NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

BIOLOGY COLLOQUIUM

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Hosted by Prof Wong Sek Man

Acyl-CoA-binding proteins play important roles in plant lipid metabolism

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Lipids form components of cellular membranes, surface structures, storage compounds, and defense and signaling molecules. Proteins that bind lipids include the acyl-CoA-binding proteins (ACBPs) which bind long-chain acyl-CoA esters at their acyl-CoA-binding domain. This domain is conserved across ACBPs from eukaryotes. In each representative dicot (Arabidopsis) and monocot (rice) plant, six ACBPs have been identified. To study the function of ACBPs in these model plants, investigations have been carried out using T-DNA insertional mutants and overexpressing lines. Mutations in ACBPs resulted in adverse embryo development in Arabidopsis, reminiscent of similar mutations in mice. Furthermore, Arabidopsis mutants lacking ACBPs showed altered lipid composition, increased stress susceptibility, retarded pollen development and reduced seed weight. Our results suggest that ACBPs expressed during floral and seed development play important roles in plant reproduction.

About the Speaker

ML Chye, the Wilson and Amelia Wong Professor in Plant Biotechnology at the University of Hong Kong (http://www.daao.hku.hk/ephku/en/Professorship-Detail/27-Wilson-And-Amelia-Wong-Professorship-In-Plant-Biotechnology.html), completed her PhD at the University of Melbourne and received postdoctoral training at the Rockefeller University (New York) and the Institute of Molecular & Cell Biology (Singapore) before joining the University of Hong Kong in 1993. She has been awarded an Outstanding University Researcher Award (2006/07) and a Croucher Senior Research Fellowship (2007/08). The main focus of the Chye Lab (www.hku.hk/biosch/staff/mlc/mlc.html) is to understand the function of plant acyl-CoA-binding proteins (ACBPs) in lipid metabolism. Ultimately, investigations on plant ACBPs can be applied to agriculture.

ML Chye serves on the editorial boards of Plant Molecular Biology (Springer) and Planta (Springer). At the University of Hong Kong, she has worked at the Graduate School as an Associate Dean (Apr 2010-Apr 2016) and Dean (May 2016-Aug 2019).