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News Release

USU Announces Addition of Center for Neuroscience and Regenerative Medicine

BETHESDA, Md. — Uniformed Services University of the Health Sciences (USU) expands its research into the field of neuroregenerative medicine with the addition of the Center for Neuroscience and Regenerative Medicine. The center will establish a cooperative research environment in order to study the affects and treatments for Traumatic Brain Injury (TBI) and Post Traumatic Stress Disorder (PTSD).

The university will focus the research and practice efforts of the center on six primary areas:

- Neuroregenerative Medicine to restore neurological function
- Neuroimaging to improve the diagnosis of TBI
- Neuroplasticity as a tool to improve TBI therapeutic outcomes
- Rehabilitation Medicine for TBI and PTSD
- Neuroprotection and Modeling TBI
- Biomarker tools for TBI diagnosis and treatment

The expansion of USU efforts in regenerative medicine is to establish a strong network with the existing labs in the National Capitol Area that have ongoing research efforts in the area of neuroregeneration. Specifically, USU will establish a consortium between Walter Reed National Military Medical Center (WRNMMC), the National Institutes of Health (NIH), Defense Center for Traumatic Brain Injury and Psychological Health (DCOE), the Army Medical Research Command (MRMC) Labs, and Navy Labs. This network will work with USU as the coordinating center to accelerate regenerative medicine programs across these institutions so that fundamental studies are moved to translational laboratories and, in turn, this science will migrate quickly to advance development in a clinical setting.

In this model USU/WRNMMC will be at the hub of the network activities and have direct contact with all the associated labs. The relationship will be to build a cooperative research environment across the labs and to encourage idea exchange to move concepts into medical applications. The focus of the network will be to enhance brain cell and tissue preservation, repair, and/or replacement as appropriate across the spectrum of brain injury. Neuroregenerative approaches will take advantage of new findings in stem and progenitor cell biology combined with a better appreciation of the role of the tissue environment in eventual recovery of neurologic function.

Learning to Care for Those in Harm's Way

The center will also develop neuroimaging technologies and combinations of biomarkers and other assessment tools to better determine the severity and type of brain injury incurred with current Operation Enduring Freedom and Operation Iraqi Freedom conflicts. This information should significantly improve the ability to effectively match current treatment options for returning soldiers, and will be critical for stratifying patients into clinical trials to more accurately evaluate potential new treatments.

Neuroplasticity will also be used as a tool to improve TBI therapeutic outcomes. The goals will include developing approaches to monitor neural function and plasticity. In addition, a focus will be to develop innovative treatment strategies based on enhancement of plasticity. This work can take advantage of advances in the use of biomarkers and neuroimaging tools to personalize therapeutic strategies to each individual.

USU understands that rehabilitation medicine is an area that will need additional emphasis in the near future, with awareness of the DCOE and WRNMMC patient population needs for additional rehabilitation services. Rehabilitative approaches will be developed to take advantage of the opportunities created by individual patients having the potential for advanced neuroimaging results to be integrated with genomic and proteomic biomarker analyses and assessment approaches to facilitate rehabilitation and recovery from functional deficits as a consequence of TBI. This new knowledge will enhance our understanding of TBI and can be designed to help characterize, and possibly differentiate, mild TBI, PTSD, and other disorders of psychological health. The overarching objective is to use this opportunity to set the mark for the best standards of rehabilitative medicine for this group of patients.

The development of better neuroprotectants for the range of TBI-induced cellular damage is essential to minimize secondary damage and simultaneously maximize potential recovery of neurologic function. Neuroprotective approaches that preserve tissue architecture, neuronal circuitry, and/or cellular environments are critical so that subsequent treatments are effective in rehabilitating a wounded soldier.

USU is located on the grounds of Bethesda's National Naval Medical Center and across from the National Institutes of Health. It is the nation's federal school of medicine and graduate school of nursing. The university educates health care professionals dedicated to career service in the Department of Defense and the U.S. Public Health Service. Students are active-duty uniformed officers in the Army, Navy, Air Force and Public Health Service, who are being educated to deal with wartime casualties, national disasters, emerging infectious diseases, and other public health emergencies. Of the university's more than 4,200 physician alumni, the vast majority serve on active duty and are supporting operations in Iraq, Afghanistan, and elsewhere, offering their leadership and expertise.

For more information about the Center for Neuroscience and Regenerative Medicine, contact the Office of External Affairs at 301-295-1219.

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