

INSIGHTS INTO THE ARABIDOPSIS NPK1-RELATED PROTEIN KINASES (ANPS) ROLE IN DANGER SIGNALING

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Plant diseases are globally causing substantial losses in staple crop production compromising food safety because of the presence of pesticides and/or toxins. Plant resistance to diseases greatly depends on the ability to sense potential hazards through the recognition of danger signals. Danger signal is transmitted inside the plant cells by activated key immune signaling modules and involves several subcellular organelles and interactions between them, coordinated by the exchange of metabolites and signaling molecules, including calcium and reactive oxygen species. ANPs are MAP3Ks shown to be key regulators of essential physiological processes, such as cytokinesis, resistance to pathogens and ROS homeostasis. Multiple *anp* double KO and silenced triple mutants display reduced growth, spontaneous cell death and constitutive resistance to *Botrytis* as well as higher susceptibility to *Pseudomonas*. *anp* mutants also display higher levels of jasmonate (JA), suggesting a possible role for ANPs as negative regulators of JA biosynthesis/accumulation. We found that, the lack of ANPs, interestingly, also prevents the expression of a subset of downstream JA target genes, hinting a role of these MAP3Ks in regulating the MYC2-dependent branch in response to JA. Moreover, a novel function of these kinases in the actin cytoskeleton organization and motility of Golgi bodies is shown.