SEMINAR

ALL ARE WELCOME

TEMASEK LIFESCIENCES LABORATORY

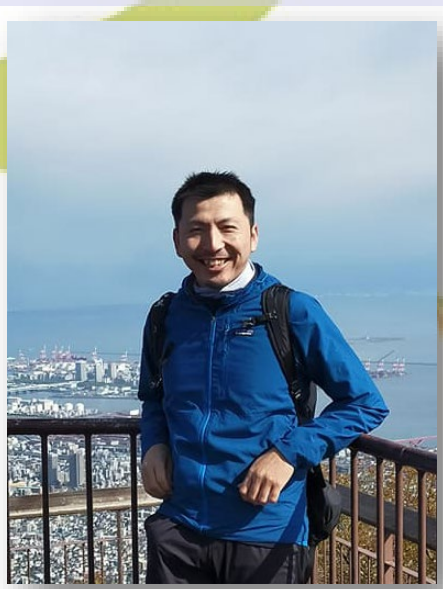
11 Jan 2022 (Tues), 4pm

Hosted by: Dr YIN Zhongchao

Join Zoom Meeting
https://us02web.zoom.us/j/89908832443
Meeting ID: 899 0883 2443 | Passcode: 337921

The differentiation of two specialized cells by one factor

Dr Makoto SHIRAKAWA
Nara Institute of Science and Technology, Japan



Dr Makoto Shirakawa received his PhD from Kyoto University, Japan and worked as a postdoctoral fellow for Kyoto university (2009-2014) and University of British Columbia, Vancouver, Canada (2015-2017). In 2017, he joined the Plant Stem Cell Regulation and Floral Patterning Laboratory (Prof Toshiro Ito) in Nara Institute of Science and Technology as an Assistant Professor.

Plants evolved stomata for the uptake of carbon dioxide. Stomata are composed of a pair of specialized cells, guard cells. The differentiation of guard cells is regulated by the three sisters of bHLH-type transcription factor SPEECHLESS, MUTE and FAMA. Interestingly, we found that FAMA regulate the differentiation of another specialized cells, myrosin cells that are required for the defense in Brassicales plants and distributed along the vein3. However, it is still open question how FAMA operates different developmental programs in epidermis and inner tissues, respectively. In this seminar, we will talk about the identification of FAMA-direct targets for the differentiation of stomata and myrosin cells. In addition, we will also present our new research to manipulate the flowering time by chemical compounds1.

Recent Publications:

1. **Shirakawa, M**., Morisaki, Y., Gan, E. S., Sato, A., & Ito, T. (2021). Identification of a Devernalization Inducer by Chemical Screening Approaches in Arabidopsis thaliana. Frontiers in plant science, 12, 634068. https://doi.org/10.3389/fpls.2021.6340682. Wang, Y., Kumaishi, K., Suzuki, T., Ichihashi, Y., Yamaguchi, N., **Shirakawa, M**., & Ito, T. (2020). Morphological and Physiological Framework Underlying Plant Longevity in Arabidopsis thaliana. Frontiers in plant science, *11*, 600726. https://doi.org/10.3389/fpls.2020.6007263.
3. **Shirakawa, M**., Ueda, H., Shimada, T., & Hara-Nishimura, I. (2016). FAMA: A Molecular Link between Stomata and Myrosin Cells. Trends in plant science, 21(10), 861–871. https://doi.org/10.1016/j.tplants.2016.07.003