
SUSANA RIVAS

CV

SPEAKER AT:

THE DEATH OF PLANT CELLS. FROM PROTEASES TO FIELD APPLICATIONS



October, 2nd and 3rd, 2013, Barcelona

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Susana Rivas received her Ph.D. in University of the Basque Country in 1997. After her post-doctoral stay at The Sainsbury Laboratory, Norwich (UK), she became First Class Researcher in the Laboratoire des Interactions Plantes-Microorganismes (LIPM), in the French National Centre for Scientific Research (CNRS). And Susana Rivas is CNRS Director of Research in LIPM from 2012.

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Transcriptional Control of Arabidopsis hypersensitive Cell Death in Response to Bacterial Pathogens

Plant defense responses are often associated to the development of the so-called hypersensitive response (HR), a form of programmed cell death that prevents spreading of the pathogen beyond the inoculated zone. This defense-associated cell death is closely connected to plant physiological and developmental processes and needs to be tightly regulated to be not only efficient but also beneficial to the plant. Moreover, the sharp boundary of the HR suggests the existence of efficient mechanisms that control cell death and survival. Transcriptional regulation in host cells plays a crucial role in the establishment of plant disease resistance to pathogen attack. The MYB transcription factor MYB30 is a positive regulator of Arabidopsis defense and HR responses to bacterial pathogens. MYB30 appears to modulate cell death-related lipid signaling by enhancing the synthesis of sphingolipid-containing very long chain fatty acids (VLCFAs) after bacterial inoculation. Plant and animal pathogenic bacteria inject type III effectors (T3Es) into host cells to suppress host immunity and promote successful infection. We have shown that MYB30 is targeted by the bacterial T3E XopD, resulting in suppression of MYB30-mediated plant defenses and underlining the crucial role played by MYB30 in the regulation of plant disease resistance. In addition, the activity of MYB30 is tightly controlled inside plant cells. The spatiotemporal control of MYB30-mediated HR responses through different regulators (including the secreted phospholipase AtsPLA2- α , the RING-type E3-ubiquitin ligase MIEL1 and a serine-type endopeptidase that belongs to the Arabidopsis subtilase family) will be discussed.

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