2013 PSTA WINNER CITATIONS

PRESIDENT'S SCIENCE AWARD 2013

Professor Yu Hao
National University of Singapore

"For his outstanding research in plant functional genomics and its biotechnological applications to economically important crops"

In the last decade, Prof Yu Hao has been dedicated to uncovering the molecular genetic mechanisms of plant reproductive development, with a focus on flowering time control, floral organ development,and phytohormone signalling. Flowering plants are the most diverse and ecologically successful group of organisms on earth. They reproduce in an unpredictable environment through generating flowers that contain reproductive organs. As this reproductive process determines yield in crop plants and affects the survival of plant varieties that are adapted to changing environment and climatic conditions, Prof Yu's research on plant reproductive development provides important solutions to vital problems relevant to our everyday life, such as the supply of food, medicine, and bioenergy.

Using Arabidopsis as a model plant, Prof. Yu's laboratory integrates molecular genetic approaches with deep sequencing, proteomics and bioimaging tools to study the fundamental mechanisms of cell proliferation and differentiation. Several of his recent findings provided ground-breaking understanding in plant reproductive development. His lab found the first regulator that controls the transport of florigen that is synthesized in leaves, but transported to the shoot tip to generate flowers. This finding contributes significantly to addressing the famous "Florigen" question raised in 1930s, and provides the key information for manipulating flowering time in crops. His major recent breakthroughs also include the discovery of a conserved genetic pathway determining inflorescence architecture across flowering plants and a "Relief of Repression" mechanism that balances plant growth and defence through modulating two phytohormone pathways.

These major findings have not only contributed greatly to plant science, but also provided essential gene resources and mechanisms for classical breeding and genetic engineering of economically important crops. Based on the fundamental discoveries in plant reproductive development of Arabidopsis and the platform technologies established, Prof Yu's laboratory is creating novel and high-value varieties with desirable flower and seed traits for rice, orchid and oil palm.

Prof Yu's research has gained wide international recognition and was published in many prestigious journals. The research materials generated in his lab have been distributed to over 60 labs in more than 18 countries. He has been invited to serve as Editorial Board member for international refereed journals published by 7 publishers, including the reputable ones published by PLoS, Springer, and Oxford University Press. He was invited as reviewer for 36 international refereed journals, including those top-notch ones like Science and Nature Genetics, and also as reviewer for 11 foreign and local grant agencies. He was the recipient of Singapore National Academy of Science Young Scientist Award (2006), NUS Young Researcher Award (2007), Singapore Youth Award for Science and

Technology (2007), Dean's Chair Professorship in Faculty of Science, NUS (2011), and Outstanding Scientist Award in Faculty of Science, NUS (2011).

For his outstanding research in plant functional genomics and its biotechnological applications to economically important crops, Prof Yu Hao is awarded the 2013 President's Science Award.