Institute of Molecular and Cell Biology
A*STAR

SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by A/Prof. Philipp Kaldis:

Date: 6 November 2014, Thursday
Time: 11:00AM – 12:00PM
Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Speaker: Dr Deepak Adhikari, Research Fellow, Department of Anatomy and Developmental Biology, School of Biomedical Science, Monash University, Australia
Title: Regulation of APC/C and Cdk1 activity by Mastl in mammalian oocytes

Meiotic maturation of mammalian oocytes consists of two consecutive M-phases – meiosis I and meiosis II – without an intervening S-phase. As in mitotic entry, Cdk1 is essential for resumption of meiosis in mammalian oocytes. However, the prometaphase of oocyte meiosis I is a lengthy process that takes around 6 h to 8 h in mice, which is in sharp contrast to the less than 30 min required for prometaphase in mitotic cells. Cdk1 activity increases gradually during the lengthy prometaphase of meiosis I and a subsequent transient decrease in Cdk1 activity due to APC/C mediated degradation of cyclin B1 at metaphase I leads to the completion of meiosis I. In contrast to meiosis I, Cdk1 activity is upregulated rapidly, and this is essential for entry into meiosis II. Mis-segregation of chromosomes in meiosis is common and leads to aneuploidy but the underlying causes are poorly understood. Either the experimental increase in Cdk1 activity or manipulation of APC/C activity during prometaphase I leads to accelerated completion of meiosis I and it leads to an increase in aneuploidy at metaphase II. Our recent results indicate that Mastl is required in mouse oocytes for the timely activation of APC/C at the exit of meiosis I and is essential for the rapid reactivation of Cdk1 needed for entry into MII.

Biography:
Deepak Adhikari received his PhD from Umeå University, Sweden in 2014 where he worked on the signaling pathways regulating female germ cell development with Dr. Kui Liu. His research has demonstrated the roles of several molecules that control the survival, the activation, and the demise of primordial follicles. His work suggested that the PI3K signaling pathway, together with other related pathways, such as the TSC/mTORC1 and p27/Cdk systems, are fundamental players in manipulating the development and aging of the mammalian ovary. He is also interested in the studies of signaling pathways, especially the regulation of Cdk1 activity during the oocyte meiotic maturation. He will be joining Dr. John Carroll's laboratory at Monash University, School of Biomedical Sciences, Australia, as a postdoctoral fellow from November 2014.

ALL ARE WELCOME *(No registration required)*