### UNIVERSITY of MARYLAND School of Medicine

Sommews

#### September 2016 Vol.18 No.1

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

hat's on my mind this month is another challenging, exciting year of teaching, research and clinical care for School of Medicine faculty, staff and students.



In fact, the year is already off and running. This summer, the School of Medicine launched a major faculty recruitment drive to attract dozens of top scientists to the

school in key scientific research areas. The initiative is the most ambitious effort ever to recruit scientists in the school's history. Among the focus areas are brain disorders, cancer, and cardiovascular disease. Our goal is to continue to climb into the top echelon of biomedical research institutions. We have already hired several impressive scientists, and are in conversation with many more.



Among those we have hired are **Motomi Enomoto-Iwamoto**, **DDS**, **PhD**, and **Masahiro Iwamoto**, **DDS**, **PhD**, two researchers from the Perelman School of Medicine at the University of Pennsylvania. Their work focuses on bone and cartilage repair and growth. Coincidentally, we have hired another husband-and-wife team, **Konstantin Birukov**, **MD**, **PhD**, and **Anna Birukov**, **MD**, from the University of Chicago School of Medicine. Their research focus is on lung and vascular biology.

Many of these new researchers will be housed in the School's new \$300-million, 450,000 square-foot, state-of-the art HSFIII research building on West Baltimore Street. The building, which is scheduled to open sometime next year, will include a host of advanced laboratories and research technology.

These new researchers will be joining our current researchers who are already doing world-class work. This year one of our key focus areas will be finding new ways to encourage technology transfer—moving our cutting-edge research from the laboratory into groundbreaking medicines, medical devices, and companies. The process of scientific and medical discovery is often long, but our School is ready to smooth the road from bench to bedside.

In recent years, I have been extremely gratified and proud of the many researchers at the School of Medicine who have had amazing success with technology transfer. Here are a few shining examples of the School's recent and ongoing success with technology transfer:

**Bartley Griffith, MD**, the Thomas E. and Alice Marie Hales Distinguished Professor in Transplant Surgery, is developing a portable, artificial lung, which has the potential to revolutionize care for patients who need an artificial lung. The device is thought to be the first wearable artificial lung that can be taken out of the hospital.

James S. Gammie, MD, Professor and Chief of Cardiac Surgery at the University of Maryland School of Medicine, has invented a device to repair the mitral heart valve. The device is deployed through a tiny opening in a beating heart, and allows patients to avoid open-heart surgery. Rather than months of recovery, this technique allows patients to go home in days. Dr. Gammie was named by the University of Maryland, Baltimore as its Entrepreneur of the Year in 2014.

**Scott Strome, MD**, Professor and Chairman of the Department of Otorhinolaryngology-Head & Neck Surgery, has founded a company that is developing three biologics that will modulate the immune system, and have potential for treating autoimmune diseases, cancer and other diseases. These compounds are a new approach to drug discovery, and are based on decades of research from Dr. Strome and others. The company, which has raised more than \$50 million so far, has licensed one of its compounds to Pfizer Pharmaceuticals.

J. Marc Simard, MD, PhD, Professor of Neurosurgery at the University of Maryland School of Medicine, has identified an innovative treatment strategy that may help prevent brain swelling and death in stroke patients. Along with colleagues at Yale University and Massachusetts General Hospital, Dr. Simard has found that Cirara, an investigational drug, significantly reduced brain swelling and death in patients who suffer a type of large stroke called malignant infarction, which normally carries a high mortality rate. Dr. Simard is the scientific founder of Remedy Pharmaceuticals, which is working to bring the drug to market as a treatment for stroke, and for spinal cord injury.

Cedric Yu, DSc, FAAPM, Clinical Professor in the Department of Radiation Oncology, has developed a high-precision,



In 2003, the Center for Vaccine Development at the School of Medicine was the first to test the safety of a then-new, genetically

### engineered vaccine for anthrax.



image-guided radiation therapy system specifically designed to treat early-stage breast cancer. The GammaPod system, as it is called, uses thousands of precisely focused beams of radiation from 36 rotating sources, achieving impressive accuracy.

A vaccine to prevent cholera, developed by researchers at the School of Medicine's Center for Vaccine Development (CVD), was approved earlier this year by the U.S. Food and Drug Administration (FDA). The vaccine was originally developed by **James B. Kaper, PhD**, Senior Associate Dean for Academic Affairs, as well as Professor and Chairman of the UM SOM Department of Microbiology and Immunology, and **Myron Levine, MD, DTPH**, the Simon and Bessie Grollman Distinguished Professor in Medicine and the Associate Dean for Global Health, Vaccinology & Infectious Diseases. Over the past seven years, CVD researchers have worked closely with the vaccine's manufacturer, PaxVax, to develop the vaccine and secure FDA approval. The vaccine is the only approved vaccine in the U.S. for protection against cholera and the only single-dose vaccine for cholera currently licensed anywhere in the world.

These examples are just the tip of the iceberg. We have many opportunities at the School for biomedical breakthroughs, and many scientists doing work that has the potential to provide millions of patients with better health and better health care, not only in Maryland and but around the world.

In the relentless pursuit of excellence, I am

Sincerely yours,

E. albert luce

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 Jo

Tr

Lk+5\_02Nj-tRn

HoN

# Fostering New Advances in **Bioengineering and**

Every day, scientists at the University of Maryland School of Medicine (UMSOM) are finding new ways to transfer the research they are doing in their labs into pharmaceuticals, products, and companies that are helping to further the well-being of patients both in Maryland and across the globe. These breakthroughs do not always come easy, but when years in a laboratory or clinic trying and failing and trying again finally ends in success, there are resources in place on the University of Maryland, Baltimore (UMB) campus to help with what comes next.

> taffers in the Office of Technology Transfer and the UM Ventures Office help scientists determine whether their discoveries are marketable and then work with them on the best ways to convert their ideas into new drugs, other health-related products, or companies that can then be brought to market. The UM Ventures website encourages inventors to file an invention, copyright, or tangible property disclosure

Cd

Cd

Dq

form as soon as they believe they have made an invention, i.e. after it has been reduced to practice and well before it has been published or publicly presented. The office then can assist with providing intellectual property protection, increasing research funding through business partnerships, and realizing financial gains with royalty and licensing revenues.

UMSOM has had quite a bit of success over the last few years in turning



InnovateTech Ventures; the University of Maryland, Baltimore; and TEDCO (the Technology Development Corporation of the State of Maryland.) In the Fall of 2014, InnovateTech was awarded a TEDCO Phase I/II Maryland Innovation Initiative (MII) grant to explore the viability of a start-up based upon patent-pending technology created by Florian Fricke, PhD, Adjunct Assistant Professor, Department

of Microbiology & Immunology, and James White, PhD, who was with the SOM when conducting the research. Their diagnostic tool hopes to determine whether a patient who is presenting with serious gastrointestinal problems has Inflammatory Bowel Disease (IBD). Following positive findings from that first study, InnovateTech created Biomecite Diagnostics, LLC in December, 2014 and in March, successfully applied for \$100,000 in Phase III funding from the same TEDCO program. These funds are being used to run a Proof of Concept Study that is being managed by CSSi LifeSciences,™ a Maryland-based organization. InnovateTech Ventures is a "Venture Creation" firm that brings together seed funding, high-potential university technologies, and experienced management teams to create promising new startups. • Breethe, founded by Bartley Griffith, MD, the Thomas E. and Alice Marie Hales Distinguished Professor in Transplant Surgery, is developing a portable, artificial lung. The device is thought to be the first wearable artificial lung that can be taken out of the hospital. Breethe raised \$1.7 million in 2015, including a \$100,000 investment from UM Ventures. In August 2016, Breethe announced that it had raised \$2.2 million of a planned \$3.6 million financing round.

discoveries into thriving companies and products. Here are a few examples:

 Alba Therapeutics licensed its therapeutic to treat Celiac Disease– invented at the School of Medicine-to Innovate Biopharmaceuticals. Alba Therapeutics Corporation is a clinical-stage biopharmaceutical company that focuses on the discovery, development, and commercialization of pharmaceutical products for the treatment of autoimmune and inflammatory diseases. Innovate plans to start Phase 3 clinical trials in 2016 of Larazotide acetate, now named INN-202, a novel oral peptide that has consistently demonstrated the reduction of clinical symptoms of celiac disease in multiple clinical trials.

 Founded by members of the imaging informatics team from the University of Maryland School of Medicine, Analytical Informatics created innovative software that helps clinicians by providing real-time information and solving workflow problems. Customers for its health information management platform include Toshiba, Stanford University Hospital, and Johns Hopkins.

Biomecite Diagnostics was created through a collaboration of





2016

# Medical Technology

be particularly beneficial in treating a range of cancers. He currently runs a translational immunology laboratory dedicated to the development of active and passive immunologic approaches for the treatment of malignant and autoimmune diseases.

• GlycoMantra is a start-up biotechnology firm specializing in translational glycobiology research and interested in the development of carbohydratebased therapeutics of cancer and infectious disease. They have developed natural high affinity galectin-3 inhibitors (patent pending) that may be used to treat cancers and fibrotic diseases. GlycoMantra's Advisory Board includes

Gerardo Vasta, PhD, Professor, Department of Microbiology Microbiology & Immunology and Greenebaum Comprehensive Cancer Center; Arif Hussain, MD, Professor, Department of Medicine and Greenebaum Comprehensive Cancer Center; and Saranya Chumsri, MD, Assistant Professor, Department of Medicine and Greenebaum Comprehensive Cancer Center Harpoon Medical is commercializing a surgical device for beating-heart mitral valve repair that was invented by James Gammie, MD, Professor, Department of Surgery, and Director, Center for Heart Valve Disease. Harpoon raised \$6 million in a Series A round in late 2014, which funded clinical trials in Europe. Based on the success of these trials, Harpoon raised a second round of funding in December 2015. The most recent financing was led by Edwards Lifesciences Corp, which has an option to acquire Harpoon.

& Immunology and Institute of Marine and Environmental Technology; Dhan Kalvakolanu, PhD, Professor, Department of



by the Center for Vaccine Development at the School of Medicine, which was approved by the FDA in June. The liquid vaccine, called Vaxchora, is for adults ages 18-64 who are traveling to countries affected by cholera.

 Profectus Biosciences, a start-up launched out of the Institute of Human Virology (IHV) at the School of Medicine, is a clinical-stage vaccine development company that is focused on major and emerging infectious diseases of public health and biodefense importance, as well as advanced-stage cancers that are not adequately addressed using current approaches. They are currently conducting a clinical trial of an HIV vaccine candidate developed by IHV researchers. Their Ebola vaccine was shown to be effective and safe in non-human primate clinical trials in 2015—a Phase 1 clinical study of the vaccine in humans started in January.

• J. Marc Simard, MD, PhD, Professor, Departments of Neurosurgery, Pathology and Physiology, is the Scientific Founder of Remedy Pharmaceuticals, which has announced positive Phase II Clinical Trial Results of its drug candidate CIRARA to treat stroke. The company also launched a national multi-center trial to treat spinal cord injuries in August 2015. In December 2015, Remedy also announced that it had completed a \$9 million round of financing that includes investments from The Vertical Group. Xcision Medical Systems, which was founded by Cedric Yu, DSc, FAAPM, Clinical Professor, Department of Radiation Oncology, has developed a specialized radiation therapy device called the GammaPod to treat breast cancer. It is currently installed in five medical centers, and the first patient was treated under a clinical trial on March 18, 2016. FDA approval is pending and is expected by the end of 2016. Xcision's initial funding was via a Small Business Innovation Research (SBIR) Grant from the NIH awarded in 2007. Additional federal, state and private investment has been received since.





 PaxVax, a specialty vaccine development company with multiple technologies in its pipeline, has raised over \$200 million since 2007. One of its two leading technologies is a Travelers Cholera Vaccine that was created



## **Back-to-School Social**

Dean Reece held his annual Back to School Social for students, faculty and staff on September 13 in the ballroom of the Southern Management Company Campus Center. More than 100 attendees enjoyed Baltimore-themed food such as Old Bay Wings, ice cream and other sweet treats, and a visit from Ravens mascot Poe and the Oriole Bird, who happily posed for pictures with attendees. There was also an art contest, in which photos of Baltimore taken by students, faculty and staff were awarded prizes, voted upon by all attendees. And three lucky winners won gift baskets with prizes such as hotel stays and trips.



## University of Maryland School of Medicine September 2016 Vol.18 No.1

wish **Public Affairs** 



Baltimore, Maryland 21201-1559 655 West Baltimore Street





SOMnews is produced by the University of Maryl

Find the University of Maryland School of Medicine on Facebook, http://www.facebook.com/ Maryland.Medicine or follow us on Twitter @UMmedschool.

www.medschool.umaryland.edu



