Institute of Medical Biology
A*STAR

Seminar Announcement
- All Welcome -



Speaker : **Prof Magdalena Zernicka-Goetz**
University of Cambridge, United Kingdom

Title : ***"Mapping the route from totipotency to pluripotency and lineage specification: architectural and transcriptional patterns"***

Date : **30 July 2015 (Thursday)**

Time : **11am to 12pm**

Venue : **Breakthrough Theatrette, Matrix Level 4**

Host : **Prof Birgit Lane**
(Tel: 64070151; e-mail: birgit.lane@imb.a-star.edu.sg)

Abstract:
The ability to culture and therefore experimentally manipulate and image the development of mouse and human embryos from the zygote to the blastocyst stage has led to an impressive understanding of the mechanisms behind the first cell fate decisions and the plasticity of pre-implantation development. In contrast, development of the embryo as it implants has been hidden from a direct view and experimental manipulations as it occurs within the body of the mother. Yet these "implantation-stages" are critical: this is the time when the embryo acquires a totally different shape and form, the pluripotent population of cells expands and the anterior-posterior axis becomes established. To gain direct and precise that thus far possible insight into this developmental transition we have established a new system that enables embryos to develop, be manipulated and imaged throughout implantation stages outside the mother. This has opened a way to provide a new and unexpected insight into how the mouse embryo develops its form and pattern at this previously inaccessible developmental stage. I will present these new results that led to entirely new way of understanding the morphogenesis throughout implantation stages. I will also show that mouse ES cells can self-organise when culture in the same condition to mimic pre- to post-implantation development.

About the Speaker:
Magdalena Zernicka-Goetz has studied early mammalian development for the past 25 years. Following her PhD in Oxford and Warsaw, she worked with Martin Evans and John Gurdon at the University of Cambridge before establishing her own group, first as a Senior Fellow of the Lister Foundation and then of the Wellcome Trust. She is currently Professor of Development and Stem Cell Biology in the Department of Physiology, Development and Neuroscience at Cambridge. Magdalena's major interest has been in understanding progression from totipotency into pluripotency and lineage specification. The major focus of her group is upon the relationship between the architecture of the embryo and the development of distinct gene expression patterns to direct cell fate using mouse and human embryos and ES cells as model systems.