Institute of Molecular and Cell Biology
A*STAR

SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by A/Prof Sudipto Roy:

Date: 16 July 2019, Tuesday
Time: 3:00PM – 4:00PM
Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Speaker: Dr Cecelia Winata, Group Leader, Laboratory of Zebrafish Developmental Genomics, International Institute of Molecular and Cell Biology, Poland
Title: Constructing the gene regulatory network underlying heart development using genomics

Abstract:
Organogenesis involves dynamic regulation of gene transcription and multi-pathway interactions. Heart development is an example of such complex process which, when disrupted, results in congenital heart defect. Despite our knowledge of key factors regulating various steps of heart morphogenesis, considerable challenges in understanding its mechanism still exist as little is known about their downstream targets and interactive regulatory network. Cardiac pacemaker cells are set apart from cardiomyocytes early in the course of heart development through the initiation of distinct molecular programs. To understand the nature of interaction between transcription factors and epigenomic landscape and how it translates into the resulting diversity of cardiac cell identity, we profiled the transcriptome and chromatin states of cardiomyocytes and cells of the sinoatrial ring and atrioventricular canal which were FACS-isolated from zebrafish transgenic lines expressing EGFP in respective populations. Analyses of cardiomyocytes revealed major gene expression changes and chromatin rearrangement throughout different stages of heart morphogenesis and identified genetic regulatory hubs driving key events of heart development. Furthermore, loss of function of cardiac transcription factors Gata5, Tbx5a, and Hand2 affected these regulatory networks and caused global changes in chromatin accessibility profile. Comparative analyses between cardiomyocytes and pacemaker transcriptomes revealed distinct molecular profiles which will provide insights into the mechanism of their diversification.

Biography:
Dr. Cecilia Winata earned her Bachelor's degree in Biology at the National University of Singapore. In 2009, she obtained her PhD in 2009 from the National University of Singapore under the supervision of Profs. Gong Zhiyuan and Vladimir Korzh. She then worked as a postdoctoral fellow at the Genome Institute of Singapore in the lab of Dr. Sinnakaruppan Mathavan, where she picked up genomics and applied them to study the regulation of maternal to zygotic transition and functional characterization of the Zic3 transcription factor in zebrafish. At 2014, she became a group leader at the International Institute of Molecular and Cell Biology in Warsaw, Poland. Currently, her lab is studying transcriptional regulation and

epigenetics during heart development, as well as post-transcriptional regulation of maternal mRNA in early embryonic development in zebrafish.

ALL ARE WELCOME *(No registration required)*

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