

Complexity Science Seminars

Wednesday, August 17th 2011, 4:00 PM

Science B 148

Therapeutic Brain Stimulation: Applications and Mechanisms

A joint lecture by

Dr. Clinton B. McCracken

and

Dr. Zelma Kiss

University of Calgary

Department for Neurosurgery



Dr. Clinton McCracken graduated from McGill University in Montreal with a B.Sc. in Biochemistry, and subsequently received his Ph.D. in Physiology and Pharmacology from Wake Forest University in 2005. His doctoral research investigated changes in neuronal gap junction expression induced by extended psychostimulant treatment. After working with Dr. Anthony Grace in the Department of Neuroscience at the University of Pittsburgh, Dr. McCracken is currently working in the therapeutic brain stimulation lab of Dr. Kiss at the Foothills hospital as a postdoctoral researcher. Dr. McCracken's research is focused on the effects of high-frequency deep brain stimulation (DBS) on neuronal activity and cortical-subcortical interactions, particularly in the context of psychiatric disorders such as obsessive-compulsive disorder and major depression.

Dr. Zelma Kiss is an Associate Professor of Neurosurgery in the Department of Clinical Neurosciences, University of Calgary. She is a Canadian Institutes for Health Research (CIHR) Clinician Scientist and a Clinical Scholar of the Alberta Heritage Foundation for Medical Research (AHFMR). She directs the regional program in Neuromodulation and her clinical and research interests involve stereotactic and functional neurosurgery. Dr. Kiss graduated in Medicine from the University of Ottawa and obtained a Ph.D. from University of Toronto. She won the Van Wagenen fellowship from the American Association of Neurological Surgery to pursue post-doctoral training in France with Professor Alim Benabid, the father of deep brain stimulation for movement disorders.

Chronic deep brain stimulation (DBS) through surgically implanted electrodes in deep brain structures is an effective alternative for treatment of severe neurological and psychiatric conditions that do not respond to standard therapies. Although considerable progress has been made with the widespread use of this technology, the mechanism through which DBS alleviates symptoms is not fully understood. Dr. Kiss will talk about the clinical aspects of DBS for movement disorders, including Parkinson's disease, tremors and dystonia, discussing pathophysiological conditions of the brain, and effective targets and parameters of therapeutic brain stimulation. Dr. McCracken will talk about DBS in the context of psychiatric disorders, and he will present some preclinical data looking at how DBS can produce widespread changes in synchronous activity within and between regions along a cognitive circuit that shows impaired function in obsessive-compulsive disorder and depression.



Everyone is welcome!

