

McGill University - Imperial College London Student Exchange

Training opportunity within the Rao Laboratory at the Centre for Research In Neuroscience at McGill University

Project Title: Elucidation of the neuronal circuit controlling movement decision

Project description: Normal brain function relies on the establishment of neuronal circuits and the proper communication between neurons within each circuit. These neuronal circuits translate sensory signals such as olfactory, mechanical, sense of oxygen or gravity into changes in behavior. The exact mechanism by which animal behaviors are controlled by specific neuronal circuits at cellular and molecular levels, however, remains largely undefined. The *Drosophila* Turtle (Tutl) gene encodes for a novel IgSF-superfamily cell surface receptor, which is the fly homolog of KIAA1355 in humans and Dasm1 in mice. Tutl is expressed in a subset of neurons in the central nervous system (CNS). Mutations in the tutl gene affect larval behaviors such as tactile escape response, decision making and coordinated righting behaviours. The exact function of Tutl, however, remains unknown. The goal of this project is to investigate the molecular and cellular mechanism by which Tutl regulates complex behaviours in *Drosophila*, which can serve as an excellent model to understand neural basis of animal behaviours. The objectives include behavioural analysis of the mutants and identify important neurons in the circuit required for controlling the behavior.

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