

500-043 - Maritime pine PpMYB8 directly co-regulates secondary cell wall architecture and the associated Phe-biosynthesis pathway.

Fernando de la Torre¹, Jorge El-Azaz¹, María Belen Pascual¹, Jean-Francois Trontin², Sandrine Debille², Francis Canlet², Concepción Ávila¹ and Francisco M. Cánovas¹

1 Departamento Biología Molecular y Bioquímica. Universidad de Málaga-Spain

2 FCBA Institut Technologique. Biotechnology & Advanced Forestry Department. Bordeaux-France

Plants rely on the biosynthesis of L-Phenylalanine as building block for the synthesis of proteins but also as precursor for a tremendous range of plant-derived compounds essential for its growth, development and defense. Polymerization of secondary cell wall in trees involves the massive biosynthesis, among others, of the Phe-derived compound lignin. Thus, these plants require an accurate metabolic coordination between Phe and lignin biosynthesis to ensure its normal development. We have here identified that the pine arogenate dehydratase, whose enzyme activity limits the biosynthesis of Phe in plants, is transcriptionally regulated through direct interaction with PpMyb8. We have also shown that this transcription factor is directly involved in secondary cell wall biogenesis and cell death processes. Together these results indicate that a single transcription factor coordinates lignin accumulation and the proper biosynthesis of its essential precursor L-Phe.