

SEMINAR

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Hosted by Prof Yu Hao

Molecular mechanism of plant responses to cold stress



By Shuhua Yang

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About the Speaker

Shuhua Yang is a professor in the College of Biological Science, China Agricultural University (CAU). She is now the Director for State Key Laboratory of Plant Environmental Resilience, CAU. She received B.S. and M.S. degrees at Nankai University, China, in 1991 and 1994, respectively. She got her Ph.D degree in 2002 at the National University of Singapore. After completing postdoctoral research at Cornell University, she joined the faculty at China Agricultural University in 2005. Her laboratory mainly focuses on the study of molecular mechanism of plant responses to low temperatures using Arabidopsis and maize as research systems. She received the National Science Fund for Outstanding Young Scholars in 2012, and the 3rd National Award for Innovation in 2023. She was selected as a global highly cited researcher by Clarivate Analytics since 2020. She is now the editor of Plant Cell, New Phytologist and JIPB.

Cold stress adversely affects plant growth and development, crop productivity and geographical distribution. Dissecting how plants respond to cold stress will provide molecular and genetic basis for breeding cold-tolerant crops. In this talk, I will first introduce the progress of cold signal sensing, how cold-induced Ca²⁺ signal is generated, perceived and relayed to the downstream cold signaling pathway in Arabidopsis. Secondly, I will report how cold signalling is attenuated by several types of protein kinases, CRPK1, MPK3/6 and BIN2, in Arabidopsis. Finally, I will present the identification of several genes that regulate cold tolerance in maize using multiple approaches, their detailed regulatory mechanisms and potential utilization for improvement of cold-tolerant maize varieties.