

SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by Dr. Vinay Tergaonkar:

Date: 10 November 2014, Monday

Time: 11:00AM – 12:00PM

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

Speaker: Prof. Fu Xin-Yuan, Professor and Senior Principal Investigator, Department of Biochemistry, NUS and Cancer Science Institute of Singapore

Title: STAT Proteins as Mediators of PERI-GENETICS and Their Functions in Genome Integrity, Inflammation and Immunity

The first two STAT proteins were discovered over 24 years ago as transcription factors of p91 (STAT1) and p113 (STAT2) activated by interferon-alpha. The molecular cloning of genes encoding for p91 and p113 revealed the STAT gene family. Finding a SH2 domain in each of STAT proteins indicated STAT proteins are not only transcription factors but also serve as signal transducers. Now we propose that STAT proteins are regulators of epigenetic modeling of the genome. Thus, this integrated and regulatory process from signals to specific epigenetic modeling of genome and to eventual gene transcription is termed as "Peri-Genetics". We present evidence that STAT proteins regulate epigenetic events. We demonstrate that STAT3 regulates a novel "epigenetic factor" which negatively controls genome integrity and DNA damage responses through affecting p53 and ATM. We propose the STAT3 pathway integrates a perigenetic process to serve as an oncogene through suppression of p53 and ATM. Additionally, We will further present our findings on STAT3 and cancer metastasis and how each of STAT proteins systematically controls different aspects of immunity and inflammation through regulating T cells and dendritic cells.

Biography:

Xin-Yuan Fu, PhD, is currently Professor and Senior Principle Investigator since 2008 in Biochemistry Department, National University of Singapore, and Cancer Science Institute of Singapore. He was Head of Department of Biochemistry of NUS (2008-2011). Dr Fu is also a professor of Immunology at Indiana University School of Medicine USA. He received his PhD in molecular biology at Columbia University in 1988 (Mentor: James Manley); postdoctoral training in Rockefeller University with James Darnell (1988-1991). Dr Fu and his colleagues discovered the STAT gene family and STAT signaling Pathway in 1992 (Fu and Darnell et al, *PNAS* 89:7840-7843, 1992; Fu, *Cell*, 70:323-335, 1992). He has made a number of seminal discovered in molecular mechanisms of mammalian development and diseases in the past 30 years. Dr Fu was an Assistant Professor in Mt Sinai School of Medicine NY (1992-1994); an Associate Professor at Yale University (1994-2003), a Full Professor at Indiana University (2004-present). In the past 5 years Fu laboratory has focused on STAT3's role in regulation of inflammation and development. One of most recent achievement in Dr Fu's lab is the discovery of a novel T helper cell subset, T_H5, which is essential for some autoimmune diseases.