

SDGsを目指す農林水産業の未来のために

近畿大学アグリ技術革新研究所 第43回オープンセミナー

2025年11月6日（木）

15：00～16：30

近畿大学農学部 208教室

日本語での講演を
お願いしています

Keiko Yoshioka

Professor
University of Toronto

Understanding plant stress resistance- Investigation of CNGC-mediated Ca^{2+} signals and identification of beneficial bacteria for agricultural usage

植物の免疫・形態形成を制御するカルシウムシグナリングと
有用土壌細菌の農業への利用

Calcium ions (Ca^{2+}) are universal second messengers in eukaryotic signaling that control many phenomena, such as neuronal transmission in animals. Similarly, Ca^{2+} plays a central role in plants. However, Ca^{2+} channels, their signal transduction, and biological roles are still enigmatic. Plant Cyclic Nucleotide-Gated Channels (CNGCs) are Ca^{2+} -conducting ion channels that regulate a variety of physiological responses. Our data indicate the role of CNGC2 as a nexus of immunity and development/auxin signal transduction, likely controlling overall plant Ca^{2+} homeostasis.

In our lab, we aim to develop and deliver scientific solutions using beneficial bacterial consortia of Canadian origin and performance-enhancing bio-active metabolites for sustainable food production. To achieve this goal, we are conducting a screening to find bacteria that can enhance plant immunity and plant growth using tomato plants. Through this screening, we found 13 promising bacterial strains and currently we are characterizing these strains to understand the mode of action for agricultural application.

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