



- Characterization and functional 317- analysis of the Md-miR285N gene P1 promoter in transgenic apple (*Malus x domestica*) and *Arabidopsis thaliana*

Monday, July 15, 2019 - 🕒 18:00 - 19:00

📍 SEC - Hall 5

Abstract

MicroRNAs are key regulators of plant physiological activities by functioning in RNA silencing and post-transcriptional regulation of gene expression. In apple, the uncharacterized Md-miR285N is predicted to target 35 RNA transcripts, mostly coding for TMV, SCN1 and CDPK proteins involved in plant defense to pathogens. In this work, ca. 2 Kb of the *Md-miR285N* promoter were isolated and cloned into an expression vector with its 3'-end fused to the β -glucuronidase (GUS) reporter gene. The expression vector was used for *Agrobacterium*-mediated transformation of both *Malus x domestica* (cv. 'Gala') and *Arabidopsis thaliana* (ecotype Col-0). In transgenic apple plantlets a strong GUS activity was detected in stems, leaves and veins. In *Arabidopsis* seedlings the promoter was shown to be highly expressed in roots, shoot apex meristem, primary and secondary leaves and veins. To understand the functional response of *Md-miR285N* against pathogen infections, apple and *Arabidopsis* plantlets were inoculated, respectively, with *Erwinia amylovora* strain Ea273 and *Pseudomonas syringae* pv. tomato DC3000. The GUS activity was qualitatively and quantitatively evaluated in treated plants at 12, 24, 36 and 48 hours post inoculation. A differential regulation of promoter expression was detected compared to untreated plants. These data suggest that Md-miR285N may act as important regulator of plant defense after bacteria infections.

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