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Department of Biomedical Sciences
presents a seminar

“Keeping DNA Damage Responses Under Control”

Dr. Michael Shing-Yan Huen
School of Biomedical Sciences
The University of Hong Kong

Date : 6 April 2017

Time: 2:00pm to 3:30pm

Venue: Meeting Room 1B-G04, G/F, Block 1, To Yuen Building

Abstract

Mammalian cells employ a collection of “DNA Damage Responses” (DDR) to protect and maintain genome stability. These DDRs include cell-cycle checkpoints and DNA repair processes. As one can imagine, when these protective mechanisms go awry, cells accumulate mutagenic damage and become vulnerable to genome instability, leading to cell death or at times, neoplastic transformation.

One of my research interests aims to define the mammalian DDR network. Over the past years, my team has identified and characterized a number of “drivers” in the DNA damage surveillance and repair pathways, and has more recently begun to study how these processes are kept in check. Sure enough DNA repair must be promptly activated, but what determines the threshold prior to its activation? How do cells ensure that DNA-modifying activities do not excessively accumulate, especially at otherwise intact chromosomal loci. Given the central role of the DDR in genome stability maintenance, we envisage that DDRs must be tightly regulated, and that uncovering the self-restraining nature of DDRs will reveal new opportunities via which to develop therapeutics for the early detection and treatment of genome instability-associated diseases. Our effort will also help paint a fuller picture to detail the intricate balance of the evolutionarily-conserved strategies in genome stability maintenance.

About the Speaker

Dr. Huen majored in Biochemistry at Hong Kong University of Science and Technology, received his doctorate degree from The University of Hong Kong in 2006, and was later trained at Yale University as an Anna Fuller Fund Fellow. He took up an Assistant Professor position in 2009 with the former Department of Anatomy at the University of Hong Kong, and in 2015, received tenure and was promoted to Associate Professor of School of Biomedical Sciences.

Dr. Huen developed an interest for DNA repair processes during his post-doctoral training with Dr. Junjie Chen, and now heads a research team that study how cells, cancerous or otherwise, deal with damaged DNA, including those that arise spontaneously in nature, and those that result from chemotherapy and radiation treatment. Because defective DNA repair fuels human tumourigenesis, by understanding the inherent differences between how normal and cancerous cells respond to DNA damage, his work can help reveal the Achilles' heel of human cancers, guiding development of personalised medicine for future anti-cancer interventions. Over the years Dr. Huen and his team have also been identifying new DNA repair genes, some of which, when mutated, are turning out to bear causal relationships with a spectrum of human diseases.

All are welcome !

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