SEMINAR

ALL ARE WELCOME

TEMASEK LIFESCIENCES LABORATORY

8 December (Thursday), 10am
Seminar Rm 05-41 (Level 5)

Hosted by: Dr Okamura Katsutomo

Toward understanding fundamental mechanism of totipotency

Dr Motomu Endo
Kyoto University , Japan



Dr. Motomu Endo is an associate professor at Graduate School of Biostudies, Kyoto University since 2015. He got B.S. and Ph.D. from Kyoto University in 2002 and 2007, respectively. He then started postdoctoral fellow as Human Frontier Life Science Program (long-term fellow) at University of California San Diego (Steve Kay lab.). He started his carrier at Kyoto University from 2009. He was chosen twice as PRESTO researcher, one of a highest funded program for young scientists in Japan. Dr. Endo has a long lasting interest in spatiotemporal specificity in plant physiology. His Ph.D. research elucidate the tissue-specific functions of plant photoreceptors, and his group recently has reported tissue-specific functions of circadian clocks. His group is currently interested in understanding fundamental mechanism of totipotency from the aspect of circadian clocks.

The circadian clock serves as a pace setter for a variety of biological processes, from plant leaf movements to human sleep/wake cycles. Interestingly, circadian clock system exists in most organisms including a blind cavefish. This fact implies that circadian clock has more fundamental functions for organisms' life. Actually, it is becoming evident that the clock does not simply control organisms' fitness but also regulate more essential event including cell fate determination. Here, I would like to show some evidence for involvement of circadian clock system in cell fate determination process in plants as well as in mammals. To elucidate molecular relationship between cell fate determination and circadian clocks, we are now performing single cell transcriptome (only one paper has published yet) and reconstruction of real-time information from a series of snap shot data. Through my presentation, I would like to discuss feasibility of my idea.

Recent Publications:

1. **Endo M**, Shimizu H, Nohales M.A, Araki T, Kay S.A (2014) Tissue-specific clocks in Arabidopsis show asymmetric coupling. Nature doi:10.1038/nature13919
2. Shimizu H, Katayama K, Koto T, Torii K, Araki T, **Endo M** (2015) Decentralized circadian clocks process thermal and photoperiodic cues in specific tissues. Nature Plants doi:10.1038/nplants.2015.163
3. **Endo M**, Shimizu H, Araki T (2016) Rapid and simple isolation of vascular, epidermal and mesophyll cells from plant leaf tissue. Nat Protoc. (2016) doi: 10.1038/nprot.2016.083.