SEMINAR

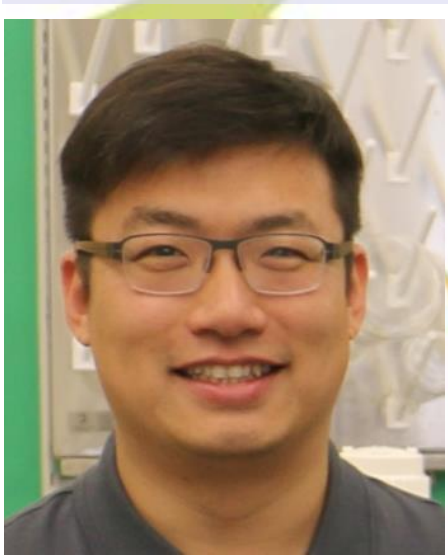
ALL ARE WELCOME

TEMASEK LIFESCIENCES LABORATORY

10 December 2015 (Thursday), 11am
The Auditorium (Level 1)

From Biogenesis to Function: The Rich Variety of Small RNAs Derived from Plant Genomes

Dr. Jixian ZHAI
University of California, United States



Dr Jixian Zhai is currently a postdoctoral researcher in Dr. Steve Jacobsen Lab at UCLA, with a postdoc fellowship from the Life Science Research Foundation. With a unique background that integrates extensive training on both the wet lab and the dry lab, Dr Zhai has been continuously focusing on plant epigenetics in the past ten years, particularly in the field of small RNA, DNA methylation and chromatin modifications.

Small RNAs (sRNA) are approximately 20 to 30 nucleotides (nt) in length an are produced in almost all eukaryotes. Plant cells are rich in two types of endogenous sRNAs, namely small interfering (siRNAs) and microRNAs (miRNAs), and these sRNAs play critical roles in regulating genes involved in development and a variety of biotic and abiotic stresses. Plant sRNAs can also direct epigenetic modifications such as DNA methylation, which alters the structure and function of the genome. Via collaborations with many research groups around the world, I applied the NGS (Next-Generation Sequencing) technology to analyze sRNAs, their precursors and their targets from a wide variety of plants as well as from different genotypes, to characterize sRNA function and biogenesis. My talk will focus on phased siRNAs in Legume and Maize, as well as 24-nt siRNAs in Arabidopsis.

Recent Publications:

1. **Zhai J*,** Bischof S*, Wang H, Feng S, Lee T, Teng C, Chen X, Park SY, Liu L, Gallego-Bartolome J, Liu W, Henderson I, Meyers BC, Ausin I, Jacobsen SE (2015) A 'One precursor, One siRNA' model for Pol IV-dependent siRNA Biogenesis. Cell 163, 445–455 (*co-first author)
2. **Zhai J*,** Zhang H*, Arikit S, Huang K, Nan G, Walbot V, Meyers BC (2015) Spatiotemporal and cell-type dependent phasiRNA biogenesis in maize male reproduction. PNAS 112(10): 3146-51 (*co-first author)
3. **Zhai J**, Jeong D-H, Paoli ED, Park S, Rosen BD, Li Y, González AJ, Yan Z, et al. (2011) MicroRNAs as master regulators of the plant NB-LRR defense gene family via the production of phased, trans-acting siRNAs. Genes & Development 25(23):2540-53.