

“Genome-wide Analysis of Enhancers in Development and Disease”

Prof Bing REN

Ludwig Institute for Cancer Research

University of California, San Diego School of Medicine

Date: 15 May 2019

Time: 14:00 - 16:00

Venue: Mr & Mrs David T F Chow Lecture Theatre (LT-4), 4/F, Yeung Kin Man Academic Building

Abstract

Transcriptional Enhancers play a crucial role in spatiotemporal expression of genes. Dysregulation of enhancers, due to mutations in transcription factors and chromatin regulators, has emerged as a major cause of human cancer. A thorough understanding of cell type specificity, function and mechanisms of action of enhancers will be valuable for development of new diagnostics and therapeutics targeting cancers. I will present our latest advances in identification and characterization of enhancers in the human and mouse genomes, across multiple stages of development, in normal and disease states, and often in single cell resolution. In addition, I will present progress in mapping distal enhancers to their target genes, via analysis of the 3-dimensional genome architecture and chromatin loops, in order to access the role of non-coding variants in human diseases.

About the Speaker

Prof. Bing Ren received his PhD training in gene regulation from Tom Maniatis, PhD at Harvard University, then extended his research in genomics and global analysis of gene expression by working as a postdoctoral fellow in the lab of Richard Young, PhD at Whitehead Institute. During this time he developed the ChIP-chip technology for studying in vivo transcription factor binding and chromatin modification states. Since 2001, he has been a member of the Ludwig Institute for Cancer Research and a faculty member of the University of California, San Diego School of Medicine. His research is focused on genomic and epigenomic analyses of human embryonic stem cell differentiation and mammalian development. He has directed a Roadmap Epigenome Project to produce reference human epigenome maps since 2008 and has been also leading multiple ENCODE production projects to annotate the mammalian transcriptional regulatory sequences. Since 2017, Prof. Bing Ren has been appointed as the director for “The Center for Epigenomics, UC San Diego”, which is a state-of-the-art collaborative research center built on the foundation of theoretical and technical innovation in the field of epigenomics and specializes in the latest genomic and epigenomic technologies to generate the highest quality data at scale to solve the toughest and most critical questions facing science and human health.

Elected as a fellow of the American Association for the Advancement of Science (AAAS) in 2013, Prof. Bing Ren has been world renowned for his outstanding original contributions to the analysis of genome wide distributions of regulatory factors, transcriptional regulatory sequences and of the large scale organization of eukaryotic genomes. His research focuses on the growing understanding of the workings of the human genome and how to use that data to change the course of disease. His work has been at the forefront of mapping human DNA to yield the invaluable data needed to understand the genetic drivers of disease.

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All are welcome!