# SEMINAR
## ALL ARE WELCOME

TEMASEK LIFESCIENCES LABORATORY

**22 March 2018 (Thursday), 4pm**
**The Auditorium (Level 1)**

**Hosted by: Dr Yu Fengwei**

## All you want to know about the primitive streak

**Dr Guojun Sheng**
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Gastrulation is a conserved developmental process that generates the three germ layers. In amniotic vertebrates, this process takes place in a transitory structure called primitive streak. From a sheet of epithelial-shaped pluripotent epiblast cells, mesendoderm cells form in the primitive streak through epithelial-mesenchymal transition (EMT). Our lab has been investigating the cellular and molecular mechanisms regulating gastrulation EMT and the evolutionary significance of the primitive streak in mediating this process. In this talk, I will present data on how epiblast cells can achieve EMT and maintain epithelial integrity at the same time. I will also present evidence that the primitive streak is neither necessary nor conserved in amniotes for gastrulation EMT and mesendoderm formation. A modified model for the origin of the primitive streak in birds and mammals and its implications on our understanding of amniote early development will be discussed.

Guojun Sheng obtained his Ph.D. in developmental genetics from the Rockefeller University in 1997, under the supervision of Professor Claude Desplan. He received his postdoctoral training in molecular embryology in the laboratory of Professor Claudio Stern at Columbia University and University College London. Before joining Kumamoto University (Kumamoto, Japan) in late 2015, Dr. Sheng had directed the Laboratory for Early Embryogenesis at RIKEN Center for Developmental Biology in Kobe, Japan, first as a Team Leader (2004-2014) and then as a Senior Investigator (2014-2015). Dr. Sheng is currently a professor at the International Research Center for Medical Sciences and the Graduate School of Medical Sciences in Kumamoto University. His laboratory uses the avian animal model and studies cellular and molecular mechanisms regulating cell fate changes during early embryonic development. His research focuses on the epithelial-to-mesenchymal transition (EMT) process during mesoderm formation and the hematopoietic, vascular and smooth muscle cell differentiation during early cardiovascular/hematopoietic system formation. Dr. Sheng is also interested in understanding the link between developmental and cancer EMTs and that between normal and abnormal states of mesoderm lineage specification in development and diseases.

**Recent Publications:**

1. **Lizio et al, *Systematic analysis of transcription start sites in avian development.* PLOS Biology DOI: 10.137/journal.pbio.2002887 [PMID: 28873399] (2017)**
2. **Nagai et al, *Cellular analysis of cleavage-stage chick embryos reveals hidden conservation in vertebrate development.* Development 142(7):1279-1286 [PMID: 25742796] (2015)**
3. **Nakaya et al, *Epiblast integrity requires CLASP and Dystroglycan-mediated microtubule anchoring to basal cortex.* Journal of Cell Biology 202(4):637-651 [PMID: 23940118] (2013)**