NUS National University of Singapore

Department of Biological Sciences
Faculty of Science

SEMINAR

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Hosted by Assist. Prof Chae Eunyoung

Mobilization of molecular defense by phytocytokine-receptor signaling

By **Libo Shan**

Department of Biochemistry and Biophysics, Texas A&M University

Plant genomes encode over thousands of small peptides, whose functions remain mostly enigmatic. Nevertheless, some secreted peptides have been implicated to be important players in regulating diverse plant physiological processes, including cell growth, development, reproduction, immunity, and abiotic stress adaptations. Plant small peptides with immunomodulatory functions are also known as phytocytokines and can function as short- and long-distance defense signaling molecules. The phytocytokines can amply the immune responses triggered by microbial patterns and pathogen effectors via acting on the same target cell, adjacent cells, or distant cells. In addition, some phytocytokines could modulate plant physiological processes. Meanwhile, pathogens could mimic plant endogenous peptides to promote parasitism. In this talk, I will present data to discuss the perception and mode-of-actions of phytocytokines perceived by cell surface receptors in initiating plant immune response, constraining the autoimmunity, and environmental stress adaptations.

About the Speaker

Dr. Shan is the Christine Richardson Professor, a Chancellor Enhancing Development and Generating Excellence in Scholarship (EDGES) Fellow at Texas A&M University. Dr. Shan is also the recipient of the Charles Albert Shull Award from the American Society of Plant Biologists (ASPB). Her research focuses on elucidating the genetic and biochemical mechanisms underlying innate immunity using Arabidopsis as a tractable model system, and translating the knowledge and technology gained from the model system into improving crop resilience and biomanufacturing. Her group has delineated novel signaling pathways that regulate immune signal integration, signaling activation, attenuation, and specificity by an integrated genetic, biochemical, cellular, and bioinformatic approaches. Her research also leads to the development of versatile platforms for understanding stress responses in crops and enhancing their adaptation to environmental stresses.