

# SEMINAR

## ALL ARE WELCOME

27 November 2018 (Tuesday), 11am  
The Auditorium (Level 1)

Hosted by: Dr JANG In Cheol

## The Magic Broom of Phytoplasma

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Dr. Jun-Yi Yang is an associate professor and chairperson of Institute of Biochemistry at National Chung Hsing University (NCHU), Taiwan, where has been a faculty member since 2009. He received his Ph.D. in Biotechnology from NCHU in 2003, and joined the Nam's lab in Rockefeller University as a postdoctoral fellow. His research focuses on the area of plant-pathogen interactions.

As key mediators linking developmental processes with plant immunity, TCP (TEOSINTE-BRANCHED, CYCLOIDEA, PROLIFERATION FACTOR 1 and 2) transcription factors have been increasingly shown to be targets of pathogenic effectors. We report here that TB/CYC (TEOSINTE-BRANCHED/CYCLOIDEA)-TCPs are destabilized by phytoplasma SAP11 effectors leading to the proliferation of axillary meristems. Although a high degree of sequence diversity was observed among putative SAP11 effectors identified from evolutionarily distinct clusters of phytoplasmas, these effectors acquired fundamental activity in destabilizing TB/CYC-TCPs. In addition, a late-flowering phenotype with significant changes in the expression of flowering-related genes was observed in transgenic *Arabidopsis* expressing SAP11<sub>AYWB</sub>. These morphological and molecular alterations were correlated with the ability of SAP11 effectors to destabilize CIN (CININNATA)-TCPs. Although not all putative SAP11 effectors display broad-spectrum activities in modulating morphological and physiological changes in host plants, they serve as core virulence factors responsible for the witches' broom symptom caused by phytoplasmas.

### Recent Publications:

1. Shu Heng Chang, Choon Meng Tan, Chih-Tang Wu, Tzu-Hsiang Lin, Shin-Ying Jiang, Ren-Ci Liu, Ming-Chen Tsai, Li-Wen Su, **Jun-Yi Yang\***. 2018. Alterations of plant architecture and phase transition by the phytoplasma virulence factor SAP11. *Journal of Experimental Botany*. doi: 10.1093/jxb/ery318. (Aug)
2. Choon Meng Tan, Chia-Hua Li, Nai-Wen Tsao, Li-Wen Su, Yen-Ting Lu, Shu Heng Chang, Yi Yu Lin, Jyun-Cyuan Liou, Li-Ching Hsieh, Jih-Zu Yu, Chiou-Rong Sheue, Sheng-Yang Wang, Chin-Fa Lee, **Jun-Yi Yang\***. 2016. Phytoplasma SAP11 alters 3-isobutyl-2-methoxypyrazine biosynthesis in *Nicotiana benthamiana* by suppressing NbOMT1. *Journal of Experimental Botany*. 67, 4415-4425. (Jun)
3. Yen-Ting Lu, Meng-Ying Li, Kai-Tan Cheng, Choon Meng Tan, Li-Wen Su, Wei-Yi Lin, Hsien-Tzung Shih, Tzzy-Jen Chiou and **Jun-Yi Yang\***. 2014. Transgenic plants that express the phytoplasma effector SAP11 show altered phosphate starvation and defense responses. *Plant Physiology*. 416, 1456-1469. (Mar)