



ABSTRACT

“A ligand/receptor signaling pathway for cell-to-cell communication”

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All organisms, especially multicellular ones, require formative cell divisions – which are mainly asymmetric (stem) cell divisions – to produce tissues and organs. Therefore, a tight control of such divisions and preventing over-proliferation is crucial for the postembryonic growth and development of plants. To elucidate how these processes are controlled, plant research has mainly focused on the study of phytohormones and transcriptional networks. In animals, however, cell fate specification and differentiation is coordinated through well-investigated ligand-receptor systems that mediate cell-to-cell communication. Only lately, more attention has been given to this aspect of short distance signaling in plants, and increasingly more receptor-like kinases have been implicated in the perception of extra-cellular signals to control various processes in plant growth and development. Here, I will present how to further characterize the ACR4-dependent homeostatic ligand/receptor signaling mechanism that can integrate mobile signaling molecules to control formative cell divisions during organogenesis and, as such, provides an excellent tool to study short range, cell-to-cell communication during growth and development.