



# Manitoba Neuroscience Network

## 2015/2016 Seminar & Visiting Speaker Series

Friday, January 15th, 2016 | 3:00 p.m.



## Timothy Kennedy

Professor - Department of Neurology & Neurosurgery  
co-Director - McGill Program in NeuroEngineering  
Montreal Neurological Institute  
McGill University

**TOPIC: Making Connections: New Roles for Netrin-1 and DCC Regulating Myelination, Synaptogenesis, and Plasticity**

Location: Theatre C, Bannatyne Campus

My undergraduate studies were carried out at McMaster University in the Biology and Psychology program. I then trained as a graduate student from 1985 to 1992 in the department of Physiology and Cellular Biophysics at Columbia University under the supervision of Dr. Eric R. Kandel, investigating molecular mechanisms that underlie learning and memory. During this time, my colleagues and I identified changes in protein and mRNA expression associated with long-term memory formation. Our findings indicated that neuromodulatory changes underlying learning evoke changes in gene expression. From 1992 to 1996 I was a post-doctoral fellow with Dr. Marc Tessier-Lavigne at UCSF. My colleagues and I purified and cloned a family of proteins that we named netrins, which were the first identified long-range chemoattractant axon guidance cues. Netrins perform an essential, highly conserved role, directing axon extension during neural development. In 1996 I opened my laboratory at the Montreal Neurological Institute.

We are currently investigating the cellular and molecular mechanisms that underlie axon extension, myelination, synapse formation, and synaptic plasticity. Broadly stated, we are interested in the signals that direct cells and axons to move, and once they reach their goal, the target derived signals that instruct them to stop and sustain an appropriate connection with a neighboring cell. In collaboration with other groups at the MNI, we are studying the significance of these mechanisms to neural development and to neurodegenerative disease.

I am also co-director of the McGill Program in NeuroEngineering ([www.neuroengineering.ca](http://www.neuroengineering.ca)) which promotes collaboration between neuroscientists, physical scientists, and engineers with the aim of developing new tools to study the nervous system and enhance function following injury or in neurodegenerative disease.

Website: <https://www.mcgill.ca/neuro/research/researchers/kennedy>

For more information, contact the MNN Office at  
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