

DEAN'S MESSAGE: What's On My Mind

What's on my mind this month are several new clinical initiatives underway at the School of Medicine and University Physicians, Inc. (UPI) that highlight our emphasis on becoming a more efficient, more patient-focused physician organization. The provisions of the recently passed health care reform legislation will make this emphasis even more important in the future. I expect to see greater emphasis on quality, access and satisfaction measures for patients, and we will care for patients based on these standards.

To that end, and in response to patient survey data, we have launched a major service excellence initiative which we hope will strengthen our patients' satisfaction with their experiences here. We have been collecting patient satisfaction survey results for well over a year and are developing new infrastructure and processes to improve the patient experience, such as minimizing wait times at the time of appointment, and reducing the length of wait for new and follow-up appointments. In addition, we will institute a common patient registration process, with information collected at any ambulatory site and shared across the practices, so that patients don't have to fill

out the same forms repeatedly.

Complementary to common patient registration is our move toward electronic medical records (EMR), which allows for storage, retrieval and modification of patient medical records across the practice plans, indeed

COMPLEMENTARY TO COMMON PATIENT REGISTRATION IS OUR MOVE TOWARD ELECTRONIC MEDICAL RECORDS (EMR), WHICH ALLOWS FOR STORAGE, RETRIEVAL AND MODIFICATION OF PATIENT MEDICAL RECORDS ACROSS THE PRACTICE PLANS, INDEED THROUGHOUT THE HEALTH CARE INDUSTRY.

throughout the health care industry. Our EMR program is up and running in family medicine. General internal medicine and medical subspecialties will be next, and the other ambulatory practices will be rolled out within a year. The benefit to this technology is that it gets us closer to a more contemporary practice style, and it is simply a better way to capture and share clinical information with physicians and patients. There are federal incentives for adopting EMRs, and we are on the correct path to optimize receipt of those incentives, while providing better service to our patients.

We are poised to launch an exciting new service of comprehensive physical examinations, physician consultations and testing called the Executive Health Program. The objective of this program is to provide a superlative integrated approach to prevention and the early detection of disease using a model of exceptional service excellence provided by our outstanding physicians using leading-edge technologies and facilities. The program consists of four key principles: excellence, personalization, convenience and a focus on prevention. The patient's experience will start with a pre-appointment phone

consultation with a program clinician to identify each individual's healthcare needs and goals. Their one-day customized visit will be based on individual concerns and priorities, with same-day test results and a wrap-up consultation with an internist. The focus on prevention will start with paying special attention to cardio-metabolic risk and a consultation with a senior cardiologist, followed by a cancer, bone health and skin health screening. In addition, there will be a consultation with an advanced care pharmacist with expertise in nutraceutical medicines. The program, which will be launched by UPI and directed on an interim basis by Mandeep R. Mehra, MBBS, professor of medicine, assistant dean for Clinical Services, and chief of cardiology, will reside in the Professional Building at 419 Redwood Street.

One of the major clinical goals outlined in our new strategic plan, "Taking a Quantum Leap Forward," is to build new and/or expand our centers of clinical excellence. Our newest and most ambitious quantum leap is the Maryland Proton Treatment Center (MPTC). In October we announced that the School of Medicine, through the radiation oncology practice group, is playing a key role in plans for an estimated \$200 million project to bring to Maryland for the first time the most advanced radiation technology in cancer treatment—proton therapy. The center will be the first in the Baltimore-Washington region to offer proton therapy. Radiation oncology faculty at the center, preliminarily scheduled to break ground in August 2011, could begin seeing patients as early January 2014. Proton therapy is a non-invasive treatment performed on an outpatient basis. Patients typically receive approximately 30 treatments during a 4–5 week period. Each treatment requires a 25 minute appointment after which the patient is free to carry on their daily affairs. MPTC will treat approximately 2,000 patients annually with the potential to improve medical outcomes, reduce side effects, and promote the understanding of the use of advanced technologies in cancer therapy.

Providing excellent care to our patients is of utmost importance, as is providing excellent care to our faculty, staff and students. To that end, last May we opened an immediate care center that will give faculty, staff and students a more convenient way to access non-emergency health care services. UMaryland Immediate Care Center, located at 408 West Lombard Street, is run by faculty of the Department of Family & Community Medicine. Open five days a week, from 7 a.m. to 5 p.m., faculty, staff and students of the University of Maryland, Baltimore, the University of Maryland Medical System and UPI can be seen for non-emergency and non-chronic issues. If a problem requires specialty care, patients will be referred to specialists at the School of Medicine.

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

Executive Vice Dean Designs New UMB Mace Holder



The new University of Maryland mace holder was designed and constructed by School of Medicine Executive Vice Dean Bruce Jarrell, MD, FACS. A former cabinetmaker and accomplished metalsmith, Dr. Jarrell based the design on the Maryland state flag, which bears the cross bottony and the palisades of the Calvert and Crossland families of the Lords Baltimore.

In addition to the spiraling elements of the flag, the mace holder bears a ribbon on which Dr. Jarrell's daughter Gwynneth, an alumna of the University of Maryland School of Nursing, incised in steel the words "University of Maryland." The structure sits on a box of ebony and Maryland Wye oak handmade by Bess Jarrell Naylor, Dr. Jarrell's sister and an alumna of the School of Medicine, who is a cabinetmaker in York, Pennsylvania. The wooden box bears the numerals 1807, the year of the founding of the School of Medicine and, thus, the University. The Wye oak is not the only material of local significance in the mace holder. At the top is a hook made of iron from Davidge Hall. Dr. Jarrell forged handmade nails left from Davidge Hall's restoration to create



Photo by Rick Lippenholz

Bruce Jarrell, MD, FACS, and his daughter Gwynneth, with the UMB mace holder they created.

the hook. At his inauguration on November 9, UMB President Jay Perman, MD, who was installed as UMB's sixth president, placed on the hook the original 7-inch brass key to Davidge Hall, the most recognized symbol of the University.

"The symbolism is pretty heavy; I like that part of it," said Dr. Jarrell, who estimates he spent between 300 and 400 hours on the project. Asked for what satisfaction he derived from it, Dr. Jarrell smiled and said, "First of all, I'm a surgeon, so I get pleasure any time I create something with my hands. Second, it's fun to be creative. They said go make something and I did. And, of course, it will be very nice to have the mace sit in a nice holder."

It is not the first such project for Dr. Jarrell. A member of the Blacksmith Guild of Central Maryland, he created a mace holder in 2006 for School of Medicine convocations based on the staff of Asclepius, the Greek god of medicine and healing, with a serpent head at the top and an arrow at the bottom. It proudly sits in the display cabinet inside the door of Davidge Hall.

A suitable resting spot also is being found for Dr. Jarrell's latest mace holder, which will be used at annual University commencement exercises and ceremonial events.



Photos of mace holder by Tom Jemski



Stephen B. Liggett, MD



Deepak A. Deshpande, PhD

WHEN BAD TASTES GOOD:

Discovery of Taste Receptors in the Lungs Could Help People with Asthma Breathe Easier

TASTE RECEPTORS IN THE LUNGS? Researchers at the School of Medicine have discovered that bitter taste receptors are not just located in the mouth but also in human lungs. What they learned about the role of the receptors could revolutionize the treatment of asthma and other obstructive lung diseases.

“The detection of functioning taste receptors on smooth muscle of the bronchus in the lungs was so unexpected that we were at first quite skeptical ourselves,” said the study’s senior author, Stephen B. Liggett, MD, professor, Departments of Medicine and Physiology, and director, Cardiopulmonary Genomics Program. Dr. Liggett, a pulmonologist, says his team found the taste receptors by accident, during an earlier, unrelated study of human lung muscle receptors that regulate airway contraction and relaxation. The airways are the pathways that move air in and out of the lungs, one of several

critical steps in the process of delivering oxygen to cells throughout the body. In asthma, the smooth muscle airways contract or tighten, impeding the flow of air, causing wheezing and shortness of breath.

The taste receptors in the lungs are the same as those on the tongue. The tongue’s receptors are clustered in taste buds, which send signals to the brain.

The researchers say that in the lung, the taste receptors are not clustered in buds and do not send signals to the brain, yet they respond to substances that have a bitter taste. For the current study, Dr. Liggett’s team exposed bitter-tasting compounds to human and mouse airways, individual airway smooth muscle cells, and to mice with asthma. The findings were published online on October 24, 2010, in *Nature Medicine*.

Most plant-based poisons are bitter, so the researchers thought the purpose of the lung’s taste receptors was similar to those in the tongue—to warn against poisons. “I initially thought the bitter-taste receptors in the lungs would prompt a ‘fight or flight’ response to a noxious inhalant, causing chest tightness and coughing so you would leave the toxic environment, but that’s not what we found,” explained Dr. Liggett.

There are thousands of compounds that activate the body’s bitter taste receptors but are not toxic in appropriate doses. Many are synthetic agents, developed for different purposes, and others come from natural origins, such as certain vegetables, flowers, berries and trees.

The researchers tested a few standard bitter substances known to activate these receptors. “It turns out that the bitter compounds worked the opposite way from what we thought,” said Dr. Liggett. “They all opened the airway more extensively than any known drug that we have for treatment of asthma or chronic obstructive pulmonary disease (COPD).” Dr. Liggett says this observation could have implications for new therapies. “New drugs to treat asthma, emphysema or chronic bronchitis are needed,” he said. “This could replace or enhance what is now in use, and represents a completely new approach.”

Quinine and chloroquine have been used to treat completely different diseases (such as malaria), but are also very bitter. Both of these compounds opened contracted airways profoundly in laboratory models. Even saccharin, which has a bitter aftertaste, was effective at stimulating these receptors. The researchers also found that administration of an aerosolized form of bitter substances relaxed the airways in a mouse model of asthma, showing that they could potentially be an effective treatment for this disease.

Dr. Liggett cautions that eating bitter tasting foods or compounds would not help in the treatment of asthma. “Based on our research, we think that the best drugs would be chemical modifications of bitter compounds, which would be aerosolized and then inhaled into the lungs with an inhaler,” he said.

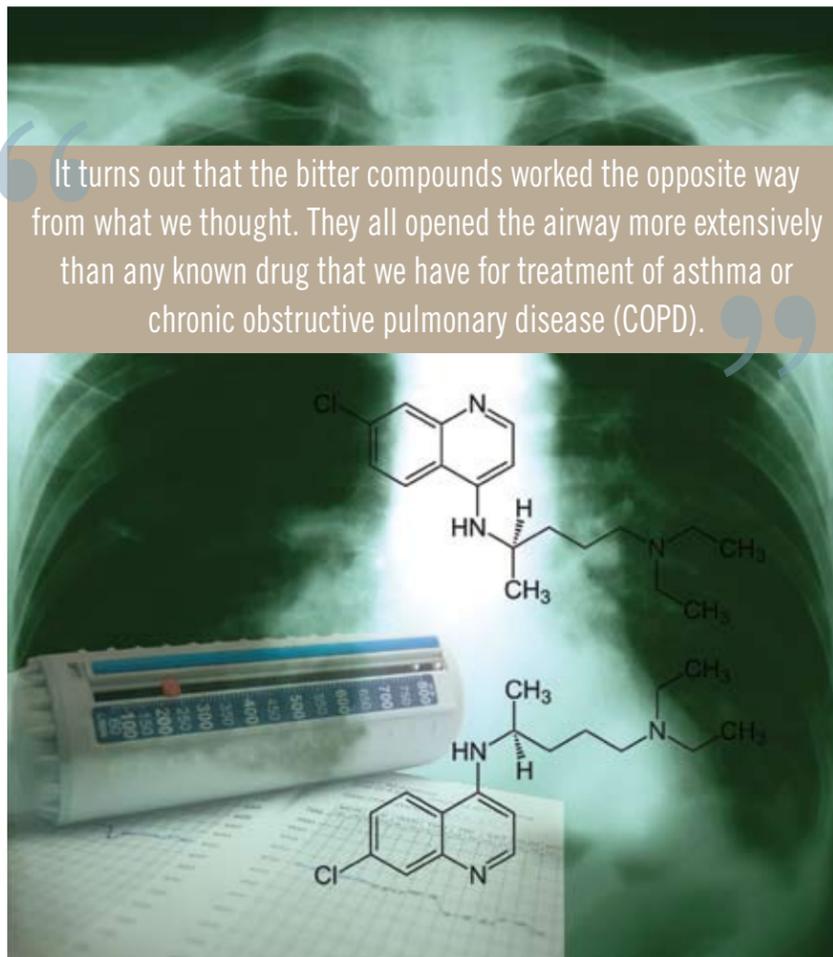
Another paradoxical aspect of their discovery is the unexpected role that the mineral calcium plays when the lung’s taste receptors are activated. The

study’s principal author, Deepak A. Deshpande, PhD, assistant professor, Department of Medicine, is an expert in how calcium controls muscles. “We always assumed that increased calcium in the smooth muscle cell caused it to contract, but we found that bitter compounds increase calcium and cause relaxation of airway muscle in a unique way,” said Dr. Deshpande. “It appears that these taste receptors are wired to a special pool of calcium that is right at the edge of these cells,” he continued.

Asthma and COPD together affect 300 million people worldwide. According to the American Lung Association, asthma affects nearly 23 million Americans, including seven million children, and COPD is the fourth leading cause of death in the United States. The incidence of both diseases is increasing. At least half of all asthma patients have inadequate control of the disease using drugs currently available.

This research was supported by grants from the National Heart, Lung, and Blood Institute of the National Institutes of Health. 

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Matthew B. Frieman, PhD

Bat Virome Analyzed

Analysis of Bat Virome Could Lead to Detection of the Next Wave of Human Viral Infections

BATS FOUND IN Western Maryland harbored dozens of viruses from various species, including human viruses, according to a new study published in the *Journal of Virology* by Matthew B. Frieman, PhD, assistant professor, Department of Microbiology & Immunology. The findings open the door to the possibility that the bats found in your backyard could harbor viruses that they then could transmit to humans. Such viruses have proven to be particularly dangerous, as in the pandemic of Severe Acute Respiratory Syndrome (SARS) several years ago.

The scientists led by Dr. Frieman used novel sequencing technologies to quickly analyze large numbers of samples collected from bats found in several sites in Western Maryland. They analyzed samples from more than 1,000 bats captured in two abandoned train tunnels near Frostburg, Maryland. “This is the type of rapid, large scale analysis of infectious organisms that is only recently being made possible because of advancements in sequencing technologies,” commented Dr. Frieman, whose lab focuses on the interaction between the SARS Coronavirus and the host immune system.

The study found that the Western Maryland bats harbored dozens of bacterial, plant, insect and mammalian viral species, including human viruses. The next step in their research is for the team to analyze the viruses they have identified to determine if they really can infect humans. Such a virus could be the next SARS, Hendra or Nipah virus. All three are zoonotic viruses—infections that can transmit from animals to humans—that jumped from animals to people in recent years, causing devastating loss of human life.

To further their study, Dr. Frieman and his colleagues will synthesize some of the viruses they have found to determine whether the human viruses found in the bats can indeed infect bat cells and human cells. “If we find that these viruses can jump from bats to humans, they could be the progenitors of the next wave of dangerous viral infections,” he said. Progenitors are cells have a tendency to differentiate into a specific type of cell, similar to stem cells.

The study involved scientists from the University of Maryland Center for Environment Science, whose Appalachian Laboratory is located in Frostburg, and from the University of North Carolina. 



Jonathan Kaufman, DVM, and Scott Strome, MD, (seated with dog) with Charles Budreski and his dog Jazzy, who today is a healthy, bouncy boxer.

A Dog Tale

Scott Strome, MD, thought he was simply helping a veterinarian friend who needed advice on how to treat a three-month-old boxer puppy with a cancerous tumor in her left cheek. He ended up not only helping to save the dog's life but also the life of his owner, Charles (Bud) Budreski.

Dr. Strome, professor and chair, Department of Otorhinolaryngology-Head and Neck Surgery, first met Mr. Budreski in the waiting area of Eastern Animal Hospital as he and veterinarian Jonathan Kaufman delivered the good news about his dog Jazzy's successful cancer surgery. Dr. Kaufman had run into Dr. Strome at a bar mitzvah and had asked him to assist with the complex surgical procedure—a maxillectomy, or removal of a cheek bone. While talking with Mr. Budreski and his wife, Dr. Strome spied a suspicious spot on the dog owner's head and urged him to come to his clinic to have it examined. Mr. Budreski went to see Dr. Strome two weeks later. The spot on his right temple turned out to be skin cancer, but in taking the patient's history Dr. Strome found out that Mr. Budreski had a long history of smoking and so asked to examine his throat. He discovered that the 63-year-old Baltimore man also had early-stage tonsil cancer.

He referred Mr. Budreski to radiation oncologist Mohan Suntha, MD, professor and vice chair, Department of Radiation Oncology, for treatment of his tonsil cancer and to dermatologist Linda Lutz, MD, assistant professor, Department of Dermatology, for his skin cancer. Mr. Budreski had more than six weeks of radiation therapy, and Dr. Lutz removed the skin cancer. More than a year later, both Mr. Budreski and Jazzy are doing fine.

"It's just amazing. In a word, it was serendipitous for Mr. Budreski. In many ways, the dog saved his life. Everyone was in the right place at the right time," said Dr. Strome, who recently saw his human and canine patients for the first time since their treatment in the summer of 2009. "It was truly a wonderful experience. I was so excited to see them both doing well." 

\$45 Million Private Donation Funds New Institute

With a \$45 million private gift from the family of a grateful patient, the School of Medicine is planning to establish the nation's only major research institute devoted to the study of autoimmune and inflammatory diseases such as celiac disease, multiple sclerosis, chronic obstructive pulmonary disease, asthma and Type 1 diabetes. The gift, from Ken and Shelia Cafferty, is the largest private donation in the history of the University System of Maryland and paves the way for the School of Medicine's new Institute for Autoimmunity and Inflammation.

The planned institute will be a full-fledged, multidisciplinary academic organization that includes and expands upon two of the school's existing research centers, the Mucosal Biology Research Center and the Center for Celiac Research. Alessio Fasano, MD, professor, Departments of Pediatrics and Medicine, and a world renowned celiac disease researcher will direct the new institute. Dr. Fasano also is director of the Mucosal Biology Research Center and the Center for Celiac Research. The institute will have three divisions: one focused on celiac disease, the second on mucosal biology and a third focused on microbe/host interaction. The third division, the newest of the three, will examine the intersection between the human body and the microbes that inhabit the body. Its faculty will work closely with faculty at the Institute for Genome Sciences (IGS).

"For years, my wife struggled with severe symptoms, with no diagnosis and no treatment for her condition," said Ken Cafferty, a businessman from Carmel, Indiana, who made the gift with his wife, Shelia, a registered nurse. "I endured this struggle with her, until Dr. Fasano and his staff at the Center for Celiac Research finally found answers for us, diagnosing Shelia with gluten sensitivity. We are making this gift with the hope that this new enterprise will help provide answers for other families in the same position, and hopefully make strides toward a cure to provide permanent relief for patients like Shelia."

Dr. Fasano's previous studies have found that 1 in 133 Americans suffers from celiac disease, and that the condition does not always begin early in life. In fact, his most recent study found evidence of increasing cases of celiac disease among older people.

"This gift is a momentous accomplishment for the University of Maryland School of Medicine and the entire University System of Maryland, as the largest gift in the system's history," said William E. "Brit" Kirwan, PhD, chancellor of the University System of Maryland. "Donations such as this are necessary in keeping our academic institutions thriving and innovating. We are honored to have been chosen as the recipients of the Caffertys' gift, and I am certain they have placed their hope in the right hands with Dr. Fasano and his team."

Forty million dollars of the donation is coming from a private foundation in which the Caffertys are key stakeholders. The remaining \$5 million comes to the School of Medicine directly from the Caffertys, and will fund an endowed distinguished professorship that supports a director position in perpetuity for the institute. Dr. Fasano will be the first recipient of that endowed professorship and the director position. The enterprise will initially include 13 faculty members, with more to be recruited in the future. Dr. Fasano envisions it employing as many as 200 people once it is up and running.

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"We are assembling a critical mass of multidisciplinary expertise, building the best infrastructure that we can in order to investigate inflammation and autoimmunity from every possible medical and scientific perspective," explained Dr. Fasano. "Our effort will involve both basic and clinical scientists and will capitalize on the complementary expertise of our institutes and organized research centers on campus. This thorough, multidisciplinary approach will help us find answers to our questions as quickly and efficiently as possible. There is simply no other way to do it, and this incredibly generous gift makes it possible. We are grateful to the Caffertys for recognizing the potential of this science and putting their faith in our world-class researchers."

Dr. Fasano also thanked Pam King, director of operations at the Center for Celiac Research, for handling logistics regarding the \$45 million gift. "Pam King is the person who really made this happen," he commented. "She is a blessing who I have worked with for the past 15 years and, hopefully, will work with for many years in the future."

Autoimmune disorders occur when the body is triggered to misdirect its immune response and attack itself. Celiac disease is of particular value for the investigation of autoimmunity and inflammatory disease because it is the only autoimmune disorder for which scientists have identified a trigger—gluten, a protein found in wheat that is nearly ubiquitous in the contemporary human diet. Gluten penetrates the intestinal barrier of the celiac patient and triggers the body to attack itself, causing symptoms such as anemia, gastrointestinal problems, skin rashes and fatigue.

"There are three key ingredients of inflammation and autoimmunity," said Dr. Fasano. "First, you are born with certain genes that predispose you. Second, there is an environmental trigger that causes your body to develop inflammation and eventually attack itself. Third, you have a 'leaky gut,' that is, your intestinal barrier does not keep antigens out of your body. That barrier is permeable and allows some antigens to penetrate. Celiac disease is the only autoimmune disorder for which we know the trigger. Because we know that trigger, one of our questions about autoimmunity already is answered in celiac disease. It minimizes the unknown variables we have to work with and makes celiac disease an ideal model for other inflammatory and autoimmune disorders."

Celiac disease can be diagnosed with a blood test once a patient shows symptoms. The only treatment for celiac disease is to prescribe a gluten-free diet. Dr. Fasano hopes the new research enterprise will change that. "Our goal is personalized medicine. We hope to identify biomarkers to develop diagnostics for autoimmunity that can assist us to develop preventive strategies in the pre-clinical phase as well as to customize treatment for individuals based on their genetics and their microbiome," he said. Much of the research into the intersection of the human genome and the microbiome centers around the gut, which is laden with bacteria, most of it beneficial and necessary for healthy function.

Shelia Cafferty, who now manages her gluten sensitivity with a gluten-free diet, says she knew immediately upon meeting Dr. Fasano that he would be the one to help her. "I could see how passionate he and his colleagues are about the research they do," she said. "I stand in awe of what he is doing." 

(L-R): Pam King, Ken Cafferty, and Alessio Fasano, MD, and his wife JoAnn, pose after the press conference announcing the \$45 million gift from the Caffertys.

Photo by Tom Jemski



IGS Hosts Halloween Party for Area Schoolchildren

Halloween Party for Neighborhood Children a "Spooktacular" Success

For the fourth year, tenants in the UM BioPark organized a Halloween celebration for James McHenry Elementary School students. The teachers brought over three hundred children who proudly paraded in their costumes from their school on Shroeder Street to the BioPark. The BioPark auditorium was transformed from its usual look into a spooky graveyard, with skeletons and a witch puppet theater. This event offers the children of the Poppleton community a safe, daytime Halloween experience.

Brenda Ali, administrator for Claire Fraser-Liggett, PhD, director, Institute for Genome Sciences, organized the tenants committee in decorating, collecting treats and coordinating logistics with the school. Further, Brenda organized "treats" for the teachers and got office supply vendors to donate school supplies to further help the school.

Participating tenants included the Café Gourmet, the Center for Vascular and Inflammatory Diseases, Alba Therapeutics Corp., the Goodwill Boutique, BCCC Life Sciences Institute, the Institute for Genome Sciences, Human Research Protections Office, Instant Labs, Gliknik, Smith School of Business, Paragon Biosciences, UM Police (including Mr. McGruff the crime dog) and the Wexford Corporation. Even "celebrities" visited the event, including Elvis, Luke



Clockwise: (L-R): Dressed as various Halloween characters, Lori McKay, Brenda Ali, Stacy Holton and Claire Fraser-Liggett greet the Baltimore City school children who attended the Institute for Genome Sciences Halloween party; School children navigate through tables full of Halloween goodies; The kids fill their bags with treats.

Skywalker, the Utz Potato Chip Girl, a French mime, a monk, a geisha, the Cat in the Hat, a coven of witches and others. Many children and teachers talked about how much they look forward to the event. Parents who accompany the younger children were also very curious about the BioPark itself—at least one mother went to chat with BCCC Life Sciences to find out about lab science careers. For the tenants, it is a wonderful way to experience Halloween through the eyes of a child and the fierce competition for the most outrageous and festive tenant table is part of the fun. 



Newsworthy?

If you've planned or hosted an event in our community, and you would like it featured in the SOMnews Community Engagement Corner, send your submission to Heather Graham Phelps at hgraham@som.umaryland.edu.

SOMnews

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{PHOTO OF THE MONTH}



Troy. A true Baltimore Ravens fan, Troy, frolics in the snow at his Bel Air home during the blizzard of 2010.

Photo by: **Margo DeVoe, MS**, program and research coordinator, Department of Family & Community Medicine.

Call for Photos!

Congratulations to Margo DeVoe! Her photo submission was selected as the Photo of the Month for December. Remember to send in your favorite winter activities for the next Call for Photos. To participate, submit your photograph(s) to photos@som.umaryland.edu by January 1, 2011, for the February issue of SOMnews.



Mark Your Calendars!

University of Maryland Medical Center
 Chamber Players
 Annual Holiday Concert
 December 20, 21 and 22, 2010
 Noon to 1 pm
 Gudelsky Lobby, University of Maryland
 Medical Center

