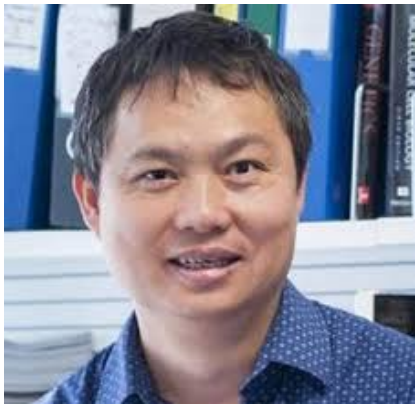
NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

BIOLOGY COLLOQUIUM

Friday, 30 Aug 2019 | 4pm | DBS Conference Room 1

Hosted by A/P Liou Yih-Cherng

Stem cell hierarchy in epithelial tissues and its implications for cancer heterogeneity



By **Fu Naiyang**

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Cells in many different epithelial tissues are organized in a hierarchical manner, in which the rare stem cells reside at the apex and can give rise to all the cell lineages to form the organ structure. Primary epithelial cancer mainly originates from the transformation of normal resident epithelial cells in an organ. Therefore, elucidation of the normal stem cell hierarchy and identification of key regulators of this hierarchy are a critical step towards understanding the molecular perturbations during tumorigenesis. It is widely believed that genetic lesions play a critical role in determining tumor phenotypes. However, with rapid advances of genetic mouse models over the recent years, evidence has emerged to suggest that cancers of distinct subtypes may derive from different original cells along the stem cell differentiation hierarchy within an organ. Using cutting-edge genetic approaches for lineage targeting and tracing as well as conditional gene deletion, we have successfully traced the cell fate, dynamics and function of stem and progenitor cells *in vivo* and identify key genes for the regulation of stem cell hierarchy in epithelial tissues during normal development and tumorigenesis. Our studies would potentially facilitate development of novel strategies for prevention, earlier detection and treatment of epithelial cancer.

About the Speaker

Dr. Nai Yang FU obtained his B.Sc. from Xiamen University and M.Sc from Sun Yat-Sen (Zhongshan) University. He subsequently completed his PhD studies at the Institute of Molecular and Cell Biology (IMCB) / National University of Singapore (NUS). Dr. Fu had undertaken postdoctoral training in Stem cells and Cancer Division at the Walter and Eliza Hall Institute of Medical Research (WEHI)/The University of Melbourne, Australia, before joining Duke-NUS Medical School as Assistant Professor in 2016.