finding detours around our clinical research roadblocks. First, we have created The Clinical and Translational Sciences Institute (CTSI), which was established a year ago and is led by Dr. Alan Shuldiner and Dr. Stephen Davis. The mission of the CTSI is to create a strong infrastructure for translational research in laboratories and in the communities, both in Baltimore and throughout the region. Through this institute, we hope to solve health problems across the human lifespan, especially by addressing healthcare needs in underserved urban and rural populations. This is an opportunity to advance the clinical and translational sciences Institute to the forefront of clinical and translational research and into a new age of molecular-based clinical medicine.

Second, our General Clinical Research Center (GCRC) is the cornerstone for clinical research within the University of Maryland. The GCRC, which supports the full spectrum of patient-oriented research, is available to all University of Maryland investigators who have a need for center resources and who will conduct clinical research of scientific merit. Studies funded by federal sources, foundations, industry and other sources are welcome, as are pilot studies that may lead to future peer-reviewed clinical research. The GCRC provides investigators with the resources they need to conduct clinical research, including nursing support and the facilities for inpatient and outpatient care, as well as a state-of-the-art Dual-Energy X-Ray Absorptiometry (DEXA) facility.

Third, we are already advancing clinical and translational research success in some specialized areas, but wish to broaden the horizon of clinical and translational research.

The historic face transplant is a case in point. Performed last spring by a team led by Dr. Eduardo Rodriguez, the groundbreaking surgery was based on 10 years of basic science laboratory research, which was subsequently translated into a clinical research effort and eventually into the engagement of over 150 physicians, nurses and technicians.

Another major research center contributing to these efforts is the Shock, Trauma and Anesthesiology Research Organized Research Center (STAR-ORC). STAR-ORC, led by Dr. Alan Fiden is a world-class, multidisciplinary research and educational center focusing on brain injuries, critical care and organ support, resuscitation, surgical outcomes, patient safety and injury prevention. Founded in 2005, the STAR-ORC encompasses the Congressionally mandated Charles "Mac" Mathias, Jr., National Study Center for Trauma and Emergency Medical Systems, the clinical research activities of the R Adams Cowley Shock Trauma Center, the clinical research programs of the Program in Trauma; and the pre-clinical and clinical research programs of the Department of Anesthesiology.

The center’s research focuses on mechanisms and modulation of cell death and neuroinflammation after experimental brain or spinal cord injury, including molecular and cell biology, animal modeling, behavior and drug discovery. The program is highly interdisciplinary, utilizing molecular and cellular biology, biochemistry, electrophysiology, pharmacology, behavior, magnetic resonance imaging and spectroscopy and quantitative histological analysis.

With the combined resources of the School of Medicine, the Shock Trauma Center, the National Study Center, and the UMB campus, the STAR-ORC is uniquely positioned to enhance patient care through pre-clinical and clinical research.

The University of Maryland Greenebaum Cancer Center (UMGCC) also is a strong participant in new drug development and translational clinical trials. The Cancer Center is a member of several national cooperative groups and has established strong translational research programs in experimental therapeutics, hormone-responsive cancers, molecular biology and genetics, viral oncology, tumor immunology, and cancer prevention and control. Cancer Center members have strong expertise in intra- and inter-institutional cooperative cancer research.

Ultimately, the translation of discoveries in basic and applied science into useful clinical and public health interventions and uses of such interventions to reduce disability, morbidity and health disparities are the ways the public measures the success of its investments in biological and behavioral research.

In the end, if we are to continue to attract funding from federal and state agencies, we must continue on this path. We must utilize every means available to translate our basic science discoveries into clinical investigations. That is how we will truly improve patient care now and in the future.

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 and Dean, University of Maryland School of Medicine
Amish Children Much Less Likely to be Overweight

Old Order Amish children are much more physically active and thinner than non-Amish children, which may provide them with some long-term protection against developing Type 2 diabetes, University of Maryland School of Medicine researchers reported in the journal Diabetes Care.

The researchers found that Amish children in Lancaster County, PA, spent an additional 34 minutes a day engaged in moderate to vigorous activity compared to non-Amish white children living nearby on Maryland’s rural Eastern Shore. The amount of moderate to vigorous activity, which is important to cardiovascular health, was twice that of the non-Amish children.

Researchers concluded that Amish children do not have a history of obesity because they have a healthy body weight, as reflected in the body mass index calculation. This study by Dr. Strikher and his colleagues offers clear evidence of the benefits of exercise and maintaining a healthy body weight, which can help prevent Type 2 diabetes and other chronic diseases.

Four Out of 10 Lesbians Not Routinely Screened for Cervical Cancer

Nearly 38 percent of lesbians polled in a national survey were not routinely screened for cervical cancer, putting them at risk of developing a highly preventable cancer, according to a University of Maryland School of Medicine study that was presented at the 11th Annual AACR International Conference on Frontiers in Cervical Cancer Prevention Research in Anchorage, AK, in October. The conference is sponsored by the American Association for Cancer Research (AACR).

Cervical cancer is caused by a sexually transmitted virus, the human papillomavirus (HPV), and can be detected through regular Pap smears. The percentage of lesbians not being screened as recommended is higher than for women overall.

According to information compiled by the Centers for Disease Control’s Risk Factor Surveillance System (BRFSS), 13 percent of women have not had a Pap test in the last three years. This study highlights an often-overlooked cancer disparity, says study author J. Kathleen Tracy, PhD, a research professor, Department of Epidemiology & Public Health. “We know that HPV can be transmitted during same-sex sexual activity, so lesbians are at risk of developing cervical cancer. If these women aren’t screened, they are at increased risk of getting this type of cancer by missing opportunities to identify pre-cancer cervical abnormalities that can be treated.”

According to Dr. Tracy, a key barrier to effective screening among lesbians is a lack of communication with their health care providers. “We shouldn’t underestimate the importance of open communication,” Dr. Tracy says. “Our research showed that women who were open with their primary care doctors and gynecologists about their sexual orientation were nearly 2% to three times more likely to have routine screening than those who did not disclose it. They also were more likely to be screened if their doctors recommended it, and they believed that having routine Pap tests was beneficial.”

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, says, “Cervical cancer is very treatable if detected early through routine screening with Pap tests. Dr. Tracy’s research shows that a significant percentage of the lesbian population is not being screened as recommended. We need to eliminate barriers to screening for this subset of women and educate them on the benefits.”

Dr. Tracy and her colleagues sent a standardized internet survey in 2010 and early 2011 to 3,000 women identified themselves as lesbians. Of these, 1,026 women responded to the survey, with nearly 38 percent reporting that they were not getting regular cervical screening care.

The two most common reasons for not getting Pap tests as recommended: not having a physician or health care provider, and not having a primary care provider. “We found that women who identified as lesbian are at potentially elevated risk of cervical cancer because they are not routinely screened. “Evidence-based interventions should be developed that address critical health beliefs that undermine participation in screening,” said the researchers in their presentation. “Given the value placed on physician recommendation, patient-provider communication may serve as the optimal mode for intervention delivery.”

Higher levels of physical activity and lower BMI are both protective against diabetes, Dr. Snitker says. Obesity is a major risk factor for Type 2 diabetes. Dr. Snitker concludes that while it is unrealistic to imagine that the general public will adopt the Amish lifestyle in its entirety, the study results underscore the need for parents to encourage their children to be more physically active.

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, says, “The incidence of diabetes among our young people is rising at an alarming rate. This study by Dr. Snitker and his colleagues offers clear evidence of the benefits of exercise and maintaining a healthy body weight, as reflected in the body mass index calculation.”

This study is one of a number of studies conducted by University of Maryland School of Medicine researchers using data collected from the Old Order Amish in Pennsylvania, Alan Shuldiner, MD, the John L. Whitehurst endowed Professor, Department of Medicine, and director of the Program in Personalized and Genomic Medicine, a co-author of this study, operates an Amish research clinic in Lancaster. Over the past 20 years, he and his research team have conducted more than a dozen studies with the Amish, looking for genes that may cause common illnesses such as diabetes, osteoporosis and cardiovascular disease.
Scientists Develop Stem Cell Model for Hereditary Disease

A new method of using adult stem cells as a model for the hereditary condition Gaucher disease could help accelerate the discovery of new, more-effective therapies for this and other conditions, such as Parkinson’s, according to research presented to the University of Maryland School of Medicine.

Scientists at the University of Maryland School of Medicine reprogrammed stem cells to develop into cells that are genetically similar to and react to drugs in a similar way as cells from patients with Gaucher disease. The stem cells will allow the scientists to test potential new treatments in a dish, accelerating the process toward drug discovery, according to a paper published online in the journal the Proceedings of the National Academy of Sciences (PNAS) on Oct. 15.

The study was funded with $1.7 million in grants from the Maryland Stem Cell Research Fund; researchers received a start-up grant for $200,000 in 2007 and a larger, five-year grant for $1.5 million in 2009.

“We have created a model for all three types of Gaucher disease, and used stem cell-based tests to evaluate the effectiveness of therapies,” says senior author Ricardo Feldman, PhD, associate professor, Department of Microbiology & Immunology, and a research scientist at the University of Maryland Center for Stem Cell Biology & Regenerative Medicine. “We are confident that this will allow us to test more drugs faster, more accurately and more safely, bringing us closer to new treatments for patients suffering from Gaucher disease. Our findings have potential to help patients with other neurodegenerative diseases as well.”

Gaucher disease is the most frequent lipid-storage disease. It affects 1 in 50,000 people in the general population. The disease patients carry mutations in the recessive gene for Gaucher disease, making our research possibly significant for Parkinson’s disease as well.

Gaucher disease is a metabolic disorder caused by a deficiency of an enzyme that is effective in treating Gaucher patients with Type 1 disease. When the cells were treated with the enzyme, the function of the macrophages was restored—they completely cleared the red blood cells.

“By reprogramming the stem cells, we derived macrophages to better understand the disease fundamentals and to find novel medicines for Gaucher disease treatment. A major goal of our Center for Stem Cell Biology & Regenerative Medicine is to translate our fundamental discoveries into innovative and practical clinical applications that will enhance the understanding, diagnosis, treatment and prevention of many human diseases. Clinical applications include not only transplantation of stem cells, but also the use of stem cells for drug discovery, as Dr. Feldman’s studies so beautifully illustrate.”

“We are looking forward to testing new drugs on these cells, and getting new therapies to patients,” adds Dr. Feldman.

Newly named director of the proton center

Dr. Feldman and his colleagues used the new reprogrammed stem cell technique developed by Shinja Yamakana in Japan, who was recognized with this year’s Nobel Prize for Medicine or Physiology. Scientists engineered cells taken from the skin of Gaucher patients, creating human-induced pluripotent stem cells (iPSCs)—stem cells that are theoretically capable of forming any type of cell in the body. Scientists differentiated the cells to form white blood cells—known as macrophages—and neuronal cells. A key function of macrophages in the body is to ingest and eliminate damaged or aged red blood cells. In Gaucher disease, the macrophages are unable to do so—they can’t digest a lipid present in the red blood cell membrane. The macrophages become engorged with lipid and cannot completely clear the ingested red blood cells.

The result is a breakdown of membrane transport pathways in the macrophages. “This can be found in the bone marrow, spleen and liver. The macrophages that the scientists created from progenitor cells reprogrammed stem cells exhibited this characteristic hallmark of the macrophages taken from Gaucher patients,” Dr. Feldman says.

To further test the model, the scientists used iPSCs from Ashkenazi Jews, affecting 1 in 1,000 among that specific population. The disease occurs in three subtypes—Type 1 is the mildest and most common form of the disease, causing symptoms such as enlarged liver and spleens, anemia and bone disease. Type 2 is very serious brain abnormalities and is usually fatal before the age of two. Type 3 affects children and adolescents.

The condition is a recessive genetic disorder, meaning that both parents must be carriers for a child to suffer from Gaucher. However, said Dr. Feldman, studies have shown that people with only one copy of a mutated Gaucher gene—those known as carriers—are at an increased risk of developing Parkinson’s disease.

“This science is a reflection of the mission of the University of Maryland School of Medicine to develop treatments from basic science, from the laboratory to patients, as quickly as possible,” says 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. “We are excited to see where this research goes next, bringing new hope to Gaucher patients and their families.”

Renowned Physician-Scientist Dr. Mehta Named Director of the New Proton Treatment Center

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. “We are excited to see where this research goes next, bringing new hope to Gaucher patients and their families.”

By KaReN RoBINSoN

Dr. Feldman has his previous position as professor and co-director of the Radiation Oncology Residency Training Program at Northwestern University in Chicago.

“We are delighted to welcome Dr. Mehta to the helm of our new proton treatment center, a more than $200 million project that brings this revolutionary new cancer treatment to the Baltimore-Washington region for the first time,” says Dean Reece. “This center will provide state-of-the-art, potentially lifesaving care to numerous cancer patients annually. Beyond that, the Maryland Proton Treatment Center will give us the opportunity to cut to the chase in cutting-edge research to benefit our patients and this center a hub for the advancement of the emerging science of image-guided, intensity-modulated proton therapy.”

Advanced Particle Therapy LLC of San Diego, Calif., is developing the Maryland Proton Treatment Center, a 110,000-square-foot facility in the University of Maryland BioPark in West Baltimore. The center will begin seeing patients in 2015. The University of Maryland Radiation Oncology Associates P.A. at the School of Medicine will provide clinical management and therapeutic services, including physician services and medical direction, and will extensively collaborate with other academic and community oncology physicians in ensuring appropriate management of patients and resources. The initial radiation oncology faculty physicians are members of the University of Maryland Marlene and Stewart Greenebaum Cancer Center team, but with growing collaborations, other academic physicians may participate.

Dr. Mehta is active in many national groups, including the American Board of Radiology, the FDA Radiological Devices Panel, the American Society for Radiation Oncology, the American Society of Clinical Oncology, the International Stereotactic Radiosurgery Society, and the Society of Neuro-Oncology. “Dr. Mehta is recognized worldwide as an expert in clinical trials, design and execution of national and international trials of all sizes, and innovative research, integrating technology, biology and imaging in radiation oncology,” says Dr. Regine. “He will work closely with departmental leadership, as well as Advanced Particle Therapy, to successfully establish the Maryland Proton Treatment Center as a center of excellence for research, education and patient care.”

As medical director of the center, Dr. Mehta will define and implement the processes to ensure that the center is [please turn to back page]
The Class of 2016 Celebrates Their White Coat Ceremony

The White Coat Ceremony was held on November 1, 2012 at the Hilton at Camden Yards. This special day for first-year medical students, which was sponsored by the Writing-Turner Contracting Company, gave family members a glimpse into what medical school is really like for these new students and is capped off by a ceremony welcoming the students to the field of medicine. “Today you will be presented with the time-honored badge of the profession, the white coat,” said 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. “It is a symbol of the confidence and professionalism to which I hope you will all aspire.”

Before the coats were given out, families were educated a bit about the medical school experience. David Meltess, MD, Associate Dean of Medical Education, presented “What to Expect the First Year of Medical School,” in which he frankly told the families they would not be seeing much of their students in the next few months (unless, of course, there is a meal involved). The families also had the chance to ask questions of a panel of medical school experts—Donna Parker, MD, Associate Dean for Student Affairs; Sandra Doban, PhD, Director of Academic Development in the Office of Medical Education; Steven Gross, MD, a class of 1973 graduate, parent of a first-year student and chair of the Medical Family Annual Fund; student Hersch Bhatia; George Fantry, MD, Assistant Dean for Student Research & Education; and Neta Frylah, MD, an associate professor of Medicine and Assistant Dean for Student Affairs. Dr. Gross also spoke to families about the Medical Family Annual Fund, which helps students take advantage of educational opportunities, and which funded recent renovations to student lounges on campus. Dr. Joseph Martinez, assistant professor of Emergency Medicine and Assistant Dean for Student Affairs, was chosen by the students to give the faculty presentation.

Hersch Bhatia, MD, IV, president of the Class of 2013, spoke about the history of the white coat and what the ceremony means to students. “This is a symbol of initiation, not one of graduation or completion,” he said. “The ceremony helps students cross over from where they were before—undergraduate school, other careers—into a community of life-long learners and healers. We receive white coats as a symbol that we are being accepted to train in the field of medicine. This ceremony is where we start to realize that being a part of this community is a privilege and that there is great responsibility that goes along with that.”

After the family information sessions came the event every first-year student had been waiting for—the White Coat Ceremony. This tradition, which started at the School of Medicine in 1997, formally presents these students with their white coats, long the symbol of physicians and scientists, after they have completed their first course in medical school—Structure and Development (aka Anatomy). The coats are put on by School of Medicine faculty, their first course in medical school—Structure and Development (aka Anatomy). The coats are put on by School of Medicine faculty, to welcome their junior colleagues to the profession of medicine.

After they received their coats, students recited an oath acknowledging their acceptance of the obligations of the medical profession. They also added their signatures to the school’s honor registry, a leather-bound book signed by all our medical students in their first year, in which they pledge to maintain integrity throughout their years in medicine.