



ABSTRACT

“Cross-talk between ABP1 and TIR1/AFB auxin receptors”

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The phytohormone auxin is a major regulator of plant growth and development. Many aspects of these processes depend on the multiple controls exerted by auxin on cellular responses as cell expansion and cell division, and mediated at the molecular level by the regulation of auxin-responsive genes. Two classes of auxin receptors have been identified to date: first, the TIR1/AFB F-box proteins which are part of ubiquitin E3 ligase complexes and, according to the current auxin signalling model (reviewed by ¹), recruit the AUX/IAA transcriptional repressors in the presence of auxin to induce their ubiquitination and degradation by the 26S proteasome; second, the long-standing and unique auxin binding protein 1, ABP1, initially identified on its capacity to bind auxin and demonstrated to induce activation of ion fluxes at the plasma after auxin binding. Recently, the detailed characterization of conditional ABP1 knock-down plants ^{2,3} revealed that ABP1 is required for almost all auxin-mediated responses including modulation of gene expression. In consequence, TIR1/AFB and ABP1 appear to share the regulation of auxin responsive genes. We have investigated the relationship between the TIR1/AFBs- and ABP1-mediated pathways. We have further analyzed the requirement of ABP1 for auxin mediated gene expression in roots and developed biochemical and genetic approaches to analyze its functional interaction with the SCF^{TIR1/AFB} pathway. Original data leads to a novel model integrating ABP1 and SCF^{TIR1/AFBs} into a sophisticated multicomponent auxin signaling pathway, essential for regulation of auxin responses.

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