"The Stem Cell Biology and Regenerative Medicine Mini Forum"

Date：Dec 16th (Fri) 2016
Time : 17:30 ～ 18:30
Place：2th floor Conference Room, General Research Building

（External Speaker）

17:30-18:30 Austin Smith (Medical Research Council Professor Wellcome Trust-Medical Research Council Stem Cell Institute, University of Cambridge, United Kingdom)
Design principles of pluripotency

Hosted by Center for Stem Cell Biology and Regenerative Medicine

---Information---

＊ Please register attendance at the reception desk.
＊ Next symposium will be held on Mar 6th. I will contact you after the schedule is decided.
＊ Please contact asami-m@ims.u-tokyo.ac.jp, for Forum speaker recommendations

Design Principles of Pluripotency

Austin Smith

（Wellcome Trust-Medical Research Council Stem Cell Institute, University of Cambridge, United Kingdom）

The regulative capability of single cells to engender all primary embryonic lineages is termed pluripotency. Observations of fluctuating gene expression and phenotypic heterogeneity in vitro have fostered conception of pluripotency as an intrinsically metastable and precarious state. However, in the embryo the properties of pluripotent cells change in an orderly sequence. Mouse ES cells follow a similar sequential trajectory upon exit from the ground state propelled by ERK signalling. We propose that pluripotency may be considered as three successive phases; naïve, formative and primed. The formative phase is hypothesised to entail remodelling of transcriptional, epigenetic and signalling networks in order to constitute responsiveness to specification cues and multi-lineage competence. We further propose that this design is conserved amongst mammals, although with variations in timing and specific transcription factor functions. Evidence for this hypothesis will be discussed.

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