

## 26. ACTIVATION OF TOMATO CELLULASES BY THE POTATO CYST NEMATODE *GLOBODERA ROSTOCHIENSIS* DURING FEEDING SITE INDUCTION AND DEVELOPMENT

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In the root of a host plant, cyst nematodes induce the formation of private food source, a syncytium. The establishment of such a group of plant cells in which cytoplasmic continuity is maintained starts with the selection of an initial syncytial cell by a pre-parasitic second stage juvenile. For syncytium proliferation, the nematode recruits plant cell wall-degrading enzymes. Endo-1,4- $\beta$ -glucanases (cellulases) reside among plant enzymes that are responsible for progressive cell wall dissolution resulting in syncytium expansion towards and within the vascular cylinder. Tomato is harbouring at least 8 different cellulases, and RT-PCR experiments revealed that only two isoforms, Le-Cel7 and Le-Cel8, are consistently up-regulated in young, *Globodera rostochiensis*-induced syncytia. In order to localise Le-Cel7 and Le-Cel8 expression, *in situ* RT-PCR experiments were performed. Careful hybridisation experiments in longitudinal sections revealed slightly different syncytium-specific and temporal expression patterns for these two cellulase isoforms. Antibodies were raised against characteristic fragments of Le-Cel7 and Le-Cel8, and subsequent immunolocalisation studies confirmed the presence of Le-Cel7 and Le-Cel8 proteins in developing syncytia. Transgenic tomato, tobacco and potato plants carrying hpRNA-silencing constructs for Le-Cel7 and Le-Cel8, respectively, are currently being tested to assess the importance of Le-Cel7 and Le-Cel8 in the development of cyst nematode-induced feeding sites.