Cancer Science Institute of Singapore

SEMINAR ANNOUNCEMENT

Li Chai

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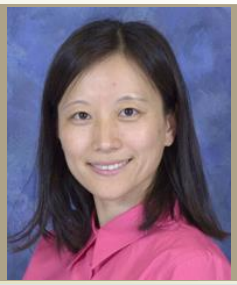

Targeting a New Class of Oncofetal Protein SALL4 in Cancer

Date: Thursday, 20 April 2017
Time: 3pm – 4pm
Venue: LT35, Level 1, Centre for Translational Medicine (MD6)
(14 Medical Drive, S117599)
Host: Prof Daniel Tenen

Abstract:

We are interested in the mechanism(s) on cell fate decision, particularly on what makes a cell cancer cell versus normal stem cell. Embryonic stem (ES) cells and cancer cells share certain similarities. The genes/pathways that are involved in the self-renewal properties of ES cells can also be involved in cancer initiation and/or maintenance. To this end, we have been focused on a gene named SALL4, which links the ES cells and cancer cells. While being a key master gene in ES cells, aberrant expression of SALL4 in adult tissue is critical for cancer cell survival. SALL4 positive cancer patients in general have more aggressive disease with worse progress and shorter survival. Since SALL4 is absent in most adult tissues, this makes it an ideal cancer target. SALL4 positive cancers tend to be resistant to traditional chemotherapy and there is no targeted therapy for SALL4 positive tumors currently. We have used combination approaches of connectivity mapping (cMap), biochemical and cell-based assays as well as computational molecular docking to develop SALL4 inhibitor drug(s). We have identified several lines of drugs with a cellular potency in the nM range for SALL4 positive cancers. Our work has laid foundations for future clinical trials on this novel anti-cancer therapy in patients.

Biosketch:

Dr Li Chai is the Associate Director of Adult Transfusion Medicine at Brigham and Women's Hospital and also an Associate Professor at the Department of Pathology at Harvard Medical School. The research interests of the Chai lab are centred on cell fate decisions, and specifically on how stem cells maintain their stemness and how normal cells transform into cancer cells. For the past 10 years, the Chai lab has been working on an ES cell gene, SALL4, in stem cells and cancer. SALL4 is of particular interest to stem cell biologists because it is a gene that has been linked to the self-renewal of embryonic stem cells (ESCs) and haematopoietic stem cells (HSCs), and is also involved in human leukaemia.