



University of Tsukuba
Plant Transgenic Design Initiative
79th PTrad Research Seminar
T-PIRC Research Seminar

Date : October 9th, 2024 13:30-15:30

Room : 221 Seminar room in GRC

Title: Host factors in Cucumber mosaic virus infection in melon and tomato.

From Genetics towards intracellular viral movement.

Speaker: Ana Montserrat Martín Hernández, PhD

Center for Research in Agricultural Genomics

Key words : Virus resistance, Cucumber mosaic virus, Gene editing

Viruses encode few proteins and need to use host proteins to complete their life cycle. *Cucumber mosaic virus* is a widespread and re-emergent virus able to infect more than 1200 plant species. Our group has been working on the genetics of resistance to CMV in melon and cloned a major gene, which encodes a Vacuolar Protein Sorting 41 (VPS41), a protein involved in intracellular trafficking towards the vacuole. Additionally, through Yeast Two Hybrids experiments, we have found an interactor of the viral Movement protein, a Niemann-Pick C1 protein, a sterol transporter that is also involved in viral movement. In animals, NPC1 is involved in Ebolavirus entry in the cell but has never been reported associated to plant viruses. Through CRISPR-Cas9, we have edited the VPS41 gene both in melon and in tomato, demonstrating its involvement in virus infection also in tomato. We are currently generating plants edited in this gene and unveiling the mechanism by which NPC1 is involved in CMV infection.

Contact: T-PIRC Satoko Nonaka(nonaka.satoko.gt@u.tsukuba.ac).