

Protein Phosphatase 2A as a post-translational regulator of salicylic acid dependent pathogenesis responses

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Plant immunity is governed by converging signaling pathways, which are largely regulated through reversible protein phosphorylation, light-dependent formation of reactive oxygen species (ROS), and associated hormonal signalling. We have addressed the role, regulation and interactions of protein phosphatase 2A (PP2A) in plant immunity. A combination of genetic, proteomic and metabolomic analysis revealed that PP2A regulatory subunit B'y (PP2A-B'y) is required to suppress salicylic acid mediated pathogenesis responses and metabolic signatures triggered by photorespiratory ROS signals in Arabidopsis. Mutant analysis, together with visualization of protein interactions revealed that PP2A-B'y mediates post-translational regulation of methionine metabolism and modulates the formation of methylated indole glucosinolates in Arabidopsis leaves. Moreover, PP2A-B'y physically interacts with and negatively regulates a CALCIUM-DEPENDENT PROTEIN KINASE (CPK), a key mediator of salicylic acid dependent immune responses. The multifaceted function of PP2A in signalling and responding to biotic stress agents in plants will be presented.