USING LASER CAPTURE MICRODISSECTION TO STUDY ROOT-KNOT NEMATODE-HOST PLANT INTERACTIONS

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Despite causing millions of dollars in crop losses annually, very little is known about the complex interactions that occur between root-knot nematodes (*Meloidogyne spp.*) and host plants, which result in the induction of giant cells as -nematode's feeding cells in host roots. Studies of molecular events during the formation and development of giant cells have been greatly restricted because of the difficulty of obtaining pure molecular materials from these highly specialised cells. Until now, extraction of cytoplasmic contents from individual giant cells has only been achieved by micromanipulation at the later stage of development. In this study, laser capture microdissection (LCM) was employed to selectively isolate cytoplasmic contents from paraffin-embedded sections of young 4dpi giant cells induced in tomato roots. Total RNA was successfully isolated, and used in RT-PCR to investigate specific gene expression in giant cells. It was found that two D-type cyclin genes, *CycD3:*2 and *CycD3:*3, were expressed at higher levels in the giant cells compared to other cell cycle related cyclin genes, suggesting that the induction of the G1 phase of the cell cycle may be triggered in response to stimulation by the infecting nematode.