



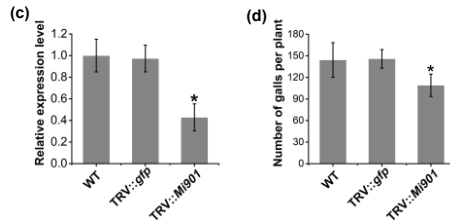
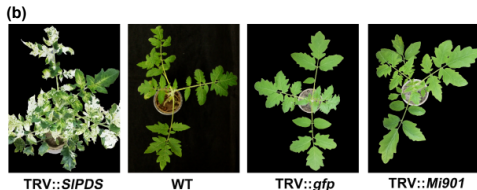
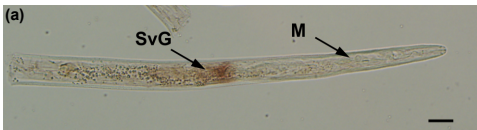
A novel venom allergen-like protein from *Meloidogyne incognita* suppresses plant defenses and promotes parasitism

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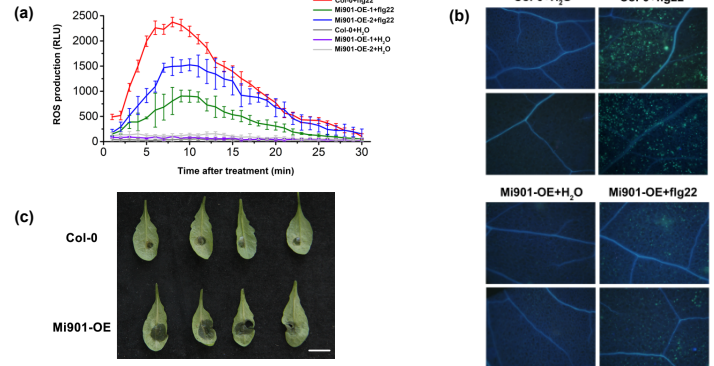
Summary: The root-knot nematode *Meloidogyne incognita* infects almost all vascular plants, causing significant losses of agriculture worldwide. To ensure the success of parasitism, RKNs always secrete effector proteins to target central 'hubs' of plant immunity. Papain-like cysteine proteases (PLCPs), which targeted by several pathogen effectors, play an important role in plant immunity. In this study, we found a novel venom allergen-like protein effector, named Mi901, which may enhance plant susceptibility by targeting a host PLCP RD21A to modulate plant immune responses.

1. Silencing of *Mi901* affects *M. incognita* parasitism



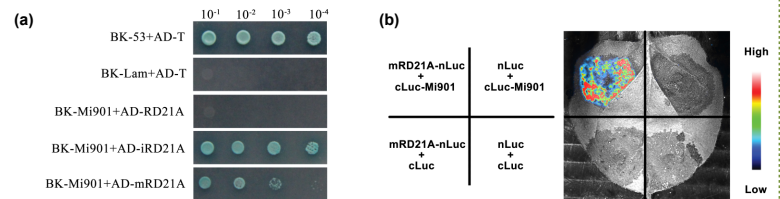
Mi901 is expressed in the subventral esophageal glands and essential for the pathogenicity of *M. incognita*.

2. Mi901 suppresses the defense responses in *Arabidopsis*



Ectopic expression of Mi901 in *Arabidopsis* suppressed the burst of reactive oxygen species (ROS) and callose deposits triggered by the flg22, and promoted the infection of *Botrytis cinerea* in *Arabidopsis* leaves.

3. Mi901 associated with RD21A



The yeast two-hybrid assays revealed an interaction between Mi901 and *Arabidopsis* papain-like cysteine protease (PLCP) RD21A. Moreover, this interaction was further confirmed by split-luciferase complementary assay in *N. benthamiana*.