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### Molecular mechanisms that regulate changes in root system architecture in response to nutrient availability

Phosphorus (P) availability is a limiting factor for plant growth and development. Root tip contact with low Pi media triggers diverse changes in the root system architecture of *Arabidopsis thaliana*. The most conspicuous among these modifications is the inhibition of root growth, which is triggered by a shift from an indeterminate to a determinate root growth program. This phenomenon takes place in the root tip and involves a reduction in cell elongation, a decrease in cell proliferation, and the induction of premature cell differentiation, resulting in meristem exhaustion. I will present the advances we have made in the past few years to understand how these changes in root system architecture are triggered and the signaling pathway involved in this process, from perception of the external concentration of phosphate to the activation of signaling peptides that activate the differentiation of cells in the primary root meristem of *Arabidopsis*.

