Department of Biomedical Sciences

presents a seminar

Discover new drugs for retinal degeneration by zebrafish research

CANCELLED **CANCELLED**

Prof Yuk Kai Leung
Department of Biological Sciences, Purdue University

Date : 05 Jun 2019
Time : 14:00 - 15:30
Venue : TYB-1B-G04, To Yuen Building

Abstract

Many blinding eye diseases are not curable and have few treatment options. To discover new drug treatments, my laboratory screens compounds on zebrafish models of retinal degeneration. In this seminar, I will first describe our screening assay—the visual motor response (VMR). We use the VMR assay to simultaneously evaluate the vision of multiple zebrafish larvae upon exposure to different compounds. I will then describe our screening of several compound libraries on a retinal-degeneration model. Our screens have identified compounds that enhanced the VMR and increased rod numbers in the retinal-degeneration model. One of the positive compounds is approved by the Food and Drug Administration for treating non-ocular disease, is deemed safe for human use, and can be optimized for treating retinal degeneration. By screening different compounds and by screening different eye-disease models, our approach can expedite the discovery of new drug treatments for these blinding eye diseases.

About the Speaker

My research goal is to discover new drugs to treat patients suffering from retinal degeneration. To realize this goal, my lab screens compounds on zebrafish models of retinal degeneration using a unique behavioural assay—the visual motor response (VMR). This VMR assay detects light sensation of zebrafish larvae in 96-well plates (Ganzen et al., 2017). Using this platform, we have discovered new compounds that enhance light sensation of retinal-degeneration mutants, and preserve their photoreceptors (Zhang et al., 2016 & preliminary data in this application). My team is well prepared for the proposed research, as we have already optimized our procedures for characterizing drug effects in the RP model by VMR. Furthermore, we have collaborated with statisticians to build novel statistical tools to analyze the behavioural data obtained from the VMR assay (Liu et al., 2015; Liu et al., 2017). As mentioned above, we successively used these tools to discover new compounds (Zhang et al., 2016 & preliminary data in this application). I can effectively communicate with these experts because my diverse training in ophthalmology, genetics, genomics, zebrafish and development. This experience allows me to work with experts from different backgrounds to conduct the proposed experiments. My team therefore possesses the necessary infrastructure, reagents, and experience to discover new drugs for treating RP.

Enquiries:
Ms Natalie Wong (3442-4902, natalie.w@cityu.edu.hk)

All are welcome!