CSCB Seminar Series

Title:

"Role of epigenetic regulators in gene expression control of mouse embryonic stem cells."

Abstract:

1) The role of histone demethylases (HDMs) in ESCs identity is unknown. Our study demonstrates that Jmjd2b and Jmjd2c are necessary for self-renewal of ESCs. Mechanistic study shows that Jmjd2b and Nanog act through an interconnected regulatory loop for gene activation, whereas Jmjd2c assists PRC2 in transcriptional repression of poised/ repressed genes in ESCs.

2) PRC2 function and DNAme are typically correlated with gene repression. Here, we show that PRC2 positively regulates expression of maternal microRNAs and long non-coding RNAs from the Gtl2-Rian-Mirg imprinted locus, which is essential for pluripotency. Furthermore, we demonstrate that PRC2 protects the IG-DMR (intergenic differentially methylated regions) from DNAme to allow active transcription of the maternal Gtl2-Rian-Mirg locus.

Date:

30 January 2015 (Friday)

Time:

12:00 PM to 1:00 PM

Venue:

Conf. Rm 4D, Level 4
Duke-NUS Grad Med School
8 College Road, S169857
(Opposite Singapore General Hospital, Block 6/7)

Host:

Sin Tiong ONG, MA, MRCP
Associate Professor
Program in Cancer & Stem Cell Biology
Duke-NUS Graduate medical School Singapore

"No registration is required."
Any enquiry, please contact:
Lilian Poon (Tel: 6601 3779)

Speaker:



Partha Pratim DAS
Research Fellow
Stuart Orkin Laboratory HHMI
Department of Hematology/Oncology
Children's Hospital
Harvard Medical School
Boston, MA
USA

Biography:

Dr. DAS did his BSc in Zoology, Botany and Chemistry from University of Calcutta, India. He moved to University of Pune, India to study for his Masters in Zoology and Molecular Biology. After finishing his MSc, he was selected for another MSc, Molecular Biology program at International Max Planck Research School for Molecular Biology, Gottingen & University of Gottingen, Germany. He moved to Gurdon Institute, University of Cambridge, UK to do his PhD with Eric Miska to study Role of short RNAs/ piRNAs in Caenorhabditis elegans germline development. For his post-doctoral research, he decided to gain additional skills and knowledge in the investigation of how chromatin biology impacts gene regulation. To explore this exciting avenue, he joined Dr. Stuart Orkin's laboratory at Children's Hospital Boston/ Dana-Farber Cancer Institute, Harvard Medical School. His goal was to understand how chromatin changes regulate transcriptional gene regulation in embryonic stem cells (ESCs). His present and future study elucidate how transcription factors (TFs) and epigenetic regulators, along with small RNAs and lncRNAs regulate gene expression in ESCs and differentiated cells under normal and pathological conditions.