



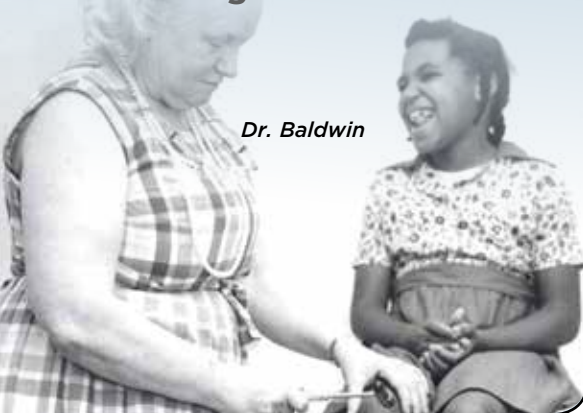
SOMnews



Point of Pride

Dr. Ruth Baldwin, UMSOM Class of 1943, became a world-renown expert on seizure and made early discoveries on the causes of congenital cerebromacular degeneration, where sufferers began losing their sight as early as age six. She was also an advocate for the rights of epileptics and established the Seizure Unit at the UMSOM, serving as professor of medicine until retiring in 1987.

Dr. Baldwin



DEAN'S MESSAGE

Being passionate and driven about your work is an integral component to success, but so, too, is pausing periodically, allowing time to reassess your priorities, recommit to your goals and make necessary adjustments. Today, there is a significant amount of research demonstrating a strong connection between the importance of caring for one's physical, mental and emotional wellbeing to promote productivity in the workplace, as well as to prevent and treat acute and chronic disease. I am delighted to lead a team of "happy, healthy and productive people" because they are the ones who make the most of their time, who think strategically and boldly, and who are helping to catapult us to great heights.

Our community's incredible productivity is reflected in the theme and content of this year's State of the School Address, *Transforming the Trajectory of Medicine*, which occurred on October 25, 2017, in the newly renovated School of Medicine Leadership Hall. As my address demonstrated, we have made some outstanding achievements — not just in this last year or last 10 years, but in the last 210 years. Our School of Medicine has achieved top-tier status, and has become a national leader in clinical and academic medicine and biomedical research. Our success contributes greatly to the wellbeing of our citizens and the economic health of our nation. We have sustained this level of leadership by adopting a fierce, goal-oriented, aggressive, strategic and opportunistic approach to maximize our academic yield. We should all be proud of our collective accomplishments.

Over our 210-year history, we have experienced many "firsts." As the nation's first public medical school, we were the first to build our own teaching hospital, first to institute a residency training program, and first to establish shock trauma as a medical field. Now in our Third Century, we are among the first to place an emphasis on the importance of complementary medicine approaches as part of the training our students can receive, and the care provided for our patients and their families. Fittingly, the uptick in similar courses at medical schools around the country was featured in a September 2017 issue of *U.S. News & World Report*. Therefore, I am proud to see that, once again, our School of Medicine is at the leading edge of educational approaches that will better equip the next generation of physicians and allied health professionals to help their patients from the "whole person" standpoint.

One of our key strengths is our emphasis on collaborative and multidisciplinary basic, translational and clinical science. Indeed, this is a major goal of our Shared Vision 2020 — to break down the silos that often wall off faculty and actively engage with our colleagues from a

What's on My Mind...



...is the importance of being happy, healthy and productive as we approach the final months of 2017.

diversity of perspectives and disciplines, thereby leveraging our internal strengths to answer the "big science" questions facing medicine today.

The importance we've placed on multidisciplinary approaches to science and medicine has helped us to attract and recruit leading investigators from around the country to join our UMSOM faculty. I am extremely pleased to share that, through these efforts, our new School of Medicine Research Building, Health Sciences Facility III, is now nearly 50 percent filled with investigators who joined us through the Special Trans-Disciplinary Recruitment Award Program (STRAP) Initiative, as well as members of the Institute for Genome Sciences and Program in Personalized and Genomic Medicine, who will be in closer proximity to further encourage collaboration.

Our reputation for discovery-based medical care has also allowed us to broaden the footprint of our clinical practices. As this month's newsletter highlights, the Department of Neurology and its Level 4 Maryland Epilepsy Center have made enormous strides in recent years in providing a comprehensive range of onsite testing and treatment options for patients suffering from this debilitating condition. Through an advanced, multidimensional approach to diagnosis, supported by state-of-the-art imaging technologies, Center physicians are able to analyze the "whole patient." As a result, patients are more quickly and precisely identified as having epilepsy, and then promoted as candidates for the most effective treatment protocols.

With the remaining months of this calendar year, I strongly encourage each and every one of us to redouble our efforts to achieve the great vision that we share for our great institution. Our individual and collective efforts matter greatly. We make a difference. Together, we change lives, save families, and transform communities.

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



What's New...

SOMnews has now expanded to eight pages, with more information and special sections on Research & Discovery, Clinical Care, Academic Innovations and Community Impact.

What's Inside...

- 2 Epilepsy's Best-Kept Secret
- 4 Faculty Discoveries
- 6 Elective in Integrative Medicine
- 8 Practices Yes, Clinics No
- 8 Attend the IGS Conference

A **B**^e**ST**-KEPT Secret Revealed



Matt Hill travels to Baltimore from his home in Wayne, Pa., to see Peter Crino, MD, PhD, Chair, Department of Neurology

MARYLAND
EPILEPSY
CENTER
CONTINUES
TO RAISE
THE BAR ON
CLINICAL
EXCELLENCE

It can start with symptoms ranging from a simple staring spell to sudden, violent shaking. Such seizures are the hallmark of epilepsy, a neurological condition that affects some 3.7 million people in the U.S. today, with 150,000 new cases appearing every year.

For those who think they have this disorder, an immediate priority is to find a trusted practice center that will confirm that diagnosis and offer a successful treatment plan to relieve the onset of their seizures. Last year, for more than 2,000 patients with epilepsy and related neurological disorders, the Maryland Epilepsy Center was their first choice, with an additional 4,800 visiting for diagnostic testing.

“We’ve been called a best-kept secret,” says **Jennifer L. Hopp, MD**, an Associate Professor of Neurology at UMSOM and Director of the Center, a division of Department of Neurology. *“Many people in Maryland don’t realize that we do have an exceptional level of expertise and experience here as a Level 4 Center. Even so, we maintain one of the highest patient volumes in Baltimore-Washington area.”*

The Level 4 designation, awarded by the National Association of Epilepsy Centers, distinguishes those few centers that offer the most complex forms of intensive neurodiagnostic monitoring, along with extensive surgical, medical, neuropsychological, and psychosocial treatment. The center first achieved its Level 4 designation some 30 years ago.

Having such a comprehensive range of testing and treatment options on site delivers a superior standard of care, notes Dr. Hopp. *“We really work to make certain that we have the latest diagnostic and treatment strategies available for our patients,”* she notes. *“We also maintain a highly personal patient approach through a group of faculty who are very dedicated to patient care, but at the same time have very exciting novel research interests. As a result, we’re able to approach the whole patient from a number of different dimensions. When a patient comes into the center, we address their complete spectrum of needs, which is a unique advantage.”*

Comprehensive Testing

When a prospective patient is admitted for evaluation, the first step is to determine if they are indeed epileptic, which can be difficult to determine. (To the Center’s credit, about a third of admitted patients are found not to suffer from epilepsy but from another “mimicking” cardiac or psychiatric condition, opening the door for more appropriate treatments.) In making an accurate diagnosis, center physicians and technicians rely on an array of advanced monitoring and imaging technologies to pinpoint the source of a patient’s seizures. Those who require a more thorough assessment will spend several days at the center’s state-of-the-art, four-bed Epilepsy Monitoring Unit (EMU), which provides inpatient continuous video-electroencephalography (cEEG) monitoring, managed by in-house EEG technicians 24/7. This dual monitoring allows physicians to compare electrical spikes in brain activity with observable seizure episodes over a period of days, and to observe whether certain medications can bring seizures under control.

The invaluable use of cEEG monitoring actually extends beyond the EMU to the entire medical center’s intensive care units, through a program directed by **Jennifer M. Pritchard, MD**, an Assistant Professor of Neurology who is director of the Epilepsy Center’s cEEG Monitoring Program and co-director of the Clinical Neurophysiology – EEG Laboratory. *“The reason that continuous EEG is so useful is that we can see when a comatose patient is experiencing a seizure even when they don’t have any clinical manifestations,”* she says. *“Besides supporting more accurate diagnoses, continuous EEG may give us information on how patients might do in cases of hypoxic ischemic brain injury or cardiac arrest. So, it’s an important piece of the puzzle in providing information that connects with brain imaging and clinical exams.”*



New Imaging, Sleep Disorder Approaches


For the Center’s **Stephanie Chen, MD**, Assistant Professor of Neurology, MRI or PET scans are just the starting point in exploring what blend of imaging approaches might work best in pinpointing the sources of seizures in a patient’s brain. As technology improves and more advanced imaging platforms become available, Dr. Chen’s research goal is to find an ideal combination of modalities that achieve a greater precision than is available presently. *“Data has shown that if we can identify accurately the seizure focus through imaging, the surgery outcomes of patients are better,”* she notes. *“We want to give the neurosurgeon a more precise target.”*

Another dimension of epilepsy management is the area of sleep disorders. **Ana M. Sanchez, MD**, Assistant Professor of Neurology, is an Epilepsy and Sleep Medicine specialist who is studying the intersection of seizures and sleep disorders. *“I am interested in the interface of epilepsy and sleep,”* she says. *“Some seizures are more likely to arise from sleep, and it may be possible that by effectively identifying and treating sleep disorders, we can actually improve seizure control both during sleep and wakefulness.”*

Multiple Perspectives

Drawing from their diagnostic perspectives, Drs. Hopp, Chen, Pritchard, and Sanchez meet several times a month with other members of the Epilepsy Center team for interdisciplinary epilepsy surgery conference. The group, which includes eight epileptologists as well as radiologists, neuropsychologists, and neurosurgeon **Howard Eisenberg, MD**, Professor of Neurosurgery and Raymond K. Thompson, MD, Chair in Neurosurgery, present their data in discussing each patient case in an individualized manner. On average, about two-thirds of diagnosed epilepsy patients can be treated successfully through medication therapy; however, for the remaining one-third, epilepsy surgery may offer them the best chance at seizure freedom.

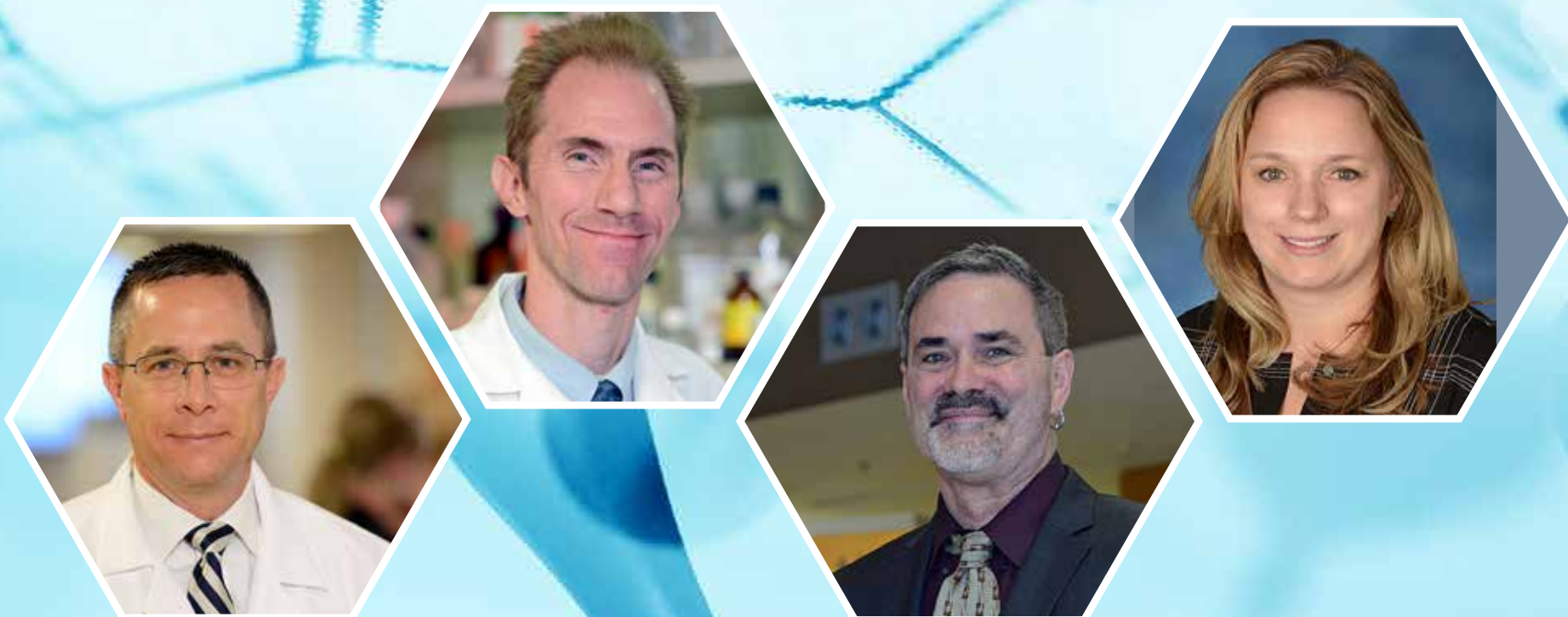
“For surgery candidates, we assess if further invasive or non-invasive testing needs to be done, such as implantation of electrodes on the brain’s surface,” says Dr. Hopp. *“We then determine whether we can resect (remove tissue from) an area of the brain that is responsible for causing the seizures without compromising other key functions.”* If patient is not a candidate for resective surgery, the center offers other high-tech options to control seizures through implanted devices that include the NeuroPace — Responsive Neurostimulation System (RNS)[™] and Vagus Nerve Stimulation (VNS).[™]

“The rates of seizure freedom depend upon epilepsy type, but our efficacy rate is very high with a low complication rate,” notes Dr. Hopp. *“Moving forward, our focus is on novel treatments that improve our effectiveness, but also allow our patients to return to work and their lives more quickly.”* 



To learn more about the Maryland Epilepsy Center, visit www.umm.edu/programs/neurosciences/services/epilepsy. To make an appointment with a Center epilepsy specialist, please call 410-328-4323.

DISCOVERIES



Emergency Rooms Doing Nearly Half of U.S. Medical Care

In the first study to quantify the contribution of emergency department care to overall U.S. health care, researchers at the University of Maryland School of Medicine have found that nearly half of all U.S. medical care is delivered by emergency departments. The paper highlights the major role played by emergency care in health care in the U.S. In recent years, the percentage of care delivered by emergency departments has grown significantly. *"I was stunned by the results. This really helps us better understand health care in this country. This research underscores the fact that emergency departments are critical to our nation's healthcare delivery system."* said **David Marcozzi, MD, MHS-CL, FACEP**, an associate professor in the UMSOM Department of Emergency Medicine, and co-director of the UMSOM Program in Health Disparities and Population Health. *"Patients seek care in emergency departments for many reasons. The data might suggest that emergency care provides the type of care that individuals actually want or need, 24 hours a day."*

A New Way to Treat the Flu

A new study by researchers at the University of Maryland School of Medicine has identified an innovative strategy for treating influenza, and perhaps other infectious diseases as well. Scientists showed that a small protein called retrocyclin-101 (RC-101) could potentially improve the symptoms and mortality associated with the flu and possibly other types of infectious illness as well. *"Every year, thousands of people across the country die from the flu or its complications—despite widespread use of annual influenza vaccines,"* said the study's lead author, **Daniel J. Prantner, PhD**, a research associate in the Department of Microbiology and Immunology at UMSOM. *"We think that this protein could lead to medicines that could be a powerful tool in the battle against this disease, and against inflammation in general."*

Millions of New Genes Found in Bacteria

A new study of the human microbiome — the trillions of microbial organisms that live on and within our bodies — has uncovered millions of previously unknown genes from microbial communities in the human gut, skin, mouth, and vaginal microbiome, allowing for new insights into the role these microbes play in human health and disease. The study triples the amount of data previously analyzed in this project, and is the largest human microbiome study ever. *"This new data really expands our appreciation for the fingerprint created by microorganisms that make up each human's microbiome,"* says **Owen White, PhD**, professor of epidemiology and public health and associate director at the Institute for Genome Sciences (IGS) at UMSOM.

Are There Links Between Sleep, Cognition and Schizophrenia?

A new study has found intriguing links between sleep, cognition and a compound called kynurenine. These links could illuminate the mechanism that causes cognitive problems among those with schizophrenia, and could point the way to new treatments to reduce some of the disease's symptoms. *"No one has looked closely at the relationship between sleep and the kynurenine pathway before,"* said **Ana Pocivavsek, PhD**, a researcher at the University of Maryland School of Medicine Maryland Psychiatric Research Center and an assistant professor in the Department of Psychiatry. *"This research establishes a clear link between elevations in kynurenine and sleep problems."*



COLLABORATIVE RESEARCH BY UMSOM FACULTY



A Better Understanding of Diabetes


A new study by researchers at the University of Maryland School of Medicine has uncovered an explanation for how inflammation contributes to a key feature of diabetes, the body's inability to metabolize glucose, a condition known as insulin resistance. The study is the first to identify a new molecular link between inflammation and the disease. *"Until now, we didn't really understand how insulin resistance occurred,"* said **Xiao-Jian Sun, PhD**, an assistant professor in the Department of Medicine at UMSOM. *"Our study has done something new: it has identified a new molecule involved in the development of insulin resistance."*

A New Potential Pathway for Treating Addiction

Understanding what changes take place in the brain after consuming addictive agents like cocaine may help set a blueprint for directly tackling addiction, according to research conducted by **Meaghan Creed, PhD**, Assistant Professor of Pharmacology at the University of Maryland School of Medicine. Dr. Creed, a neuroscientist who studies deep brain stimulation, has developed an approach that reversed cocaine addiction in mice, and she is now researching how this might work with opioids. Dr. Creed was recognized for her work in this area and named the 2017 grand prize winner of a joint award issued by Science and Beijing, China-based PINS Medical Equipment Co. Her essay, "Toward a Targeted Treatment for Addition," which was published recently in *Science*, outlines her research using deep brain stimulation combined with pharmacology on mice to reverse brain changes brought on by cocaine addiction.

How Breast Cancer Can Grow if Untreated

In 2017, more than 315,000 women in the U.S. are expected to be diagnosed with breast cancer. More than 40,000 are expected to die in 2017 from the disease. Over the course of their lives, one in 8 women in this country will develop invasive breast cancer. One of the most common forms of the disease is ductal carcinoma in situ (DCIS), an early-stage, non-invasive breast cancer. If untreated, these tumors become invasive, and are more difficult to treat. DCIS is thought to be the precursor of most invasive breast cancer. The molecular mechanisms underlying how DCIS becomes invasive have remained a mystery. For the first time, scientists at the University of Maryland School of Medicine have unraveled a key mechanism by which this form of breast cancer becomes invasive. The discovery involves myoepithelial cells, which make up an outer layer of the breast, and help the organ pump milk. These cells play a crucial role in breast cancer. In the early stages of the disease, when it is not invasive yet, these cells act as tumor suppressors, and keep the disease from spreading. However, with aggressive strains of the disease, these cells transform, and are no longer able to subdue tumor spread. At this point, the cancer becomes invasive and begins to spread.

Until now, the process by which myoepithelial cells go from ally to enemy has remained a mystery to researchers. *"This is very exciting,"* said the lead researcher on the paper, **Qun Zhou, MD, PhD**, an associate professor in Biochemistry and Molecular Biology at UMSOM. *"Until now, we really had no idea what happened to myoepithelial cells on a molecular level that inhibited their cancer-fighting ability."* This discovery could point the way to new treatments that keep myoepithelial cells from being transformed. 



New Research Building Near Completion — UMSOM Name Adorns the Top

The Center for Integrative Medicine's Elective in Integrative Medicine

WHAT UMSOM STUDENTS HAVE TO SAY:

Some mention improvements in their personal wellness:

“*It definitely helped improve my quality of life, decrease stress, and overall feel more fulfilled and optimistic about going into medicine.*”

Others note an enhanced attention to self-care:

“*I learned about the importance of taking care of myself in order to better take care of my patients.*”

Some students share a renewed commitment to patient-centered medical practice:

“*This elective has helped me remember why I chose a career in medicine, and has reminded me to treat each patient as a human being, not just a disease.*”

Many students mention ways that their medical practice has been enhanced by what they have learned:

“*I have learned how to reframe issues for patients, especially stress and pain ... I have also learned to problem-solve in a creative integrative way and to look at the patient as a whole when situations arise on the inpatient unit. I think that learning about the different modalities, diets, supplements, and other integrative practices will make me less dismissive as a physician and more accepting when my patients come to me saying they have tried or want to try things.*”



Some suggest that all medical students should experience integrative medicine education:

“*This course provided me with so many tools to help me live the happiest and most fulfilled life ... I think this course has given us all tools to become better physicians. I think it should be a requirement for all students in medical school.*”

led by the Center for Integrative Medicine’s Associate Director and Director of Education, **Delia Chiaramonte, MD**, the Center’s popular elective provides fourth-year students with an evidence-informed look at the field of Integrative Medicine. With a mixture of didactic and experiential learning opportunities, students explore complementary modalities such as acupuncture, massage, guided imagery, tai chi, therapeutic art, nutritional supplementation, chiropractic and much more. A typical day might include discussing the evidence for peri-operative guided imagery in the morning and visiting a horse farm to learn about equine-assisted therapies in the afternoon. They could also practice yoga in the morning and explore complementary medicine systematic reviews in the afternoon. The combination of academic inquiry and experiential practice is unique, and the elective is consistently rated highly by students.

During case study sessions, students present difficult patients’ cases that they have encountered in previous rotations, and discuss integrative treatment approaches or modalities that could have been used to support the patient’s health and wellness. For their final project, students present a patient example for whom they have created an evidence-supported integrative treatment plan. This day-long group discussion is a highlight of the course that allows the students to share what they have learned and integrate the new material into their current knowledge base.

An added benefit to the integrative medicine elective is its focus on student wellness. Several sessions are dedicated to stress management, and students are encouraged to practice what they are learning for their own wellness as well as that of their patients. Thus, students report that during the elective they positively modify their eating habits, begin a yoga practice, start meditating, begin a regular gratitude ritual or other health-inducing behavior. The idea of physicians as “mentors for health” is emphasized throughout the course.

Moreover, during the course students expand their treatment “toolbox” and learn multiple non-pharmacologic methods for treating pain. With the current opioid crisis, training doctors to manage pain using modalities other than pharmaceuticals is a priority of interest to communities, government organizations and the Joint Commission. Students learn and practice pain-relieving techniques such as relaxation breathing, acupressure and guided meditation.

With burnout and stress among medical professionals becoming an increasingly common problem that can impact patient care, medical students may not regularly practice the self-care that can be protective. In the integrative medicine elective, students learn and practice wellness strategies designed to maintain a steady sense of health and well-being. 🏡



Take care of yourself to take better care of your patients.



The idea of physicians as “mentors for health” is emphasized throughout the course.

— Delia Chiaramonte, MD

The Center for Integrative Medicine (CIM)

Integrative medicine merges the best of conventional and complementary medicine to provide patient-centered care, offer natural solutions to chronic problems, enhance wellness, and facilitate healing of the mind, body and spirit.

The Center for Integrative Medicine, established over 25 years ago by **Brian Berman, MD**, was the first of its kind to be established in an academic institution. It was a National Institutes of Health Center for Excellence in Research for 15 years, and has earned more than \$53 million in grant funding. CIM



has published more than 275 peer-reviewed articles and has been offering evidence-based integrative care to patients for over 25 years.

CIM believes that integrative medicine education can benefit all medical learners, and has recently created an Applied Integrative Medicine program for practicing physicians, nurses, pharmacists and other healthcare providers.

The Center for Integrative Medicine at UMSOM believes and teaches every day:

- Take care of yourself to take better care of your patients.
- Give patients options other than drugs to relieve pain.
- Understand the evidence supporting complementary modalities so that you can effectively guide your patients.



“Practices”

NEW UMSOM POLICY SPECIFIES USE OF “PRACTICES” INSTEAD OF “CLINIC”

Dean E. Albert Reece, MD, PhD, MBA, has reaffirmed the policy that the word “clinic” should no longer be used when referring to patient care facilities.

“Although this is not an inappropriate word, over the years, it has developed a negative connotation — not associated with service excellence, patient centered care, or personalized care,” he said. “In addition, patients report disdain and dissatisfaction in being ‘referred to Dr. Brown’s Clinic’ and sometimes ask, ‘Does Dr. Brown have a practice?’”

In this light, the UMSOM policy now requires all patient care facilities to be called “practices.” 



JoinUs...

FRONTIERS IN GENOMICS SYMPOSIUM 2017

Thursday, November 16, 2017
8:30 am - 4:00 pm

A CELEBRATION OF THE INSTITUTE FOR GENOME SCIENCES' 10TH ANNIVERSARY

Please join us for a day of innovative discussion and scientific exchange, as we host internationally recognized scientists who will share new discoveries in genomics, bioinformatics and personalized medicine. The Symposium is a celebration of the Institute for Genome Sciences' 10th anniversary.

RSVP to igs-event@som.umaryland.edu

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