IMCB Invited Speaker

Speaker : **Dr. Wai Leong Tam**

Postdoctoral Fellow, Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology, USA

Date : 10 February 2014, Monday

Time : 10:00AM - 11:00AM

Venue : IMCB Seminar Room 3-46, Level 3, Proteos, Biopolis

Host : Prof. Wang Yue

Seminar :

Exploiting the vulnerabilities of cancer stem cells for targeted therapy

Resistance to cancer therapy is an important unmet clinical need which arises from the intrinsic unresponsiveness or acquired resistance by specific populations of cancer cells within a tumor. Cells within many types of solid tumor exhibit considerable phenotypic heterogeneity, and only a certain subpopulation – the cancer stem cells (CSCs) – appears to be responsible for driving tumor initiation, growth, recurrence and metastasis. Current chemotherapeutic agents typically disrupt tumor growth by inhibiting rapidly proliferating bulk tumor cells but tend to select for the outgrowth of therapy-resistant CSCs that are more tumorigenic and invasive. The effective treatment of cancer will have to account for the cellular heterogeneity within tumors, and a part of the therapeutic strategy will need to address how one can ablate CSCs, in addition to eliminating bulk non-CSCs.

My research is focused on: (i) understanding the precise manner by which CSC-associated transcription, signaling and epigenetic regulators, impose their influence on a specialized cohort of genetic targets and define the molecular architecture of the CSC state; (ii) uncovering distinct protein kinase signaling pathways and molecular switches that are specifically adopted by CSCs, and how these may present opportunities of developing targeted therapies against the key drivers of malignancy; and (iii) defining emerging hallmarks of CSCs to discover new strategies that can disrupt CSC function, and impact their ability for tumor-initiation, dissemination and metastasis.

About the Speaker :

Wai Leong Tam graduated with a B.Sc. in Biology (1st class honors) from the National University of Singapore, and joined the laboratory of Dr. Bing Lim at the Genome Institute of Singapore for his graduate studies. He was awarded his Ph.D. in 2008 for his work on deciphering molecular mechanisms that govern the pluripotency of embryonic stem cells, embryo-derived stem cells, and induced pluripotent stem cells, which led to the discovery and characterization of key cell fate specification transcription factors that include Tcf3, Sall4 and Tbx3. In 2009, he started his postdoctoral training under the mentorship of Dr. Robert Weinberg at the Whitehead Institute for Biomedical Research / MIT to understand the behavior of cancer stem cells, and to develop therapeutic strategies that could preferentially target these cells.

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