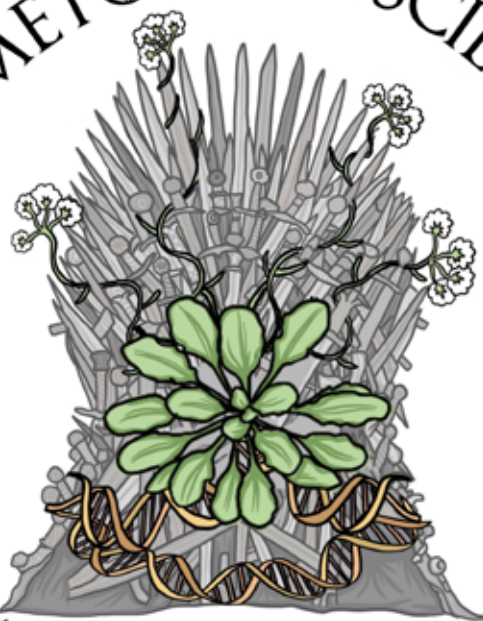


32<sup>ND</sup> INTERNATIONAL  
CONFERENCE ON  
ARABIDOPSIS RESEARCH

COME FOR THE SCIENCE

STAY FOR THE STORIES



ABSTRACT BOOK



## Poster Category 10: Plant Immunity

10\_P1 MIRIAM LUCKE Linking resistance and effector genes in the Arabidopsis-Hyaloperonospora pathosystem

10\_P2 SHUBHRASINGH Integration of Plant Probiotics Microbiome in Disease Resistance: A Sustainable Approach

10\_P3 JIANAN LU Phospho-proteomic analysis to explore the microbe associated molecular patterns (MAMPs) in plant immunity

10\_P4 YUAN ZHOU Viral RNA methylation and intercellular mobility

10\_P5 MANUEL GONZALEZ-FUENTE Processing bodies as a novel hub in protein homeostasis during plant-pathogen interactions

10\_P6 MARINA SILVESTRE VAÑÓ Investigating the role of the clubroot pathogen effectors in plant immunity

10\_P7 MEHMET FATIH KARA Conservation of ERF1 function in defence across lettuce and Arabidopsis

10\_P8 ELEONORA MORATTO Investigating the effects of external electric fields on the interaction between *P. palmivora* and Arabidopsis root

10\_P9 MARIA FLORENCIA BOGINO An oomycete effector manipulates Arabidopsis Auxin and Brassinosteroid signaling pathways

10\_P10 NTONI GARCIA-MOLINA Metabolome-wise analysis of plants exposed to abiotic stress conditions to identify potential metabolites inducers of cross-tolerance to biotic stressors

10\_P11 ÁNGEL DEL ESPINO Molecular characterization of MicroRNA-silenced TNL-1 (MIST1) and its role in plant defense

## 10-P11

# Molecular characterization of MicroRNA-silenced TNL-1 (MIST1) and its role in plant defense

ÁNGEL DEL ESPINO, DIEGO LÓPEZ-MÁRQUEZ, NIEVES LÓPEZ-PAGAN, EDUARDO R BEJARANO, JAVIER RUIZ-ALBERT and CARMEN R BEUZON

*Instituto de Hortofruticultura Subtropical y Mediterránea “La Mayora” (IHSM-UMA-CSIC). Departamento de Biología Celular, Genética y Fisiología. Facultad de Ciencias. Universidad de Málaga. Málaga, 29010, Spain*

### ABSTRACT

miRNAs are sequence-dependent negative regulators of gene expression involved in many relevant plant processes, including immunity. Activation of defence genes can negatively impact plant fitness, and thus needs to be fine-tuned. miRNA-mediated regulation of gene expression is mediated by the activity of DCL proteins that induce cleavage of target transcripts. We have described miR825-5p as involved in the regulation of immunity. This miRNA specifically targets R genes of the TNL family. We have characterized the regulatory system formed by miRNA825-5p and its main target *MIST1*. This miRNA only triggers the RDR6-DCL4-dependent production of phasiRNAs from *MIST1*. *MIST1* is the NLR gene from which the most phasiRNAs are produced in *Arabidopsis*. We reported that pri-miR825 is down-regulated after PAMP-perception and demonstrated that plants with altered levels of miR825-5p exhibit altered PTI-associated phenotypes. In addition, *MIST1* has been described to be regulated by other mechanisms like nonsense mediated decay or polyubiquitination. We have characterized the expression pattern of both *MIR825* and *MIST1* and are currently studying the putative molecular role of *MIST1* in defence apart from its demonstrated role as a miRNA825-5p-linked regulatory hub for TNLs regulation in *Arabidopsis thaliana*.

### References

- Bonardi V, Cherkis K, Nishimura M T, Dangl J L. 2012. *Curr. Opin. Immunol.* **24**: 41–50.
- Liu J, Gitta C. 2008. *Molecular plant* **1.3**:411–422.
- López-Márquez D, Del-Espino A, López-Pagán N, Rodríguez-Negrete E A, Rubio-Somoza I, Ruiz-Albert J, Bejarano E R, Beuzón C R. 2021. *Journal of Experimental Botany* **72**:20-26.
- Manavella P A, Koenig D, Weige D. 2012. *Proc Natl Acad Sci USA* **7**: 2461–2466.
- Ngou B P M, Ahn H K, Ding P, Jones J D. 2021. *Nature* **592**:110–115.
- Nie P, Chen C, Yin Q, Jiang C, Guo J, Zhao H, Niu D. 2019. *International Journal of Molecular Sciences* **20**: 5032.

**Pearl J R, Lu R, Sadanandom A, Malcuit I, Moffett P, Brice D C, Schauser L, Jaggard D A W, Xiao S, Coleman M J, Dow M, Jones J D G, Shirasu, Baulcombe D C. 2002. *Proc Natl Acad Sci USA* **99**:10865–10869.**  
**Takken F L, Albrecht M, Tameling W I. 2006. *Curr. Opin. Plant Biol.* **9**:383–390.**