

# St. Boniface General Hospital Research Neuroscience Seminar Series

Hosted by the Division of Neurodegenerative Disorders

Friday, June 17, 2011

1:00 – 2:00 pm

Room 431 Basic Medical  
Sciences Bldg.  
(Physiology Library)  
Bannatyne Campus



*Everyone is invited to attend!*

For more information contact  
DND Office: (T) 235.3939 or  
(E) [dnd@sbrc.ca](mailto:dnd@sbrc.ca)

## Dr. Sean Mulligan

Assistant Professor, Department of Physiology  
University of Saskatchewan

### Topic: Functional Optical Imaging in Free Nerve Endings: A Pain in the Dura.

**Research Interests:** Pain sensitivity within the skull is restricted to the intracranial meninges, the system of membranes that envelops the brain. Afferent thinly myelinated A $\delta$ -fibres and unmyelinated C-fibres that originate from the trigeminal ganglion densely innervate the meninges, in particular the cranial dura mater. It is widely recognized that activation or sensitization of these dural nociceptive afferents is responsible for the genesis of migraine headaches. However, any details of the pathophysiological mechanisms involved are largely speculative and remain to be discovered. Identification of the underlying mechanisms of activation of dural nociceptors may have important implications for understanding and mitigating the pathogenesis of migraine headaches. We have developed a novel *en bloc* dural-skull preparation that allows us for the first time to apply optical imaging techniques to directly study with high resolution the free nerve endings and terminals of the nociceptive fibres that terminate in the dura mater. The objective of our research is to gain insight into the neurophysiology of peripheral pain activation to better understand the pathophysiological processes that occur during migraine headache. It is our hope that this will lead to new peripheral drug targets and offer additional therapeutic treatments for this devastating illness. detection.