Schaefer Earns Wu Award

By MC3 Laura Bailey

The Uniformed Services University of the Health Sciences (USU) presented an award to the 2016 winner of the Henry Wu Award for Excellence in Basic Research, May 4, 2016.

Brian C. Schaefer, Ph.D., an associate professor in the Department of Microbiology and Immunology at the F. Edward Hébert School of Medicine at USU, received the Henry Wu Award for his paper entitled, “Selective Autophagy of the Adapter Protein Bcl10 Modulates T Cell Receptor Activation of NF-κB,” published in Immunity, June 29, 2012.

Dr. Schaefer and his research group discovered that the cellular autophagy mechanism is responsible for regulating the activity of a type of blood cell called T cells.

“Autophagy literally means self-eating,” said Schaefer. “At the time of the study, the autophagy pathway was known primarily as a mechanism used to non-specifically digest and recycle parts of a cell to fuel survival during starvation conditions.”

This study was among the first to show that autophagy can also be used in a highly selective way to regulate a specific cellular function (activation of T cell immunity, in this case) by degrading a specific target protein. His work has resulted in an improved understanding of how the immune system is regulated at the cellular level and it may suggest new strategies for designing drugs to enhance or reduce immune responses for treatment of an array of human diseases, he said.

The Wu Award is presented annually to peer-selected USU faculty members who have published a paper within the previous three years that has made a unique and fundamental contribution to their field of research. The awarded receives $2,000, and delivers a keynote lecture as part of the annual USU Research Week conference.
Broder Receives Leonard Award for Research

By Christopher Austin

The Uniformed Services University of the Health Sciences (USU) awarded the 2016 Leonard Award for Excellence in Translational or Clinical Research to Christopher Broder, Ph.D. of the Department of Microbiology and Immunology.

Broder, a professor in the F. Edward Hébert School of Medicine, was awarded for his work in the paper “Therapeutic Treatment of Nipah Virus Infection in Non-human Primates with a Neutralizing Human Monoclonal Antibody,” published in Science Translational Medicine, June 25, 2014.

This therapy, using monoclonal antibody m102.4, was approved for a phase one human clinical trial which launched in April 2015 and is nearing completion this year. This is the first phase one safety trial of any anti-Hendra or Nipah virus therapeutic or vaccine.

Nipah and Hendra viruses are newly emerging viruses of the paramyxovirus family that are transmitted from fruit bats to horses, pigs and occasionally humans, which can lead to epidemic outbreaks.

While the Hendra virus is endemic to Australia, the Nipah virus is endemic to several regions of Southeast Asia, India and Bangladesh. Both lead to encephalitis with a case mortality rates between 40 to 100 percent.

Broder’s research into the viruses over the past decade have led to several discoveries including structural determination of the attachment and fusion glycoproteins of the pathogens, the development of a commercially available Hendra virus equine vaccine, and the discovery and validation of the only known therapeutic agent against Hendra and Nipah virus infection.

“There is no doubt in my mind that Dr. Broder is an outstanding scientist,” said Chou-Zen Giam, Ph.D., professor and vice chair of the Department of Microbiology and Immunology. “He has made important contributions to our understanding of viral entry. Through his works on HIV, and Hendra and Nipah viruses, Dr. Broder has established himself as an internationally known virologist.”

Past accomplishment by Broder include aiding in the discovery of the chemokine receptor, CXCR4, as the co-receptor for HIV into T lymphocytes. This was made while he was on a team of investigators led by Dr. Edward Berger of NIH.

Broder received his Bachelor and Master of Science degrees in Marine and Molecular Biology from Florida Tech University. He obtained his Ph. D. from the University of Florida, Gainesville in 1989. In 1996, Broder joined the faculty of the Department of Microbiology and Immunology as an assistant professor.
A future military physician is combining his pride in Service with his passion for baseball. Army 2nd Lt. Brian Merrigan, a fourth-year medical student at the Uniformed Services University of the Health Sciences (USU), recently made the U.S. Military All-Star Team and will play as an outfielder this summer.

A Boston native, Merrigan has been playing ball since he was four, and had heard of the Military All-Star Team before he was commissioned by the Army in 2013, he said. After starting school at USU that same year, he knew he wanted to go out for the All-Star Team, made up service members from the Army, Navy, Air Force, Marines, and Coast Guard. His first two years of medical school kept him busy, though, so he tried out for the team in his third year. When he recently learned he made the team, he was ecstatic.

“I’m excited to play baseball again, especially for a military team that combines two things I love most,” he said, referring to the military and his favorite sport. “It’s a really exciting opportunity, to be able to [play for the All-Star team] while in medical school … It’s also cool to represent USU and the Army.”

Merrigan brings an extensive “brag sheet” to the All-Star baseball team. He was a lead off hitter for one of the top baseball programs in the state of Massachusetts – Boston College High School. There, he earned an offensive player of the year award and made captain during his senior year, leading the team to the state semi-final game. He went on to attend Amherst College, also in Boston, where he played on their team as a four-year starter and left fielder. He also made captain there, during his senior year, and was one of the school’s few baseball players to have more than 100 hits and 100 runs scored in their career. He graduated from Amherst in 2011 with a .307 batting average and a .404 on base percentage – along with his degree in pre-med and economics.

After college, Merrigan spent some time coaching baseball for his high school and college alma maters. At that time, he hadn’t thought about going into the military, but then several of his friends and a fellow coach joined – they piqued his interest. Meanwhile, he knew he wanted to go to medical school and learned about USU. He visited the University for his admissions interview and “just fell in love with this place,” he said.

Merrigan was commissioned by the Army right before starting at USU, and as he embarks on his fourth year with the class of 2017, he hopes to specialize in either family medicine or sports medicine. He plans to make a career practicing

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Woodson Addresses Health Care Strategies During Research Days Lecture

By MC3 Laura Bailey

The Honorable (Dr.) Jonathan Woodson, former Assistant Secretary of Defense for Health Affairs, addressed a number of interdisciplinary researchers, medical students, faculty and staff as he delivered the Presidential Lecture at the Uniformed Services University of the Health Sciences (USU) annual Research Days on May 19.

In Woodson's lecture, “The Military Health System: Honoring Our Past, Shaping Our Future,” he talked about acknowledged past successes and outlined a strategy for change.

“It’s important to remember that the Military Health System has been at the forefront of medical advances since our nation’s beginning,” said Woodson. “From the time of the Civil War, the Military Health System (MHS) has always been about force health protection and that remains the cornerstone of what we do today, but we also need to look to the future because there are a lot of imperatives that are reshaping the world in dramatic ways.”

Changes to national security strategies – due to threats such as the Ebola and Zika viruses, natural catastrophes and other threats, need to be addressed by the MHS, he said.

“National security is really about the government’s responsibility to protect the state from all kinds of national crises,” said Woodson. “The number of initiatives being added to the national security equation are growing – fiscal, economic, cyber, intellectual and now health needs to be added to that. Our imperatives and challenges are about sustaining our readiness and ensuring that we maintain the value and the quality of expectations as we responsibly manage our costs.”

“Radical, seismic changes are coming to the Military Health System as part of massive health care reform legislation, he said – with more joint entities and operational control of the hospitals, and eliminating waste by shrinking headquarters. They’re taking a system that they know can work better and forcing it to change,” he added.

“This is all about pivoting to the future, which means a better use of data and technology as well as addressing the continuum of care and the issue of high value,” said Woodson. “These changes aren’t things that Health Affairs decided needed to happen on a whim. They looked at the data and at other stakeholders and health systems. They heard from health economists and a lot of different folks to craft this legislation.

With the overhaul of the Military Health System, there will be increased accountability measures implemented to ensure a drive towards change, he said.

“The key is don’t take this personally,” said Woodson. “While there’s some critical things being said here about the Military Health System, much of what they’re saying is effecting American health care at large. This presents an opportunity for us to lead because in fact we control most of the variables. Socrates said ‘The secret to change is to focus all of your energy, not on fighting the old, but on building the new.’ Accept change as an important challenge that will allow us to once again lead the nation.”
Residual Inflammation, Abnormal Blood Coagulation Place Individuals with HIV at Increased Risk for Non-AIDS Diseases

By Sarah Marshall

With more than 36.9 million people infected globally, HIV continues to be a major public health issue. Those living with the virus are at an increased risk for other non-AIDS diseases, such as cardiovascular disease and cancer, and though it’s not entirely clear why, this has been associated with inflammation and abnormal blood clotting. A new study – the largest of its kind – involving researchers from the Uniformed Services University of the Health Sciences (USU), published recently in PLOS ONE, provides direct evidence that altered coagulation caused by the HIV virus, which can be related to inflammation, is not fully halted by HIV treatment and is associated with increased risk of non-AIDS diseases.

Previously, though not definitively proven, researchers have believed individuals with HIV are at an increased risk for non-AIDS diseases because of inflammation, reflected for example by an increase in D-dimer levels. These can be detected through a blood test, and are used to help diagnose abnormal blood clotting or other acute conditions. Researchers have also shown that medications used to suppress and slow the progress of the virus – antiretroviral therapy (ART) – could play a role in lowering D-dimer levels and decreasing patients’ risk for non-AIDS diseases. What has been unknown is whether ART treatment returns D-dimer to pre-HIV infection levels or if there is still residual elevation and thus risk.

Through this new study, researchers analyzed 249 HIV positive participants from the U.S. Military HIV Natural History Study, a prospective multicenter observational cohort of more than 5,600 active duty military personnel and beneficiaries living with HIV. They measured blood samples at three different stages of HIV infection: first, before an individual was infected; second, just after HIV infection, prior to receiving ART; finally, at more than six months after ART with successful suppression of the HIV virus. They evaluated the changes in D-dimer levels between each stage, measuring the association between these changes and future non-AIDS events.

At each stage of HIV infection, they found D-dimer levels remained elevated. This, for the first time, demonstrates that successful ART and HIV viral suppression are not adequate to resolve changes caused by HIV and prevent non-AIDS diseases for those living with HIV.

"This study confirms what was believed, that HIV infection causes elevation of D-dimer and ART is not sufficient to fully protect individuals with HIV from development of non-AIDS diseases. While ART is essential in the treatment of HIV and certainly reduces the risk of HIV-associated non-AIDS diseases, it appears that additional types of treatments targeting this residual pathology will be needed and should be studied," according to study author Dr. Brian Agan, of the Infectious Disease Clinical Research Program, in the Department of Preventive Medicine and Biostatistics at USU.

The researchers suggest further research is needed to help determine other factors associated with an increased risk for non-AIDS diseases, for those with HIV. They also encourage future research to focus on screening and management strategies for the prevention of non-AIDS diseases, even among healthy individuals who achieve HIV viral suppression.

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medicine in the military, caring for his fellow troops – his “family.”

For now, until the end of July, Merrigan will travel the country with the All-Star baseball team, playing more than 30 games in North Carolina, Florida, Missouri, Minnesota, Indiana, Illinois, Iowa, and South Dakota. Made up of about 25 players, the team will also attend a number of military-related events and parades this season to show their support for other troops and veterans.

“I love the patriotic aspect of it … I’m really looking forward to that aspect,” he said.

Along with the team’s patriotism and support for troops, each player chose a service-related slogan to wear on the back of their military-style camouflage uniforms. Above Merrigan’s number, 9, he will proudly wear the words “In Harm’s Way.” He said he wanted to sport this meaningful phrase because it’s part of USU’s mission, “Learning to Care for Those in Harm’s Way.” He hopes to represent the institution as he’s hitting home runs on the ball field and, one day, on the battlefield.
USU Kicks Off 101 Days of Summer Safety Drive

By Eric Ritter

We’ve reached the “101 Days of Summer” – considered to be the riskiest time of the year, between Memorial Day and Labor Day.

“We’ve identified the summer time period as a higher-risk time period … because people are looking to get outside more after being cooped up in their houses during the winter,” said Master Sgt. Danny Vitek, NCOIC of the Safety Division for the Environmental and Occupational Health Department at the Uniformed Services University of the Health Sciences (USU).

Planning ahead and managing risk factors can help keep people safe, Vitek added.

For those venturing out on a road trip this season, Vitek recommends planning the trip ahead of time, making time for rest stops as well as making sure your vehicle is safe and ready for a long ride.

This is also a time when people are out doing more physical activities that they might not be used to doing, he added. He suggests making sure you’re physically ready, before jumping into an activity, to help avoid injuries.

Hydration is also important this time of year. Heat stroke is extremely dangerous, and it can be misleading – by that point, the body has stopped sweating, and that’s a sign the body is shutting down, unable to cool itself. Remember to keep drinking water and avoid heat-related injuries, he said.

While enjoying the summer sun, don’t forget to wear sunblock, to avoid serious short- and long-term sun damage. Consult your primary care provider to determine which sunscreen is best for you.

If you’re grilling outside, never bring the barbeque into the garage, even if it starts raining.

“Sometimes people think it’s okay to bring a barbeque in the garage. However… it can be filling the garage full of odorless and deadly carbon monoxide. Even if the door is open, the carbon monoxide is absorbed quicker into the body than oxygen,” Vitek said.

He went on to note that staying safe in the summer also means taking precautions while swimming, when using fireworks, and when consuming alcohol.

“Make sure you always have a sober battle buddy, shipmate or wingman,” he said.

Summer safety is important to the USU community, he added, and everyone here plays a vital role.

“We cannot afford to lose [anyone] for any reason,” Vitek said. Take time to plan your activities this summer, and come back to us. We are only as strong as the members of our organization,” he said.

Center for Deployment Psychology Hosts Summer Institute

By Sharon Holland

The Center for Deployment Psychology at the Uniformed Services University of the Health Sciences will be hosting its second Summer Institute, June 6-10, at USU.

The “CDP Summer Institute: Preparing for a Military-Focused Internship” is an intensive five-day course designed for graduate level clinical or counseling psychology students interested in applying for Department of Defense internships. The program helps trainees strengthen their military knowledge and clinical skills to be more competitive for the DoD internships.

The CDP received nearly 100 applications for this year’s Summer Institute. Thirty doctoral students, including seven Armed Forces Health Professions Scholarship Program students, representing 23 different institutions will participate.

“A career as a military psychologist can be very rewarding, but graduate students interested in this career path may not feel adequately prepared to succeed at a military internship site,” said Dr. Paula Domenici, director of CDP’s Civilian Training Programs. “They also may lack an adequate background in military behavioral health. Attending the Summer Institute will hopefully give them the tools they need to apply for a military internship and start the process for becoming a military psychologist.”

The focused course will provide attendees practical information about working with Service members and veterans through didactics, experiential exercises and panel discussions. Participants will receive training on a number of topics including:

- Advanced military culture and the deployment cycle
- Military behavioral health providers’ work experiences
- Cognitive behavioral strategies used in a military setting
- Military PTSD with a focus on combat trauma
- Ethical dilemmas unique to military settings
USU Holds Annual Research Days

The Uniformed Services University of the Health Sciences (USU) recently held its annual Research Days as a way to highlight clinical and basic science research achievements while at USU.

Navy Ensign Ethan Bernstein displays his poster about a student shadow program.

Navy Ensign Alisha Smith explains her Research Days poster.

Winners of the poster presentations proudly display their plaques for each of their respective categories.

Dr. Kent Sabey, program director for Advanced Education in Endodontics at Louisiana State University, gives a keynote lecture entitled “Dental Resident Research Can Impact Patient Care!”

Air Force Maj. (Dr.) James Cullen presents the Master of Science in Oral Biology Research Presentation: “The Effects of 8.25% Sodium Hypochlorite on Dental Pulp Dissolution and Dentin Flexural Strength and Modulus for the USU Postgraduate Dental School.”

Neuroscience Graduate Student Christina Marion gives a talk at the Graduate Student Colloquium: “Myelin Plasticity Supports Recovery of Nerve Conduction Velocity After Experimental TBI.”
Air Force General (retired) Edward A. Rice, Jr., former Commander, Air Education and Training Command, Joint Base San Antonio-Randolph, Texas, addresses the F. Edward Hébert School of Medicine Class of 2019, May 24, 2016. (Photo by MC3 Laura Bailey)