

IMCB Invited Speaker



Speaker : **Dr. Alice Cheung**
Research Assistant Professor, The University of Hong Kong, Hong Kong

Date : 24 April 2013 (Wednesday)

Time : 4:00PM - 5:00PM

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

Host : Prof. Wanjin Hong

Seminar :

Clonal dynamics of genetically barcoded human cord blood-derived cells

The hematopoietic system is comprised of a variety of cell types exhibiting heterogeneous self-renewal and lineage differentiation capacity. In humans, the hierarchically ordered hematopoietic stem and progenitor cell subsets identified have been mostly characterized based on their varying level of self-renewal potential, with limited understanding on the diversity of their lineage differentiation capacity. Specifically, the association of the various phenotypically defined CD34+ cell subsets with varying degrees of "primitiveness" has relied on their ability to sustain hematopoietic repopulation for different periods of time in irradiated immunodeficient mice. The assumption of increasing lineage restriction with reduced self-renewal potential has been adopted with the demonstration that hematopoietic repopulation is initiated by short term progenitors displaying myeloid exclusive differentiation potential, and then subsequently sustained by long term stem cells that showed multi-lineage output. Nevertheless, in order to resolve the heterogeneity within these cell populations, clonal characterization of individual hematopoietic repopulating cell is necessary. For the first time, we have clonally tracked human CD34+ cord blood cells and their progenies by DNA barcoding for up to 47 weeks in serially transplanted NOD/SCID-IL2Rγ^{-/-} (NSG) mice. Particularly, by applying an improved, high-resolution analytical methodology for de-convoluting the complex barcode-sequencing data, we have unveiled the clonal dynamics of short term, intermediate term and long term repopulating cells in self-renewal and lineage differentiation potential.

About the Speaker :

Dr. Alice M.S. Cheung completed her BSc(Hons) and MPhil at the Department of Biochemistry from The University of Hong Kong (2002 and 2004). She received The Croucher Foundation Studentship as well as the Butterfield-Croucher Award (2007) for her PhD studies on characterization of leukemic stem cells in human acute myeloid leukemia (AML) at the Department of Medicine (Division of Hematology), HKU. Fascinated by the pioneering work on normal hematopoietic stem cells, Alice undertook further post-doctoral training in Dr. Connie Eaves' laboratory at the Terry Fox Laboratory (TFL), BC Cancer Agency in Canada. Alice is a Research Assistant Professor at the Department of Medicine in HKU. Her research interest focuses on elucidating the molecular and cellular mechanisms that are implicated in treatment resistance in AML.