# SEMINAR
## ALL ARE WELCOME

TEMASEK LIFESCIENCES LABORATORY

**18 January 2016 (Monday), 4pm**
**The Auditorium (Level 1)**
**Hosted by: Dr Yin Zhongchao**

# ERAD tuning is conserved between plants and mammals

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Qi XIE, Ph.D in Molecular Biology in 1994 from Universidad Autonoma de Madrid, 1995 Postdoctoral Fellow in Universidad Autonoma de Madrid, Spain and 1997 Postdoctoral associate, Rockefeller University, USA with Prof. Nam Hai Chua. 1998 Research Fellow, The Institute of Molecular Agrobiology, Singapore. 2001 Acting Principal Investigator, The Institute of Molecular Agrobiology, Singapore. 2002 Acting Principal Investigator, Temasek Life Sciences Laboratory, Singapore. 2002-2004 Changjiang Scholar, Chair Professor, Sun Yat-sen (Zhongshan) University, China. Since 2014, Institute of Genetics and Developmental Biology, Chinese academy of Sciences, as a Principal Investigator. Interesting area: Mechanism of ubiuitination in plant and plant stress signaling. Currently served as the Chief Scientist (PI) of Chinese National Major Research Program: Protein modification and degradation in Plant.

HRD1 and DOA10 complexes are two major components involved in the endoplasmic reticulum-associated protein degradation (ERAD) system in eukaryotic organisms. However, the relationship between these two complexes is largely unknown, especially in higher eukaryotes. Here, we report that plant UBC32, an ER-bound ubiquitin-conjugating enzyme working in the DOA10 complex, accumulates specifically in mutants of essential components of the HRD1 complex and its stability is modulated by the 26S-proteasome. Both HRD1A and HRD1B directly ubiquitylate and promote the degradation of UBC32 under normal condition, whereas ER stress stabilized UBC32. Consistently, UBE2J1, the homolog of UBC32 in mammals, was also identified as a short-lived protein that is targeted by HRD1 for degradation. Taken together, these results suggested that the regulation of UBC32 (or UBE2J1) by the HRD complex is conserved between plants and mammals, which suggests that this ERAD tuning activity is conserved in plants and mammals.

**Recent Publications:**

1. Yu F., Wu, Y. and **Xie, Q**. (2015) Precise protein post-translational modifications modulate ABI5 activity. Trends Plant Sci. doi: 10.1016/j.tplants.2015.05.004.
2. Zhang, H., Wu, Y., Lou, L., Tian, M., Ning, Y., Shu, K., **Xie, Q**. (2015) The RING finger ubiquitin E3 ligase SDIR1 targets SDIR1-INTERACTING PROTEIN1 for degradation to modulate the salt stress response and ABA signaling in Arabidopsis. Plant Cell. 27(1):214-27.
3. Shu, K., Zhang, H., Wang, S., Chen, M., Wu, Y., Tang, S., Liu, C., Feng, Y., Cao, X., **Xie, Q**. (2013) ABI4 Regulates Primary Seed Dormancy by Regulating the Biogenesis of Abscisic Acid and Gibberellins in Arabidopsis. PLoS Genet. 9(6): doi: 10.1371/journal.pgen.1003577.