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NITROGEN UPTAKE, ASSIMILATION AND METABOLISM IN MARITIME PINE

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The research activities of our group are aimed at knowing how the efficient use of nitrogen nutrients determines vascular development and the accumulation of biomass in trees. As nitrogen availability is extremely low in the soil of temperate forests, our research efforts have been addressed to study the molecular regulation of nitrogen acquisition, assimilation and the internal recycling for the biosynthesis of amino acids, particularly those relevant for tree nitrogen economy. We are studying this subject in maritime pine (*Pinus pinaster* Aiton), a forest tree species of great economic and ecological importance in the Mediterranean area and one of the most studied models for conifer genomic research in Europe. In collaboration with other groups, within the framework of several European projects, we have generated large genomic resources and established a technological platform for carrying out functional studies of genes in conifers via somatic embryogenesis. Transgenic lines (over-expression and silencing) have been produced for structural and regulatory genes involved in N metabolism. Our current research efforts are focused in the study of the molecular properties and regulation of genes involved in the biosynthesis and metabolic fate of phenylalanine and arginine, key amino acids for N economy of conifers. An overview of this research program will be presented and discussed

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