NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

School of Biological Sciences
College of Science

Seminar Announcement

New insights on the expanding complexity of WRINKLED1 in plant lipid biosynthesis

Date: **27 November 2020, Friday**

Time: **4pm**

Venue: **Classroom 1, SBS**

Plants produce and accumulate triacylglycerol (TAG, familiar to most people as vegetable oils) in their seeds as a major carbon and energy storage for seedling development. Plant oils are essential for the human diet and renewable feedstocks of industrial applications. WRINKLED1 (WRI1) is a pivotal transcriptional regulator governing plant oil biosynthesis. Nevertheless, the molecular mechanism of WRI1 still remains unclear. Our recent studies indicated that functional domains/motifs, interacting regulators, and post-translational modifications (e.g. phosphorylation) are essential for the function of WRI1. My presentation focuses on our recent advance in understanding of WRI1 molecular mechanism. For example, we have discovered three intrinsically-disordered regions (IDRs) in WRI1 and shown that C-terminal IDR3 plays a role in mediating WRI1 stability. We have also identified some novel WRI1-interacting regulators, such as 14-3-3s (a family of phosphopeptide-binding proteins) and TCP4 transcription factor, which mediate the activity of WRI1 and WRI1-regulated oil accumulation. The knowledge gained from our studies on WRI1 advances our understanding of the complexity of WRI1 regulatory mechanism, serving as a guide to improve strategies to use WRI1 for vegetable oil bioengineering.

Speaker:

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