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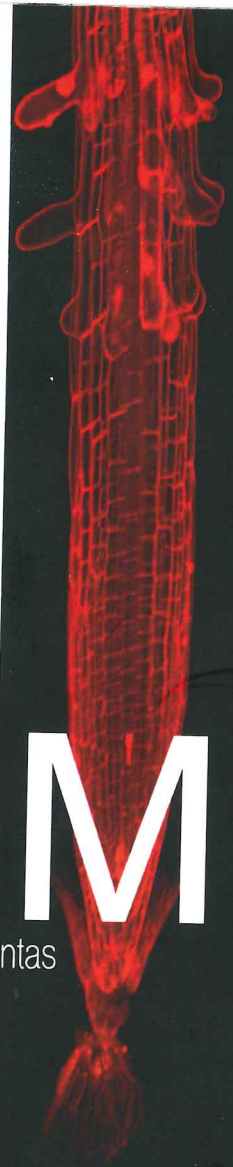

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*Poster 03 / **SVII P03***

PAMP-triggered immunity against *Pseudomonas syringae* involves microRNA-mediated regulation of several uncharacterized R genes

Diego López-Márquez[1], Edgar A. Rodríguez-Negrete[1], Nieves López-Pagan[1], Adela Zumaquero[1], Eduardo R. Bejarano[1] and Carmen R. Beuzon[1]

[1]*Department of Cellular Biology, Genetics and Physiology. IHSM-UMA-CSIC, Málaga, Spain.*

Two main types of noncoding small RNA molecules have been found in plants: microRNAs (miRNAs) and small interfering RNAs (siRNAs). They differ in their biogenesis and mode of action, but share similar sizes (20-24 nt). Their precursors are processed by Dicer-Like RNase III (dcl) proteins present in *Arabidopsis thaliana*, and in their mature form can act as negative regulators of gene expression, being involved in a vast array of plant processes, including plant development, genomic integrity or response to stress. Small-RNA mediated regulation can occurs at transcriptional level (TGS) or at post-transcriptional level (PTGS). In recent years, the role of gene silencing in the regulation of expression of genes related to plant defence responses against bacterial pathogens is becoming clearer. Comparisons carried out in our lab between the expression profiles of different mutants affected in gene silencing, and plants challenged with *Pseudomonas syringae* pathovar tomato DC3000, led us to identify a set of uncharacterized R genes, belonging to the TIR-NBS-LRR gene family, differentially expressed in these conditions. Through the use of bioinformatics tools, we found a miRNA* of 22 nt putatively responsible for down-regulating expression of these R genes through the generation of siRNAs. We have also found that the corresponding pri-miRNA is down-regulated after PAMP-perception in a SA-dependent manner. We also demonstrate that plants with altered levels of miRNA* (knockdown lines or overexpression lines) exhibit altered PTI-associated phenotypes, suggesting a role for this miRNA* in this defence response against bacteria. In addition we identify one of the target genes as a negative regulator of defence response against *Pseudomonas syringae.*

References:

Li F, et al. (2012). PNAS, 109(5):1790-5.