WAYNE STATE UNIVERSITY

School of Medicine
Department of Radiology

The WSU Program for Traumatic Brain Injury Research

presents a Special Topic Seminar

Douglas H. Smith, M.D.

The Robert A. Groff Professor and Vice Chairman of Research and Education, Department of Neurosurgery, Director of PENN's Center for Brain Injury and Repair
University of Pennsylvania

"Tackling Concussion: How the Brain Breaks"

Abstract: Over the past 70 years, diffuse axonal injury (DAI) has emerged as one of the most common and important pathological features of traumatic brain injury (TBI) and concussion in particular. Axons in the white matter appear to be especially vulnerable to injury due to the mechanical loading of the brain during concussion. As such, DAI has been found in all severities of TBI and may represent a key pathologic substrate even of concussion, also called, mild TBI. Pathologically, DAI encompasses a spectrum of effects from primary mechanical breaking of the axonal cytoskeleton, to transport interruption, swelling and proteolysis, through secondary physiological changes. Depending on the severity and extent of injury, these changes can manifest acutely as immediate loss of consciousness or confusion and persist as coma and/or cognitive dysfunction. In addition, recent evidence suggests that TBI may induce long-term neurodegenerative processes, such as insidiously progressive axonal pathology. Indeed, axonal degeneration has been found to continue even years after injury in humans, and appears to play a role in the development of Alzheimer's disease-like pathological changes. By examining the basic mechanisms of concussion, we have recently developed novel methods to identify DAI in individuals at risk of persisting cognitive dysfunction. This may allow us to work towards evidence based practice and medicine for the treatment of concussion. Supported by NIH grants, NS38104 and NS056202, and DOD grant, PT110785.

Date: Thursday July 31, 2014
Time: 12:00pm – 1:00pm
Location: 2238 Scott Hall – 540 E. Canfield, Detroit, MI

For further information contact: Charbel Habib at 313-993-7025 Email: chabib@med.wayne.edu