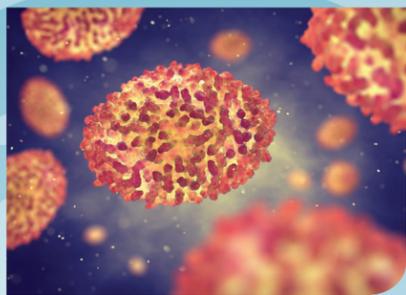




SOM *news*

Point of PRIDE



Smallpox virus

In 1800, John Crawford, MD, an early faculty member of the School of Medicine, was one of the first physicians in America to introduce a vaccination for smallpox, a highly contagious and deadly viral disease. Smallpox was eliminated globally in 1980.



DEAN'S MESSAGE

In March, Governor Hogan not surprisingly issued an Executive Order that requires all residents of Maryland to stay home, except for essential activities. This new directive adds a level of commitment and accountability for all during the COVID-19 pandemic. Social distancing does not come naturally to us, and it is difficult to constantly consider all of the intricacies of our daily lives that it affects. We easily forget the health and safety measures we must take when our humanistic reflexes threaten to take over. Many of us are missing major life events, whether of our own or those of our family and friends, including weddings, new life, illness, and even death.

While we respond to the rather unnatural call to abstain from close contact with our loved ones and miss out on cherished activities, not everything has to change. Our passions, work ethic, and goals remain, including those pertaining to the School of Medicine's core missions. Our commitment to clinical care persists, even as our dedicated physicians and nurses risk their own lives to care for those infected. I applaud and thank these true heroes of the pandemic for their commitment, relentless spirit, and resilience. We have developed an entirely new health care delivery system to manage this crisis. As we prepare for an anticipated surge of care in the coming weeks, University of Maryland Medicine is expanding telehealth services to ensure that all individuals can access certain health care services at home. We are expanding our COVID-19 testing capabilities with robotic technology, and we are converting 1,000 square feet of space at the Baltimore Convention Center into a field hospital by collaborating with Johns Hopkins Medicine. These efforts will ensure that we not only maintain *quality* of care, but increase the region's *capacity* of care as well.

While socially limiting ourselves does not come naturally, our inclinations to pursue and achieve our ambitions do, and we can still continue these activities even with some modifications. The National Institutes of Health has stated that it will introduce administrative flexibilities to assist grant applicants, so this is no time to slow down on grant submissions. Even private foundations are seeking

What's on My Mind...



...is the resilience of the School of Medicine community, and the opportunities we continue to receive to demonstrate our relentless spirit.

to finance promising research that will speed innovations to help combat the pandemic and safeguard public health in the future. If we significantly increase our efforts now, I am confident we will find ourselves emerging from this crisis stronger and more ambitious than ever.

I also want to encourage continued support of our education mission. Many of our students are struggling under these circumstances, and we can very easily help them to ensure they don't miss a beat when we are able to return to campus. Please consider donating to the School of Medicine Student Emergency Assistance Fund online. This fund will assist students experiencing unexpected emergencies or crises related to the 2020 COVID-19 pandemic. Your support makes all the difference to our students, who we need now more than ever to continue their education and join the health care workforce.

Thanks to everyone for your continued patience, commitment, and the relentless spirit, especially during this time of considerable uncertainty. While we are unsure of what the future may hold, we are certain that the opportunities right in front of us today can help us better prepare for tomorrow. We must take full advantage of them now. Please stay safe, stay strong, and stay well! In the relentless pursuit of excellence, I am

Sincerely Yours,
E. Albert Reece

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

SOMnews is your source for all news and information regarding the University of Maryland School of Medicine, including Clinical Care, Research, Education, Community Outreach, and its Culture Transformation Initiative.

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Camp Open Arms National Coverage Receives AAOS Award

On April 29, the American Academy of Orthopaedic Surgeons (AAOS) announced the recipients of its 2020 Media Orthopaedic Reporting Excellence (MORE) Awards. Among the awardees was a CBS/Newspath team, who won for their television short feature on Camp Open Arms, a summer camp experience for children with limb differences, founded by **Joshua M. Abzug, MD**, UMSOM Associate Professor of Orthopaedics and Pediatrics. Now in its sixth year,



(Continued on page 8)

CoronaVirus

TAKING THE LEAD IN TESTING:

State Calls on UMSOM to Mount New Large-Scale COVID-19 Testing Initiative

Backed by \$2.5 million in funding from State of Maryland, the University of Maryland School of Medicine is now launching a large-scale COVID-19 Testing Initiative that will significantly expand testing capability over the coming weeks. This enhanced testing capability could help ensure sustained COVID-19 surveillance across the state after the lifting of current restrictions.

The new initiative will be launched with strong support and collaboration from the University of Maryland, Baltimore (UMB) and its interim President **Bruce Jarrell, MD**, who has been supportive of the program since its inception. At the UMSOM, this initiative will be led by **Claire Fraser, PhD**, the Dean's Endowed Professor and Director of the Institute for Genome Sciences (IGS) at UMSOM, and **Sanford Stass, MD**, Professor and Chair of both the UMSOM Department of Pathology and Department of Medical and Research Technology. This large-scale Testing Initiative will be progressively ramped up to eventually be able to run as many as 20,000 tests per day within the next few months. This will allow for far wider access to testing in Maryland through coordination with the City of Baltimore and the State Health Department.

The patient samples will be processed on robotic platforms with automated technologies housed in a laboratory in the UMSOM Institute for Genome Sciences

(IGS). The new state funding would allow for the purchasing of additional platforms to facilitate an increase in testing capacity.

Analysis of the samples will take place at the University of Maryland Pathology Associates (UMPA), CLIA/CAP accredited, which is operated by the UMSOM Department of Pathology.

"The state is in dire need of increased coronavirus testing, and the School of Medicine already has the early infrastructure in place, in terms of our technology and scientific expertise, to help close the testing gap," notes UMSOM Dean **E. Albert Reece, MD, PhD, MBA**. ***"This funding provided to us will enable us to better track the spread of the virus and provide swifter diagnoses and treatments to those in need."***

While 18 laboratory staff are currently needed to process a maximum 3,000 samples per day in the IGS facility, increasing to 20,000 samples per day would involve 60 laboratory personnel working three 8-hour shifts over a 24-hour period. This ramp-up in staffing and sample testing will occur over a few months.

Update



Claire Fraser, PhD

“Initially, we will call in extra technicians who are currently working from home. Ramping up to a full staff will be done over time,” said Dr. Fraser. ***“I am sure many of our laboratory staff would be eager to return onsite to work for such a worthwhile endeavor.”***

Most patients in the State have to wait for a week or more for commercial outfits to return their results due to a backlog of tests and limited capacity and throughput. The facility at UMSOM would be able to return the results to patients and doctors within 24 to 48 hours, dramatically increasing the turnaround time.

Analyzing test samples from patients suspected of having COVID-19 is a complex multi-step process that involves first transferring a portion of the sample to an inactivation solution and extracting its RNA, which contains the virus genetic code. The RNA is then converted to DNA and amplified using the CDC recommended assay. The laboratory at the UMSOM faculty practice site ultimately determines whether the patient’s sample contains the novel coronavirus. Automation of these steps is critical to increasing the laboratory ability to test thousands of samples per day.

“We have now implemented a reconfiguration of the IGS laboratory to establish this high-throughput testing capability,” said Jacques Ravel, PhD,

Professor of Microbiology and Immunology and Associate Director of the Institute for Genome Sciences at UMSOM.



Jacques Ravel, PhD

“Working closely with the oversight of the Department of Pathology, the UMPA laboratory was able to obtain regulatory approval to enable us to process samples to be tested under the supervision of UMPA, a member of the UMSOM faculty practice.”

The testing facility at the University of Maryland Pathology Associates has been certified by the federal government to perform laboratory developed

tests. These tests, referred to as LDTs, consist of a type of diagnostic test that is designed to be performed and used in a single laboratory, often located in a hospital. For COVID-19 testing, the UMSOM Department of Pathology plans to seek emergency use authorization from the FDA and then will submit data to the agency to verify the test’s performance both in detecting true positive results for the virus and true negative results that indicate the virus is not present.



Sanford Stass, MD

“We already have the capability to perform testing in patients who are admitted to University of Maryland Medical Center to test for COVID-19,” said Dr. Stass. ***“This new funding initiative, however, will greatly improve our capabilities to reach deeper into the community and help provide expanded testing which is desperately needed to help bring the epidemic under***

control in the State of Maryland. The enhanced testing capability will also be leveraged in the longer term to ensure sustained COVID-19 surveillance across the State of Maryland.” 

To Protect Mother & Child

New Center Will Examine Effects of Substance Use on Mothers and Their Children

Led by the UMSOM's Department of Anatomy and Neurobiology, a new on-campus research center was launched in April to study the long-term health effects on the brains of children born to women who use drugs and alcohol during pregnancy. **The Center for Substance Use in Pregnancy** will conduct pre-clinical and clinical neuroscience research, focusing on the use of marijuana, opioids, nicotine and alcohol, all of which have increased dramatically in recent years.

Co-directed by **Joseph Cheer, PhD**, Professor of Anatomy & Neurobiology and Psychiatry, and **Mary Kay Lobo, PhD**, Associate Professor of Anatomy & Neurobiology, the center will coordinate research efforts already underway across multiple departments in UMSOM, including Obstetrics and Gynecology, Pediatrics, and Psychiatry. Initial funding to establish the center was provided by a grant from the Dean's office, with coordination and support from **Terry Rogers, PhD**, Professor of Biochemistry and Molecular Biology and Associate Dean for Research Development and Administration.

In addition to studying animal models of exposure, the center will conduct longitudinal studies to measure the effects on children from infancy to adolescence, when behavioral problems tend to emerge. The center will also investigate possible interventions and the effectiveness of medications to reverse the effects of in utero exposure to drugs such as nicotine, alcohol, marijuana and opioids.

Opioid use has risen significantly among pregnant women in recent years. According to the Centers for Disease Control and Prevention, the number of women who have used opioids at the time of their baby's birth has more than



Asaf Keller, PhD

quadrupled since 1999. Data indicates a similar increase in marijuana use among pregnant women.

"It is alarming that many pregnant women right now are assuming incorrectly that cannabis use in pregnancy is safe for their child," said **Asaf Keller, PhD**, Professor and Interim Chair of the Department of Anatomy & Neurobiology.

In previous research on the effects of cannabis use, Dr. Keller found 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.

As a growing number of U.S. states legalize the medicinal and recreational use of marijuana, an increasing number of American women are using cannabis before becoming pregnant and during early pregnancy, often to treat morning sickness, anxiety, and lower back pain. Such use could also raise their risk of complications from COVID-19, according to the American Lung Association, because it causes lung inflammation that makes it harder for the immune system to safely fend off the virus.

“The problem is we don’t know what effects marijuana use has on children who were exposed to the drug in utero,” says Dr. Cheer. ***“There are no longitudinal studies that have looked at what happens to the offspring of a woman who uses marijuana during pregnancy. We don’t know the consequences on pediatric development***



Joseph Cheer, PhD

both in the short-term early infancy/toddler years nor longer term into the teen years and early adulthood.”

Recent preclinical research by Dr. Cheer and his collaborators, published in the journal *Nature Neuroscience*, suggests that prenatal exposure to THC, the psychoactive component

of cannabis, makes the brain’s dopamine neurons (an integral component of the reward system) hyperactive and increases sensitivity to the behavioral effects of THC during pre-adolescence. Further studies are needed to determine whether the findings apply to humans.

Pre-clinical researchers hope to profile specific cell sub-types and conduct gene sequencing to better



Mary Kay Lobo, PhD

understand the molecular changes that lead to disruptive behaviors. ***“We can use these types of tools to identify molecular targets for future treatments,”*** says Dr. Lobo. ***“The center will create opportunities for translational research and collaboration between basic science researchers and clinicians,”*** she added.

Cannabis use in pregnancy will be the focus of clinical research by **Katrina S. Mark, MD**, Associate Professor of Obstetrics, Gynecology and Reproductive Sciences, and clinical director for the center.

“Thirty percent of pregnant woman test positive for marijuana use at their initiation of pre-natal care at our faculty practice in Baltimore,” says Dr. Mark. ***“Twenty-five percent of those woman will continue to smoke throughout their pregnancy, despite being warned of the negative health effects for the baby.”***



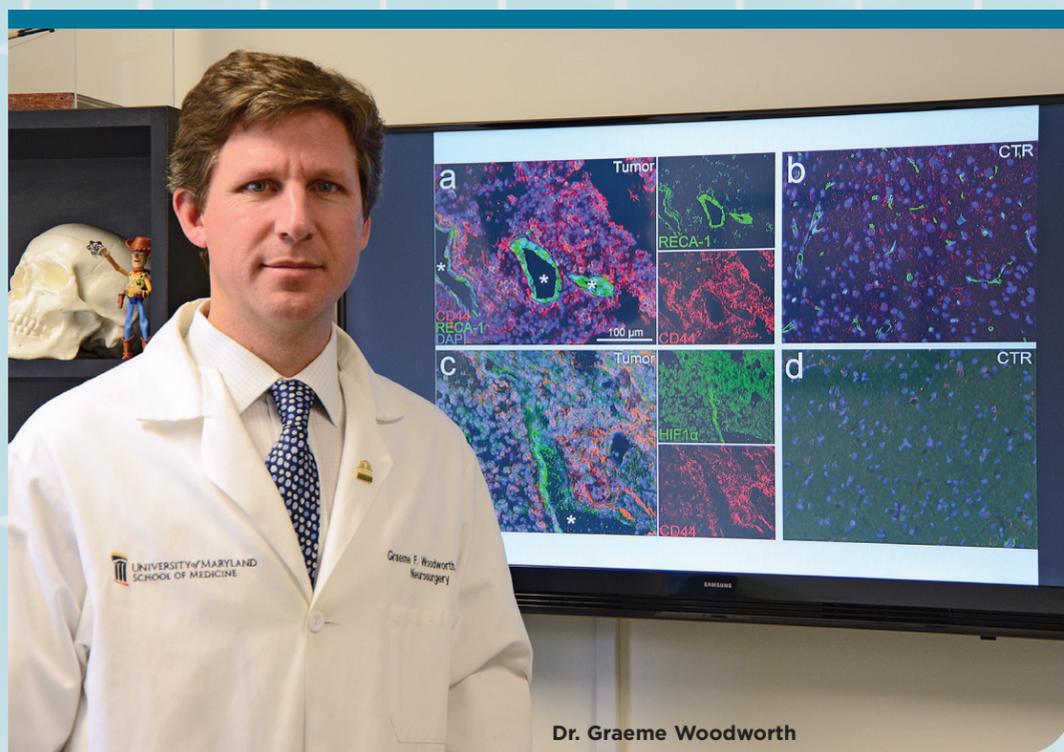
Katrina S. Mark, MD

In future research, Dr. Mark wants to understand the reasons why some women continue to smoke marijuana during pregnancy. Dr. Mark plans to investigate how childhood adversity and trauma affect the likelihood of a woman using cannabis during pregnancy.

“Substance use in pregnancy is an important medical and societal issue that deserves increased attention from researchers and physician-scientists alike,” said **E. Albert Reece, MD, PhD, MBA**, who is also Professor of Obstetrics, Gynecology and Reproductive Sciences. ***“With many states legalizing the recreational and medicinal use of marijuana, it is important that we understand the consequences of substance use in pregnancy for mothers and their children.”*** 

NEW CHAIR OF THE DEPARTMENT OF NEUROSURGERY

Leading Neurosurgeon-Scientist **Dr. Graeme Woodworth** Named Department Chair of Neurosurgery



Dr. Graeme Woodworth

April 1, UMSOM Dean **E Albert Reece, MD, PhD, MBA**, announced that **Graeme F. Woodworth, MD**, Professor of Neurosurgery at UMSOM, had been named the new Chair of the Department of Neurosurgery. Dr. Woodworth, who worked closely with longtime Neurosurgery Chair **Howard Eisenberg, MD**, has been nationally renowned for his groundbreaking research using Focused Ultrasound to enable life-saving treatment for brain tumors. A leading neurosurgeon-scientist recognized for his leadership and innovation in research and clinical care, Dr. Woodworth is Director of the Brain Tumor Treatment and Research Center at the UM Marlene and Stewart Greenebaum Comprehensive Cancer Center and has served as Interim Chair of the Department of Neurosurgery since July 2019.

Dr. Woodworth joined the UMSOM in 2012 and advanced to his current role as Professor in 2018, with secondary appointments in the UMSOM Department of Diagnostic Radiology and Nuclear Medicine and the Department of Anatomy and Neurobiology.

“Dr. Woodworth is an award-winning scientist, scholar and surgeon who is highly regarded nationally for his pioneering discoveries in treating glioblastoma,” said Dean Reece. *“His dynamic leadership, and collaborative approach to research and surgical care, make him ideally suited to succeed his distinguished mentor, Dr. Eisenberg.”*

As the director of the Brain Tumor Treatment and Research Center at the UM Greenebaum Cancer Center, Dr. Woodworth provides leadership and surgical care within a multidisciplinary group of radiologists, medical oncologists, radiation oncologists, neurosurgeons,

and pathologists treating brain tumor patients and developing new brain tumor treatments. His clinical activities facilitate and guide the cross-disciplinary group of engineers, cancer biologists, and clinician-scientists within the Translational Therapeutics Research Group (TTRG), which is addressing critical obstacles to counteracting the patho-biology and improving treatments for brain cancer. In this role, Dr. Woodworth

has brought together experts within University of Maryland Medicine, helped recruit new key team members, and raised with his team over \$10 million in extramural funding and contracts to support the clinical and research programs.

Among his numerous honors and awards, Dr. Woodworth has received the Research Scholar Award from the American Cancer Society, the Andrew J. Lockhart Memorial Prize from the Focused Ultrasound Foundation, and the University of Maryland Research and Innovation Award from the University’s M-Powering the State Program.



Dr. Howard Eisenberg

“This is an exciting time to be at the University of Maryland School of Medicine and Medical Center, with significant investments occurring in the UM Greenebaum Cancer Center, multi-disciplinary programs and facilities, and the new Center for Biomedical Innovation,” Dr. Woodworth said. *“I am excited to integrate the resources and expertise of the Neurosurgery Department with these initiatives.”*

“At the same time,” he added, *“I am honored to follow Dr. Eisenberg, who has been an exceptional leader and role model as a Department Chair and neurosurgeon-scientist.”* 

Local Seniors Learn the Latest on COVID-19 through **Online UMSOM Workshop**



Dr. Frieman speaks with online Symposium viewers.

While the spread of the novel coronavirus has created many challenges and disruptions across the country, University of Maryland School of Medicine faculty and staff continue to stay ahead of the curve in creating innovative approaches to reach the most vulnerable. For the first time in its history, the **Seniors Medical Symposium** was streamed online, allowing more seniors than ever to participate in this year's session.

Since 2001, the UMSOM has extended free health screenings and medical education to nearly 8,000 Marylanders of all ages, from elementary school students to their grandparents, through its Mini-Medical "Mini-Med" School programs.

The Seniors Medical Symposium, a six-week lecture series that takes place each spring, is one of three of the annual Mini-Med School programs. Now in its sixth year, the Seniors Medical Symposium included a collection of educational sessions on the topics of pain management, sleep and cognition, nutrition, women's health,

mobility, and the novel coronavirus (COVID-19).

"As this outbreak has expanded from across the globe into our own neighborhoods, it is more important than ever to have clear communications from scientists and public health experts on what we know and don't know about this new virus," says **Matthew Frieman, PhD**, Associate Professor in The Department of Microbiology and Immunology. Dr. Frieman's laboratory is one of only a few nationwide that is qualified to handle severe acute respiratory syndrome coronavirus-2, or SARS-CoV-2, the virus strain that causes coronavirus disease 2019 (COVID-19).

"My laboratory studies how coronaviruses replicate and cause disease. The better that we understand how these viruses work, the smarter we can target therapeutics to block infection," says Dr. Frieman. *"Our work has been on studying FDA approved drugs that can be fast-tracked into patients with COVID19, testing antibodies and vaccines targeted to proteins on the outside of SARS-CoV-2 and developing broadly acting*

anti-viral drugs so that we will be ready for whatever virus comes in the next outbreak."

In effort to expand COVID-19 testing in Maryland, the UMSOM launched a large-scale COVID-19 testing initiative to expand testing capabilities across the state. Patient samples will be processed on robotic platforms with automated technologies housed in a laboratory in the UMSOM Institute for Genome Sciences (IGS).

"We have now implemented a reconfiguration of the laboratory to establish a high-throughput testing facility," **Jacques Ravel, PhD**, Professor of Microbiology and Immunology and Associate Director of IGS, who was also among this year's presenters. For nearly two decades, Dr. Ravel's research has focused on applying modern high throughput genomics technologies to characterize the role human microbiome in health and disease. This new lab reconfiguration will allow as many as 20,000 tests within the next few months. 

To learn more about the UMSOM Mini-Medical School Programs, please visit: www.medschool.umaryland.edu/minimed

6th Annual Medical Symposium (Online)



April 21
The Vaginal Microbiome: Its Role in Women's Health and Disease
Jacques Ravel, PhD, Professor of Microbiology and Immunology



May 12
Micronutrients and Markers of Healthy Aging
Christopher D'Adamo, PhD, Assistant Professor of Family & Community Medicine



April 28
COVID-19: Where Are We Now?
Matthew Frieman, PhD, Associate Professor of Microbiology and Immunology



May 19
Healthy Aging: Improving Mobility in Older Adults
Jack Guralnik, MD, PhD, MPH, Professor of Epidemiology and Public Health



May 5
Sleep and Cognition in Older Adults
Emerson Wickwire, PhD, Associate Professor of Psychiatry and Medicine



May 26
Palliative Care and Pain Management
Raya Elfadel Kheribek, MD, MPH, FACP, Professor of Medicine, Chief, Division of Palliative Medicine

Camp Open Arms Coverage

Continued from page 1

Camp Open Arms provides a safe and supportive environment for kids to engage in traditional summer camp activities with their specific physical and emotional needs in mind.

Aired over the summer of 2019, the Camp Open Arms feature proved so popular that it was picked up by more than 100 CBS affiliate stations across the U.S., reaching an audience of 2.1 million viewers. ***“This reporting definitely brought a great deal of welcome exposure to the Camp, but also it also brought about awareness of limb differences to the public in general,”*** says Dr. Abzug.

Presented annually to U.S.-based journalists, the MORE Awards acknowledge accurate reporting of musculoskeletal health news topics and celebrate the role media play in accurately educating the public.

To learn more about Camp Open Arms or to make a donation, visit ummsfoundation.org/site/TR/RunningTeam/General?fr_id=1220&pg=entry 



Please Give to the UMSOM Student Emergency Assistance Fund

The UMSOM Student Emergency Assistance Fund supports our medical students during unexpected emergencies or crises, including the current COVID-19 pandemic. Many of our students now are facing financial hardship, due to unexpected bills, emergency travel, loss of income, or medical or prescription assistance. As some of the most vulnerable members of our community, they need and deserve our compassion and our support during this unprecedented time.

To learn how to make a donation, visit medschool-umaryland.givecorps.com/projects/52770-school-of-medicine-special-projects-school-of-medicine-student-emergency-assistance-fund

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