2015 NJ SYMPOSIUM ON BIOMATERIALS SCIENCE
"THE PROMISE AND CHALLENGE OF BIOACTIVE MATERIALS"

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D. Kacy Cullen, PhD,
University of Pennsylvania,
Department of Neurosurgery

Tissue Engineered "Living Scaffolds" to Restore Nervous System Structure and Function

Axon pathways are often disrupted following injury to the nervous system or neurodegenerative disease. However, functional axonal regeneration rarely occurs due to extreme distances to targets and insufficient guidance, often resulting in devastating cognitive and/or sensorimotor deficits.

By attending the ***NJ Symposium on Biomaterials Science*** on **November 9, 2015**, you will learn how Dr. Cullen and his team engineer "living scaffolds" and integrate them into a host's nervous system to restore lost function or enhance regeneration. You will get a firsthand look at an innovative and promising strategy to repair and recover damaged nervous systems.

Dr. Cullen received his PhD in Biomedical Engineering and held a postdoctoral fellowship in Neuroengineering, both at the Georgia Institute of Technology. Afterwards, he continued his training as a National Research Service Award postdoctoral fellow in the Department of Neurosurgery at the Center for Brain Injury & Repair at the University of Pennsylvania.

Dr. Cullen is currently an Assistant Professor of Neurosurgery at the University of Pennsylvania and the Philadelphia Veterans Affairs Medical Center. The Cullen Lab operates at the interstion of Neural Engineering and Neurotrauma by applying engineering principles to increase understanding of trauma-induced neurodegeneration as well as developing cutting-edge neural tissue engineering based repair strategies. In particular, the Cullen Lab has developed novel tissue engineering techniques aimed at directly restoring lost axonal pathways in the brain or driving long distance axonal regeneration following major peripheral nerve or injury.

Dr. Cullen is a leader and an innovator. His work regarding neural tissue engineering repair strategies has created many novel therapies like micro-tissue engineering to restore brain circuitry, biohybrid neuroprosthetic interfaces, and "living scaffolds" for neuroregeneration, the topic of his presentation at this year's ***NJ Symposium on Biomaterials Science***. His research holds great promise for the future of medical care of those who suffer from neural injury and disease.

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