Host-induced gene silencing for the management of *Meloidogyne incognita*

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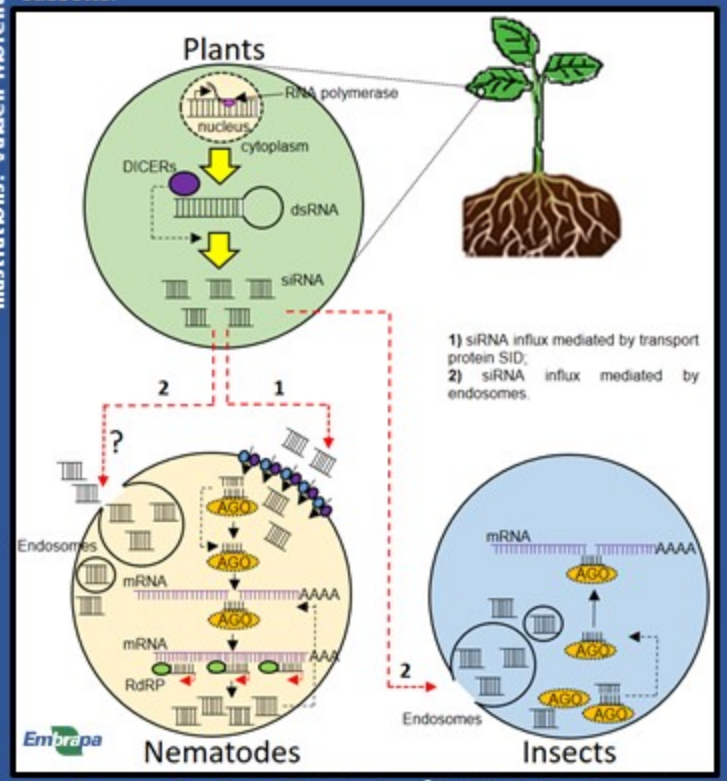
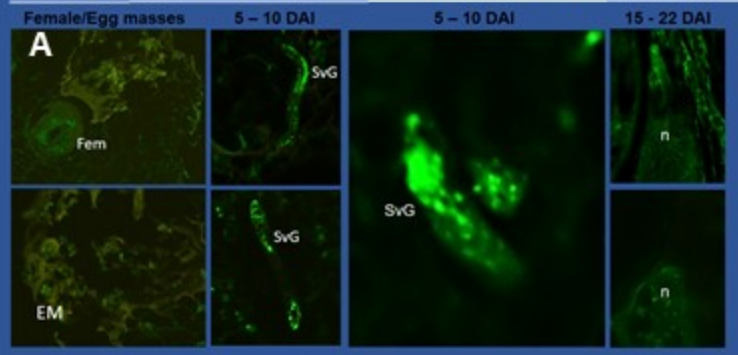
Introduction

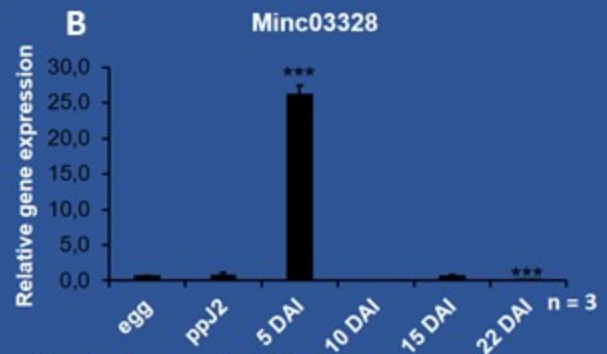
- The root-knot nematode (RKN), *Meloidogyne incognita*, has been considered one of the most serious plant- parasites, responsible for significant damage in several crops worldwide;
- Several tools to manage plant-parasitic nematodes has been used and the RNA interference (RNAi) technology, a post-transcriptional gene silencing process, has proven to be a valuable biotechnology-based method for *M. incognita* control;
- We selected the *Minc03328* gene as an effector-encoding gene and evaluated the effects of its silencing on M. incognita in *A. thaliana* transgenic lines expressing a dsRNA-based silencing cassette.



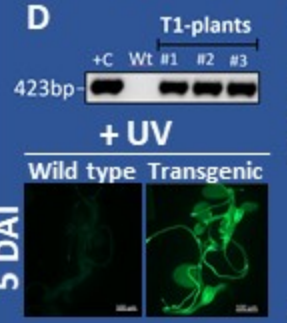
Main Results

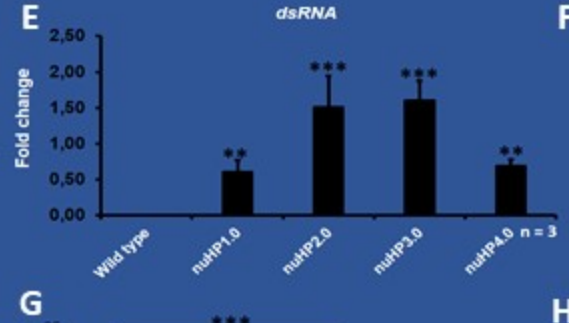
The *Minc03328* gene is highly expressed in *M. incognita* parasitic J2-stage

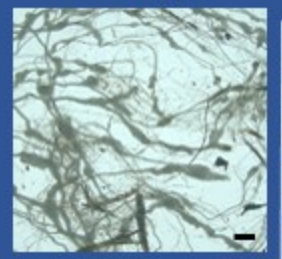


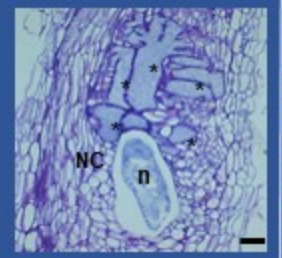


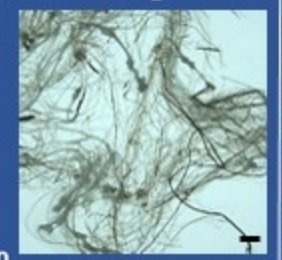
Minc03328 silencing deeply affected *M. incognita* parasitism in transgenic *A. thaliana* lines

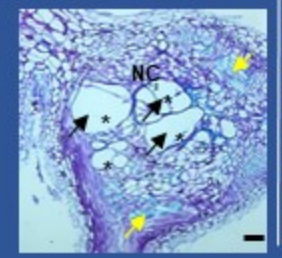












Histological analysis reveals morphological changes associated with nematode-resistance (45 DAI)

Main conclusion: The effect of *Minc03328* gene silencing in *Meloidogyne incognita* driven by the *pUceS8.3::nuHP-dsRNA* construct in *A. thaliana* plants encompasses high tolerance to root knot nematode, and is a promising target for the development of genetically modified crops.

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