

Biology Seminar



Western
UNIVERSITY · CANADA

12:30 - 1:30 pm

Friday, November 13, 2020

Seminar to be held via ZOOM



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Regulation of aromatic amino acid biosynthesis in plants

Amino acids are central to both plant metabolism and physiology. Amino acid biosynthesis links carbon and nitrogen metabolism and supports synthesis of proteins as well as numerous phytochemicals, such as plant hormones, specialized metabolites, pigments, and cell wall components. However, little is known how plants control amino acid availability and maintain their homeostasis. My laboratory has been investigating the regulation of aromatic amino acid biosynthesis, which can direct up to 30% of deposited carbons for synthesis of diverse and often abundant phenolic compounds (e.g. lignin, tannins) in plants. Utilizing evolutionary biochemistry and forward genetic approaches we have identified enzyme variants and mutations that can de-regulate aromatic amino acid biosynthesis *in planta*. Further metabolic and physiological characterization of these transgenic and mutant plants having hyper-accumulation of aromatic amino acids is beginning to unveil various mechanisms and processes involved in amino acid homeostasis in plants. The study will advance our basic understanding of the roles of metabolic regulation and homeostasis in plant growth and development. The finding will also provide essential knowledge and tools to build plant chemical platforms (or chassis) to achieve sizable production of amino acids and their derived natural and bio-based products.

