NANYANG TECHNOLOGICAL UNIVERSITY

School of Biological Sciences

SBS Seminar Announcement

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Abstract

Fatty acids are essential structural components of membrane phospholipids (PL) and also serve as an efficient storage form of metabolic energy when esterified as triacylglycerols (TG). As cells grow and divide, newly synthesized fatty acids are partitioned into PL or TG through their common precursors, phosphatidic acid (PA) and diacylglycerol. Both TG synthesis and degradation are important metabolic reactions to maintain membrane lipid homeostasis. As cells enter a new cell cycle upon exit from quiescence, de novo fatty acid synthesis is insufficient to provide precursors for membrane lipids, and efficient cell cycle progression depends on TG degradation by Tgl3 and Tgl4 lipases. We provide evidence that the cell cycle delay is mediated by activation of the Swe1 morphogenesis checkpoint kinase in response to defective TG degradation and subsequent inhibitory phosphorylation of cyclin-dependent kinase Cdk1, which halts cell cycle progression at the G1/S boundary. These findings underscore the importance of TG metabolism for maintaining membrane phospholipid homeostasis and cell growth.

Thursday, 18 December 2014 2.30pm to 3.30pm SBS Classroom 2 (SBS-01n-22)

Host: Asst/Prof Guillaume Thibault

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