

PHYTOGLOBINS ROLE IN ARABIDOPSIS-FUSARIUM OXYSPORUM INTERACTION

<u>Eliana Molina-Moya¹</u>, Laura Terrón-Camero², M^a Ángeles Peláez-Vico³, Luisa M. Sandalio⁴, María Romero-Puertas⁵.

¹⁻⁵Department of Biochemistry, Cell and Molecular Biology of Plants, Estación experimental del Zaidín, Granada, Spain. Corresponding author: María C. Romero-Puertas (maria.romero@eez.csic.es)

Plants, as sessile organisms, are exposed to different environmental factors. During evolution, plants have developed different resistance mechanisms against biotic and abiotic stress. Reactive oxygen and nitrogen species (ROS/RNS) accumulation may produce severe damages in plants but also behave as signalling molecules in many physiological processes, including defence response during plant-pathogen interactions. Especially, it is well known that NO produced after plant recognition of pathogens is part of the signalling cascades that trigger the expression of defence genes, the production of secondary metabolites and finally, hypersensitive response (HR) and systemic acquired resistance (SAR; Bellin et al., 2013). In addition, phytoglobins are important key players regulating NO concentration protecting organisms from oxidative and nitrosative stress. Phytoglobins have been classified in symbiotic, nonsymbiotic and truncated phytoglobins. In response to pathogen, we focus on nonsymbiotic phytoglobins that are divided into two classes (Perazzolli et al., 2004). Nevertheless, the NO and phytoglobins role has not been elucidated during disease resistance in root fungal-plant interactions. Root-colonizing fungi Fusarium oxysporum, causes vascular wilt disease, that leads to devastating yield losses. The eradication is very tough, due to its persistence and colonizing capacity (Turrá et al., 2016).

In order to understand the role of nonsymbiotic phytoglobin 1 (ns-Hb1) on NO signalling, in this work, we study the response of a model plant *Arabidopsis thaliana*, wild type and plants altered in the expression of *ns-Hb1*, to *F. oxysporum*. We have analysed plant survival and defence gene expression among others. From this study, we have hypothesized possible roles of NO and phytoglobins in the plant-pathogen interaction.

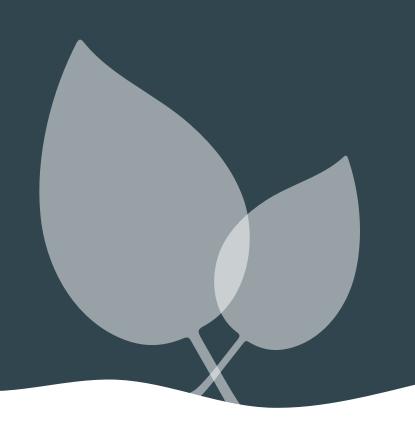
Bellin, et al., (2013) Mol. Plant. Microbe. Interact., 26 (3), 271–7 Perazzolli et al., (2004) The Plant Cell, 16: 2785-2794 Turrá et al., (2016) Seminars in Cell & Developmental Biology, 57: 69-75

This study was funded by Junta de Andalucía (EX12-BIO-296) and ERDF and Ministry of Economy, Industry and Competitiveness co-financed grant (BIO2015-67657-P). E M-M, LC T-C were supported by a University Staff Training Program (FPU) fellowship from the Spanish Ministry of Education, Culture and Sports. MA P-V was supported by a pre-doctoral contract from Ministry of Economy, Industry and Competitiveness (FPI).



Book of Abstracts

26th & 27th November, 2020



ORGANIZING COMMITTEE



Dr. David Posé Padilla IHSM-UMA-CSIC Málaga

Prof. Miguel Ángel Botella Mesa IHSM-UMA-CSIC Málaga

Prof. Araceli Castillo Garriga IHSM-UMA-CSIC Málaga

Dra. Carmen Martín Pizarro IHSM-UMA-CSIC Málaga

Dra. Catharina Merchante Berg IHSM-UMA-CSIC Málaga **Dra. Sonia Osorio Algar** IHSM-UMA-CSIC Málaga

Prof. Eduardo Rodríguez Bejarano IHSM-UMA-CSIC Málaga

Dra. Noemí Ruíz López IHSM-UMA-CSIC Málaga

Dra. Victoria Sánchez Vera IHSM-UMA-CSIC Málaga



SCIENTIFIC COMMITTEE

Amparo Monfort – IRTA-CRAG José Luis Martínez Zapater – ICVV Javier Brumós – NCSU Jordi Moreno Romero – CRAG Crisanto Gutiérrez – CMBSO - CSIC -UAM Vicente Rubio – CNB Manuel Rodríguez-Concepción – IBMCP - UPV - CSIC Irene García Fernández – IBVF - US Javier Gallego-Bartolomé – IBMCP - UPV - CSIC José Luis Micol – UMH Mar Castellano – CBGP - UPM - INIA Emilio Gutiérrez Beltrán – IBVF - US Rosa Lozano Durán – PSC Antonio Di Pietro – UCO

