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Comprehensive genetic analysis of CLV3 downstream pathway, and CLE peptide function in root knot nematode infection

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Gould Seminar Room Room 72, Bldg. 116, Daley Road, ANU



Secreted peptide hormones, CLV3 / ESR (CLEs) consist of 12 or 13 amino acids with or without arabinosyl modification. Biochemical analyses and genetic analyses suggested at least three independent receptor complexes, CLV1, CLV2-CRN/SOL2, and RPK2 receive CLV3 peptides to restrict SAM size (Kinoshita et al., 2010).

We performed comprehensive genetic screening to isolate CLE peptide insensitive mutants by using EMS treated seeds of Col, clv2, and rpk2. We have isolated around 100 mutants, and have identified many causal genes of these mutants, and I will introduce seven of them.

On the other hand, CLE peptide also functions in phytoparasitic nematode infection steps. We have identified four CLE genes from *Meloidogyne incognita*, and *Arabidopsis* CLV3 receptor mutants showed nematode infection resistance. Furthermore, nematode effector proteins including MSP7 were identified by MS-MS analyses. Amino acid

sequence of MSP7 showed a partial homology to the *Arabidopsis* defense related receptor protein including LysM domain. Mutant of the receptor was susceptible to nematode infection. MSP7 might function to repress the receptor signaling. Here I will introduce about the function of CLE signaling pathway in meristem maintenance system and nematode infection steps.

Presented by

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