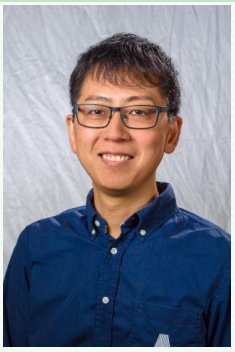
GTRセミナー
6月19日 (水)　14:00~15:00　@理農館 SA335

GTR Nagoya University

＊セミナーは日本語で行われます



Cellular Dynamics in Fertilization and Coenocytic Endosperm Development in *Arabidopsis thaliana*

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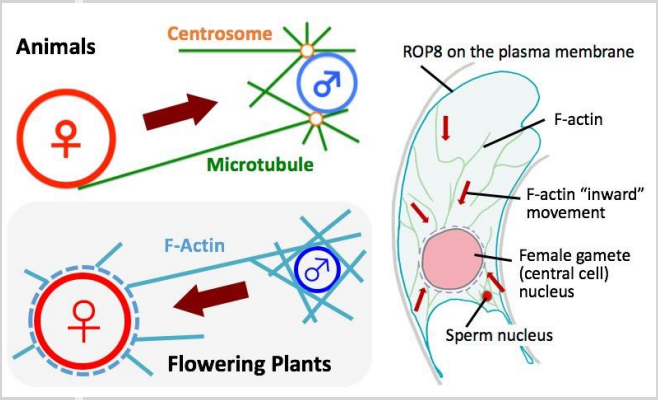
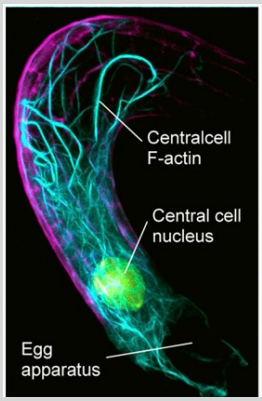
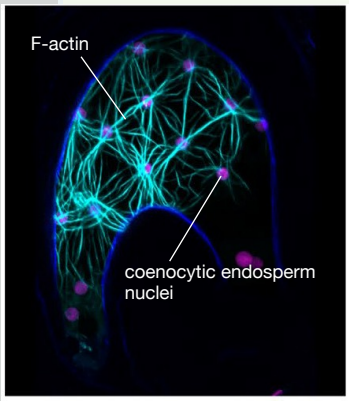
Using genetics, biochemistry, and live-cell imaging, the Kawashima lab investigates the cellular dynamics that control fertilization processes and endosperm development in Arabidopsis thaliana. We have identified that flowering plants have evolved a unique actin filament (F-actin) based system to control sperm nuclear migration, which is essential for gamete nuclear fusion (karyogamy) and the onset of embryo/endosperm development. In the female gametes, F-actin organizes a meshwork structure that constantly generates inward movement, captures the sperm nucleus, and transports it to the female nucleus for karyogamy. We are currently investigating the molecular mechanism of how F-actin meshwork inward movement is generated in the female gamete.

In Arabidopsis, endosperm development initiates with nuclear divisions without cytokinesis, generating a large multinuclear coenocytic cell, followed by cellularization at a later stage. Microtubules and F-actin coordinate to organize the foundation for nuclear movement and positioning in the coenocyte. We identified the endosperm-specific actin genes whose expressions are particularly at the chalazal end. At the chalazal end, nuclei are pushed or pulled toward the pole, generating a nuclear aggregate called a cyst. Further characterization of these two actin genes elucidates their new function in seed size control.

Key wards : 受精、胚乳発生、核移動、多核化、ライブイメージング、細胞骨格







受精時 (左、中央) [*PNAS* (2020)]と胚乳の多核化 (右) [*Nature Plants* (2023)]におけるアクチンの動態を解明。

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