hat’s on my mind this month is our new Office of Postdoctoral Scholars (OPS). The Graduate Program in Life Sciences and the Office of Research Career Development have collaborated to create the University of Maryland Office of Postdoctoral Scholars. This office will fill a critical niche by providing the approximately 300 postdoctoral scholars in the School of Medicine as well as those in the Schools of Dentistry, Nursing and Pharmacy with a centralized resource for both professional and personal development. The goal of the office is to welcome new postdoctoral trainees into a community of scientists, provide them with the skills needed to maximize their research potential during this unique phase of their career and to ensure that they develop the necessary attributes for scientific independence.

The world of biomedical research requires an extensive period of training prior to full independence. A multitude of skills must be mastered, including scientific and technical expertise, exceptional manuscript and grant writing abilities, laboratory and time management skills, personnel training and leadership. Postdoctoral fellows are in the penultimate stage of training and are distinct members of the University of Maryland, Baltimore (UMB) and School of Medicine communities, being neither faculty, staff nor student. By definition the postdoctoral period is transitory, and successful progression to the next stage requires acquisition of all the necessary skills.

The School of Medicine adheres to the Association of American Medical Colleges Compact between Postdoctoral Appointees and Their Mentors (www.aamc.org/research/postdoccompact) that recognizes the responsibility of the university and the mentor and mentee. The establishment of the Office of Postdoctoral Scholars is an important step in fulfilling the responsibility of all parties and assuring that an environment most conducive to postdoctoral training is established and maintained.

Postdoctoral scholars are an important part of the School of Medicine community. I very much look forward to more fully welcoming them into the School of Medicine family.

In the relentless pursuit of excellence, I am extremely excited about the opportunity to work with the new Office of Postdoctoral Scholars.

Sincerely yours,

E. Albert Reece, MD, PhD, MBA
Acting President, University of Maryland, Baltimore
John Z. and Akiko K. Bowers Distinguished Professor and Dean, School of Medicine
“Microtentacles,” or extensions of the plasma membrane of breast cancer cells, appear to play a key role in how cancers spread to distant locations in the body, according to a new study published in the journal Oncogene and authored by a School of Medicine scientist. Targeting these microtentacles might prove to be a new way to prevent or slow the growth of these secondary cancers, said the study’s senior author, Stuart S. Martin, PhD, associate professor, Department of Physiology.

Dr. Martin and his colleagues found that a protein called “tau” promotes the formation of these microtentacles on breast tumor cells which break away from primary cancers and circulate in the bloodstream. While twisted remnants of tau protein have been seen in the brain tissue of patients with Alzheimer’s disease, this is the first report that tau could play a role in tumor metastasis by changing the shape of cancer cells. These tau-induced microtentacles can help the cells reattach to the walls of small blood vessels to create new pockets of cancer.

“Our study demonstrates that tau promotes the creation of microtentacles in breast tumor cells. These microtentacles increase the ability of circulating breast tumor cells to reattach in the small capillaries of the lung, where they can survive until they can seed new cancers,” said Dr. Martin, a research scientist at the University of Maryland Marlene and Stewart Greenbaum Cancer Center.

Healthy cells are programmed to die—a process called apoptosis—after they break off of epithelial layers that cover internal organs in the body. They also can be crushed if they are forced through small capillaries. However, cancer cells are able to survive for weeks, months and even years in the body. Once they are trapped in small blood vessels, the cells can squeeze through microscopic gaps in the vessels’ lining and spread to organs such as the brain, lung and liver. “We hope that through our research, we will be able to identify drugs that will target the growth of these microtentacles and help to stop the spread of the original cancer.”

“We hope that through our research, we will be able to identify drugs that will target the growth of these microtentacles and help to stop the spread of the original cancer.”

“A University of Maryland Institute for Genome Sciences researcher has identified an unusual link between humans and koala bears—Chlamydia. At some point in the past, koala bears infected humans with the common respiratory disease Chlamydia pneumoniae, according to a new study co-authored by Garry Myers, PhD, assistant professor, Department of Microbiology and Immunology. Not the same as the sexually-transmitted type of Chlamydia, Chlamydia pneumoniae is a common bacteria that causes widespread respiratory illness in humans. The new study, published in the Journal of Bacteriology, is a collaboration between Dr. Myers and Peter Timms, PhD, a microbiologist and professor, Queensland University of Technology in Australia.

Chlamydia pneumoniae is a major human pathogen that causes acute respiratory disease and has been linked to a variety of chronic diseases.

“Chlamydia pneumoniae is a major human pathogen that causes acute respiratory disease and has been linked to a variety of chronic diseases,” said Dr. Myers. Dr. Myers and his collaborators sequenced the genome of a sample of Chlamydia pneumoniae that had been collected from an Australian koala. In the genomic information that resulted, the researchers found evidence that the human version of the infection had come from an animal source. Infections transmitted from animals to humans are known as zoonotic infections, and are serious threats to human health. Recent examples include H1N1, which at some point passed from swine to humans.

The study found that, like H1N1, Chlamydia pneumoniae originated from amphibians such as frogs. Over time, it infected other animals and eventually transmitted to humans from koalas. The animal form of the bacteria then adapted genetically to transmit between humans, rather than simply from animals to people.

Considering the H1N1 pandemic that originated in swine last year, the findings reveal that Chlamydia pneumoniae is yet another example of a disease that originated in animals and now has caused public health concerns in humans. The research demonstrates the serious risk to human health that animal infections can pose, according to Dr. Myers.

“This pathogen was originally derived from an animal source, but no longer requires an animal host for transmission,” said Dr. Myers. Zoonotic infections that can genetically adapt to transmit to humans and then further adapt to transmit between humans are considered to be a particular threat to human health, he added. “This represents another example of how zoonotic pathogens represent a significant public health burden in human populations,” he said.

The study indicates a need for developing better diagnostic tests and vaccines and educating people on how to take appropriate precautions to prevent the spread of zoonotic infections, the researchers said.

“Microtentacles,” or extensions of the plasma membrane of breast cancer cells, appear to play a key role in how cancers spread to distant locations in the body, according to a new study published in the journal Oncogene and authored by a School of Medicine scientist. Targeting these microtentacles might prove to be a new way to prevent or slow the growth of these secondary cancers, said the study’s senior author, Stuart S. Martin, PhD, associate professor, Department of Physiology.

Dr. Martin and his colleagues found that a protein called “tau” promotes the formation of these microtentacles on breast tumor cells which break away from primary cancers and circulate in the bloodstream. While twisted remnants of tau protein have been seen in the brain tissue of patients with Alzheimer’s disease, this is the first report that tau could play a role in tumor metastasis by changing the shape of cancer cells. These tau-induced microtentacles can help the cells reattach to the walls of small blood vessels to create new pockets of cancer.

“Our study demonstrates that tau promotes the creation of microtentacles in breast tumor cells. These microtentacles increase the ability of circulating breast tumor cells to reattach in the small capillaries of the lung, where they can survive until they can seed new cancers,” said Dr. Martin, a research scientist at the University of Maryland Marlene and Stewart Greenbaum Cancer Center.

Healthy cells are programmed to die—a process called apoptosis—after they break off of epithelial layers that cover internal organs in the body. They also can be crushed if they are forced through small capillaries. However, cancer cells are able to survive for weeks, months and even years in the body. Once they are trapped in small blood vessels, the cells can squeeze through microscopic gaps in the vessels’ lining and spread to organs such as the brain, lung and liver. “We hope that through our research, we will be able to identify drugs that will target the growth of these microtentacles and help to stop the spread of the original cancer.”

“We hope that through our research, we will be able to identify drugs that will target the growth of these microtentacles and help to stop the spread of the original cancer.”

“A University of Maryland Institute for Genome Sciences researcher has identified an unusual link between humans and koala bears—Chlamydia. At some point in the past, koala bears infected humans with the common respiratory disease Chlamydia pneumoniae, according to a new study co-authored by Garry Myers, PhD, assistant professor, Department of Microbiology and Immunology. Not the same as the sexually-transmitted type of Chlamydia, Chlamydia pneumoniae is a common bacteria that causes widespread respiratory illness in humans. The new study, published in the Journal of Bacteriology, is a collaboration between Dr. Myers and Peter Timms, PhD, a microbiologist and professor, Queensland University of Technology in Australia.

Chlamydia pneumoniae is a major human pathogen that causes acute respiratory disease and has been linked to a variety of chronic diseases.

“Chlamydia pneumoniae is a major human pathogen that causes acute respiratory disease and has been linked to a variety of chronic diseases,” said Dr. Myers. Dr. Myers and his collaborators sequenced the genome of a sample of Chlamydia pneumoniae that had been collected from an Australian koala. In the genomic information that resulted, the researchers found evidence that the human version of the infection had come from an animal source. Infections transmitted from animals to humans are known as zoonotic infections, and are serious threats to human health. Recent examples include H1N1, which at some point passed from swine to humans.

The study found that, like H1N1, Chlamydia pneumoniae originated from amphibians such as frogs. Over time, it infected other animals and eventually transmitted to humans from koalas. The animal form of the bacteria then adapted genetically to transmit between humans, rather than simply from animals to people.

Considering the H1N1 pandemic that originated in swine last year, the findings reveal that Chlamydia pneumoniae is yet another example of a disease that originated in animals and now has caused public health concerns in humans. The research demonstrates the serious risk to human health that animal infections can pose, according to Dr. Myers.

“This pathogen was originally derived from an animal source, but no longer requires an animal host for transmission,” said Dr. Myers. Zoonotic infections that can genetically adapt to transmit to humans and then further adapt to transmit between humans are considered to be a particular threat to human health, he added. “This represents another example of how zoonotic pathogens represent a significant public health burden in human populations,” he said.

The study indicates a need for developing better diagnostic tests and vaccines and educating people on how to take appropriate precautions to prevent the spread of zoonotic infections, the researchers said.
be Vatican is funding a new partnership between School of Medicine faculty members and Italian scientists to explore the therapeutic potential of intestinal stem cells. The International Intestinal Stem Cell Consortium is being coordinated by Alessio Fasano, MD, professor, Departments of Pediatrics, Medicine and Physiology, director, Microbiome Research Center and director, Center for Celiac Research. The consortium also will include researchers from the Istituto Superiore di Sanita, the Italian equivalent to the National Institutes of Health, the University of Salerno in Dr. Fasano’s hometown of Salerno, Italy, and the Bambin Gesù in Rome, the largest children’s hospital in Europe. It also will include scientists from the University of Maryland School of Medicine’s Center for Stem Cell Biology and Regenerative Medicine.

The Vatican is providing funding to the consortium for collaborative research on the stem cells found in the intestines, a promising field of stem cell science that has been largely neglected until now, according to Dr. Fasano. “This new coalition brings together scientists from both sides of the Atlantic to ensure we are exploring every avenue of stem cell research in order to bring real treatments as quickly as possible to patients suffering from deadly conditions such as Alzheimer’s disease and multiple sclerosis,” said Dr. Fasano. “All the partners have put a tremendous amount of energy and enthusiasm into putting this consortium together, and we are thankful to the Vatican for making this research possible.”

The ideal type of stem cells for medical use, says Dr. Fasano, has unlimited pluripotency—that is, the stem cells are virtual blank slates that can differentiate or become any kind of cell, from heart cells to blood cells to skin cells to intestinal cells and so on. Embryonic stem cells and the newer induced pluripotent stem (iPS) cells are primed for their pluripotency, which makes them promising for use in treating anything from heart disease to cancers, and more. Adult stem cells are not as pluripotent, but harvesting them from a patient’s skin or muscle or bone marrow or intestine is an important alternative, according to Dr. Fasano. “We just want to take advantage of what nature is already doing in the intestines,” he said.

Intestinal stem cells are highly active stem cells that support the shedding and replacing of all the cells in the intestinal lining once every four to seven days. They are multipotent, already programmed to support all the various kinds of cells—such as mucus cells and epithelial cells—necessary to line the 20-foot length of the intestine, a highly complex organ. Importantly, intestinal stem cells can be easily harvested using endoscopy, a simple procedure used regularly for intestinal biopsies. Because these stem cells are harvested with relative ease, patients could have their own intestinal cells harvested and used to treat bowel disease. If patients receive treatments using their own stem cells, there could be less risk of rejection or a reaction to the transplant, Dr. Fasano explained. “These cells are very promising, at least on paper,” he said. “To study this, though, takes multidisciplinary teams of experts in stem cell research, experts in gastrointestinal medicine, experts in molecular biology and bioengineering. You need all the pieces of the puzzle and you need to communicate freely, sharing your ideas and findings. That is what we’re doing with this consortium.”

The group will work to answer two critical questions about intestinal stem cells. One mystery is how the cells can be kept alive and made to replicate in the laboratory. Another key question to be explored is how, once the cells are healthy and flourishing, scientists can induce them to transform into different types of cells. If the laboratory research goes well, the consortium could move on to clinical research, testing intestinal stem cell treatments in patients. “I am confident that this partnership will facilitate new discoveries about intestinal stem cells that also will lead to a better understanding of all types of stem cells, their function and potential to treat disease,” said Curt Civin, MD, professor of pediatrics, director of the Center for Stem Cell Biology and Regenerative Medicine and associate dean for Research. “The University of Maryland Center for Stem Cell Biology and Regenerative Medicine is dedicated to pursuing every promising avenue of stem cell science using multidisciplinary research partnerships between our faculty and the construction of core facilities to support all types of stem cell research. We hope this new funding will help us reach our goals.”

New Immediate Care Clinic on Campus Will Serve Faculty, Staff, and Students

The faculty of the Department of Family and Community Medicine is poised to open a new immediate care clinic that will provide staff and students on the West Baltimore university and hospital campus a more convenient way to access non-emergency health care services.

UMaryland Immediate Care is scheduled to open this month at 408 West Lombard Street, a space just around the corner from the Family and Community Medicine offices at 29 South Paca Street.

The clinic will be open five days a week, from 7 a.m. to 5 p.m., for only faculty, staff and students of the University of Maryland, Baltimore, the University of Maryland Medical System and University Physicians Inc.

Immediate Care has a twofold mission. One of its goals is to provide campus employees and students with quick, convenient care with short waiting times. At the same time, the clinic aims to keep referrals among School of Medicine faculty rather than with outside specialists. “Increasingly, patients are looking to connect their care to their U of M’s of their everyday health needs,” said Kevin S. Ferentz, MD, associate professor, Department of Family and Community Medicine, and Endowed Professor and Chairman of the Department of Medicine, at a reception in honor on April 1, 2020.

“We hope patients can receive their care without having to leave the campus—whether it’s for primary care or specialty care,” he said. “This is a solution that benefits all of us,” says Dr. Ferentz, who will serve as medical director of the new clinic. “The clinic is intended to treat non-emergency and non-chronic issues—headaches, fevers, colds, ear infections, nausea, heart palpitations. If a problem requires specialty care, the doctors and nurse practitioner will refer patients to specialists at the School of Medicine. For chronic conditions, patients will be sent to their primary care physician for ongoing care. Students, however, will be able to receive primary care at the clinic—the Department of Family and Community Medicine already provides those services to students, and will do so at the new clinic as well.

The specialists on campus have agreed with the Department of Family and Community Medicine that patients referred by the new clinic will get top priority for appointments. That means patients the clinic refers will have much shorter waits for scheduling appointments with specialists on campus, rather than the weeks or even months they might have to wait for outside doctors.

Bill Elliott, chief operating officer at University Physicians Inc. (UPI), says, “We’ve made a commitment here at UPI to get appointments with specialists scheduled in an accelerated time frame to keep people connected to their medical care.”

Getting appointments with specialists quickly “is a real value-added service,” says Kathy Maddock, senior administrator of the Department of Family and Community Medicine. “It will also be implementing electronic medical records for students, faculty and staff to connect their care between the clinic, their specialists and the hospital. We’ve designed the clinic as a portal for their care.”

The new facility, with eight exam rooms, will open at 7 a.m. with patient’s work schedules in mind. “We’ve set the hours so that people can be seen before they come into work,” says Mr. Maddock. “We’re going to try to get them in and out as quickly as possible, so they don’t have to wait.”

The clinic is physically connected to the Department of Family and Community Medicine’s Paca Street offices, so doctors will be able to move smoothly between the two facilities. “We hope that by making it more convenient for people to seek care, we’ll be able to take care of small health issues and refer patients to specialists before these little things become larger health issues,” says Mr. Elliott. “This will be good for all of us.”

Vatican Funds Partnership Between School of Medicine and Italian Scientists to Study Intestinal Stem Cells

The Vatican is providing funding to the consortium for collaborative research on the stem cells found in the intestines, a promising field of stem cell science that has been largely neglected until now, according to Dr. Fasano. “This new coalition brings together scientists from both sides of the Atlantic to ensure we are exploring every avenue of stem cell research in order to bring real treatments as quickly as possible to patients . . .”

“These cells are very promising, at least on paper,” he said. “To study this, though, takes multidisciplinary teams of experts in stem cell research, experts in gastrointestinal medicine, experts in molecular biology and bioengineering. You need all the pieces of the puzzle and you need to communicate freely, sharing your ideas and findings. That is what we’re doing with this consortium.”

The group will work to answer two critical questions about intestinal stem cells. One mystery is how the cells can be kept alive and made to replicate in the laboratory. Another key question to be explored is how, once the cells are healthy and flourishing, scientists can induce them to transform into different types of cells. If the laboratory research goes well, the consortium could move on to clinical research, testing intestinal stem cell treatments in patients. “I am confident that this partnership will facilitate new discoveries about intestinal stem cells that also will lead to a better understanding of all types of stem cells, their function and potential to treat disease,” said Curt Civin, MD, professor of pediatrics, director of the Center for Stem Cell Biology and Regenerative Medicine and associate dean for Research. “The University of Maryland Center for Stem Cell Biology and Regenerative Medicine is dedicated to pursuing every promising avenue of stem cell science using multidisciplinary research partnerships between our faculty and the construction of core facilities to support all types of stem cell research. We hope this new funding will help us reach our goals.”
Third-Year Student Matthew Loftus is a Man on a Mission

Living in service to others has long been a way of life for Matthew Loftus, a third-year student who has already embarked on several mission trips to help people in need around the world. “I decided to go to medical school because I wanted to work with people and do missions work overseas,” says Matthew. At first he thought his calling was as a research chemist, “but it wasn’t very good at research?” Matthew admits. After reading about the obstetrical needs of women in Africa, “I realized that my science knowledge could be used to that end,” he says.

This summer, Matthew and his wife Maggie, a nursing student who hopes to eventually become a certified nurse-midwife, are heading to Soddo Christian Hospital in Ethiopia, a trip arranged with the Institute for International Medicine. “It is a nonprofit that connects students and health professionals with clinical opportunities overseas and health services on international/tropical medicine,” Matthew explains. “They have connections with dozens of sites all over the world, and our interactions with them so far have been very helpful and professional. They found a site right away that was perfect for us, and it satisfies my AHEC requirement!”

Ethiopia’s warm weather will be a nice change for Matthew and Maggie, whose planned December 19, 2009, wedding was thrown a curve when a blizzard dumped 21 inches of snow on Maryland that day. Still, the show went on, just not quite as planned. “We ended up getting married in my parents’ living room!” says Matthew. “We then had the big church wedding the next day. It was a great time, and we got to have the fun spread out over two days.”

During his time in Soddo, Matthew will be working with patients of all ages, which should go a long way in preparing him for the specialty he has already chosen—family medicine. “I love talking with patients, developing long-term relationships, and investing a lot of work over a long period of time,” says Matthew. “I think it ties together well with my other career goals, like community health and church planting, as I want to help focus on the whole person in health care, helping people becoming healthier physically, emotionally, socially and spiritually.”

“Faith is of great importance to Matthew in both his life and his work. ‘There’s a strong emphasis in my church & community on shalom—the Hebrew word for “peace”—and how peace is more than just the cessation of hostilities, but also the healing of all aspects of the community and the restoration of all things that are broken,’” he says. “I think that family medicine provides a very strong support for that framework and a worldview that seeks to bring about shalom and not just treat a disease.”

Being comfortable with even the smallest patients should not be a challenge for Matthew, who already has quite a bit of experience caring for young ones. “I am the oldest of 15 children—there are six boys and nine girls, ranging in age from me at 23 to the youngest at eight months old,” he says. Matthew concedes that such a crowded household was sometimes complete chaos, “but we all love each other very, very much and feel like growing up in such a big family was a huge blessing,” he says. “I learned a lot about responsibility, forgiveness and love from all of my family members, and I wouldn’t change a thing about how I grew up.”

Matthew and Maggie didn’t let a blizzard keep them from becoming husband and wife.