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TEMASEK LIFESCIENCES LABORATORY

*Scan for address

11 Apr 2024 (Thur), 4pm
Auditorium (Level 1)

Hosted by: Dr YIN Zhongchao

Designed anti-protolysis on a disease susceptibility regulatory circuit for citrus greening resistance

Prof Jian YE
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Prof Ye Jian got his first degree in 2000 in Zhejiang University in China. After got Ph.D degree in Genetics from Chinese Academy of Sciences in Beijing China, he moved to Singapore in 2007 to take up a Postdoc fellowship working under supervision of Prof Chua Nam-Hai in Temasek Life Science Laboratory. He has been leading a group working on the Strategic Research Program (SRP) Laboratory Manager and shortly after as a Principal Invesigator. He is currently a Director in the Institute of Microbiology, Chinese Academy of Sciences, Beijing, China. Prof Ye Jian is one of Recipients of Excellent Young Scientists Fund in China in Insect-borne pathogens.

Huanglongbing (HLB), also known as citrus greening, is the most serious disease of citrus. The disease is spread by the Asian citrus psyllid (*Diaphorina citri*) (ACP), which has been present all over the major citrus production areas in the world. There is no cure for this disease and all commercial varieties of citrus are susceptible to HLB. Control of the ACP vector and removal of diseased trees are only known ways to maintaining productive citrus. In my talk, I will report our recent progress in generating novel cures for this disease by first identification an HLB-disease susceptibility regulatory circuit consisting of an E3-ligase PUB21 and its substrate. Meanwhile an AI-assisted bioactive strategy targeting proteolysis of PUB21, Antimicrobial and anti-Proteolysis Peptides (APPs), was developed. The application of a single human gut microbiome-origin APP3-14 peptide with efficient inhibition activity on CsPUB21 cure diseased citrus both in greenhouse experiments and field trials.

Recent Publications:

1. Yin Y, Wang D, Wang H, Sun Y, Ye J*. Development and application of sugarcane streak mosaic virus vectors. 2024. Virology, 593, 110028.
2. Wu J, Zhang Y, Li F, Zhang X, Ye J, Li Y. Plant Virology in the 21st Century in China: Recent Advances and Future Directions. 2024. Journal of Integrative Plant Biology, 66, 579-622
3. Zhang, X., Wang, D., Zhao, P., Sun, Y., Fang, R.-X., Ye, J*. Near infrared light and PIF4 promote plant antiviral defense by enhancing RNA interference, PLANT COMMUNICATIONS, 2024,5, 10064