NANYANG TECHNOLOGICAL UNIVERSITY

School of Biological Sciences

Seminar Announcement

Neurotransmission, Complex behaviors and Neurodegeneration

Date: 07 September 2015 Monday

Time: 2:30pm to 3:30pm

Venue: SBS Classroom 4 (SBS-01n-24)

Host: A/Prof Koh Cheng Gee

Speaker: Dr. Koh Tong-Wey
Principal Investigator
Temasek Life Sciences Laboratory



Abstract

Drosophila genetics has been a versatile tool for addressing different aspects of neuronal function. During this talk, I will present my work in three parts:

(1) Doctoral work: I will briefly describe a screen for *Drosophila* mutants with defective neurotransmission, which identified several genes with orthologs linked to human diseases.

(2) Post-doctoral work: We asked how the sense of taste influence *Drosophila* mating rituals and found candidate pheromone-sensing neurons that distinguish potential mating partners from other flies.

(3) Current work: We are modelling gene-diet interactions leading to neurodegeneration in *Drosophila*. Our preliminary data indicate that a high sugar diet which makes flies insulin-resistant and hyperglycemic, also makes them vulnerable to neurodegeneration upon aging. This allows us to use the fly to model links between diabetes and neurodegeneration found in humans. Our preliminary findings suggest that defective autophagy may contribute to the enhancement of neurodegeneration by a high sugar diet.

Dr. Koh received his Bachelor's and Master's degrees from National University of Singapore. During a summer training at Tata Institute of Fundamental Research in India, he was introduced to the neurobiology of the fruitfly, Drosophila. Subsequently, for his Ph.D. training at Baylor College of Medicine, he conducted a large forward genetic screen in Drosophila for mutants with defective neurotransmission in the lab of Hugo Bellen. He then moved to Yale for his post-doctoral training with John Carlson's lab, where he discovered how specific leg sensory neurons arouse Drosophila male sexual behavior through sensing female pheromones. Also at Yale, he developed an interest in a link between Type 2 diabetes (T2D) and neurodegeneration, which has grown into his research program as he joined TLL in Sep 2014.