

Seminar

Proteomic dissection of cell signaling

Dr. Liang Zhang

Department of Biomedical Sciences, City University of Hong Kong

Application of high-throughput functional genomic screening for biomedical research

Dr. Linfeng Huang

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Date: 10 May 2018 (Thursday)
Time: 12:00 nn – 1:30 pm (Reception with light sandwiches at 11:45am, talks start at 12nn. To facilitate the order of sandwiches, please register through email chchung33@cityu.edu.hk.)
Venue: B6605, Yeung Kin Man Academic Building, City University of Hong Kong

Two Presentations of 30 min each, followed by a 30 min discussion on collaboration activities

Mechanism Discovery Platform

1. Proteomic Dissection of Cell Signaling

Proteins play a central role in orchestrating the complex signaling networks, translating the “common” genotype of an individual into the enormous variety of cellular phenotypes. The advancement of proteomics technology enables us to delineate protein-protein interactions (PPIs) and post-translational modifications (PTMs), which underlies the dynamic regulation of signaling networks. Our laboratory focus on studying planar cell polarity (PCP) that controls the asymmetric organization of cellular structures and activities within the epithelial plane. Proteomic studies facilitated us in identifying a novel exosome-PCP signaling axis that mediate cancer-stromal dialogue during tumor metastasis. We are expanding our proteomic studies to elucidate the PPI network of cancer PCP signaling, with the aim to identify “druggable” targets for treating metastatic cancers.

Biography



Dr Liang Zhang received his Bachelor of Medicine (MD equivalent) degree in 2001 with honor from Peking University Health Science Center in Beijing, China. He obtained his PhD degree from the University of Iowa and his PhD research was on delineating the cellular mechanisms that determine the transduction efficiency of adeno-associated virus (AAV) in normal epithelia and cancer cells, under the supervision of Dr John Engelhardt. He performed his postdoctoral training in the laboratory of Dr Jeffrey Wrana on dissecting the signaling mechanisms of cancer metastasis, at the Lunenfeld-Tanenbaum Research Institute in Toronto, Canada.

Seminar

2. Application of high-throughput functional genomic screening for biomedical research

Biomedical research has entered a new era hallmarked by the vast amount of genomic data and the tools available for precise modulation of gene expressions. The next generation sequencing technology has enabled sequencing of genomes, transcriptomes, and epigenomes in very little time and at very low cost. Deep knowledge about gene regulatory networks was gained from the genomic data. On the other hand, functional genomic techniques, including e.g. RNA interference (RNAi) and genome editing, could easily and precisely modulate gene expression in cell lines and in whole animal. In addition, high-throughput functional genomic screens enable systematic investigation of gene functions and gene regulatory networks. I present data on the applications of high-throughput RNAi screens to investigate disease causing genes in cancer and infectious diseases. I also introduce a powerful high-content imaging based screen platform which greatly facilitates functional genomic screens.

Biography



Dr Huang received his Bachelor of Science degree from the College of Biological Sciences at China Agricultural University in Beijing. After graduation in 2003, he did a short academic visit at Centre for Ecology and Hydrology-Oxford in UK before pursuing his PhD with Prof. Sir David Baulcombe at the Sainsbury Laboratory, John Innes Centre in UK. He obtained his PhD which was registered at University of East Anglia in 2009. He then did his postdoctoral training with Prof. Judy Lieberman at Boston Children's Hospital and Harvard Medical School in USA before joining the faculty of the Department of Biomedical Sciences at CityU in Aug, 2014.

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