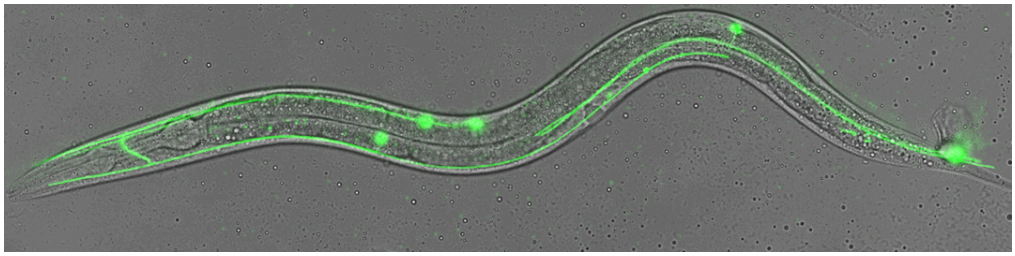
GUEST SPEAKER SEMINAR

Molecular Genetics
UNIVERSITY OF TORONTO

The Role of Eph and Insulin Receptor Tyrosine Kinase Signaling



Research is full of surprises. I will tell you how studying skin morphogenesis has led us to study a completely different tissue, the nervous system. The nervous system requires proper neuronal cell positions, axon guidance, and synaptic connectivity to function normally. Several evolutionary conserved guidance molecules bind to receptors at the tips of growing axons and act through intracellular signaling pathways to help navigate the axon to its correct location. The Eph receptor tyrosine kinases (RTKs) are regulators of cell migration and axon guidance. However, the molecular mechanisms of how Eph RTKs regulate these processes are still incomplete. We use C. elegans to understand the role of Eph RTK signaling in axon guidance. I will present work that shows the C. elegans Eph and Insulin RTKs are receptors for a stop cue in axon guidance. We have identified several proteins that function downstream of the Eph RTK including an adaptor protein called NCK-1 and the homolog of the human PTEN tumour suppressor. Understanding how the Eph and Insulin RTK signaling pathway works in C. elegans has contributed to our knowledge of axon guidance mechanisms and it has also given us insight to regulation of signaling pathways that go awry during cancer.

Dr. Ian Chin-Sang

Professor, Department of Biology
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Host: Dr. Peter Roy

Date: Monday November 24th, 2014
Time: 2PM
Place: 155 College Street
Health Sciences Building, Room 108