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**YODA MAPK KINASE KINASE REGULATES A NOVEL IMMUNITY PATHWAY CONFERRING BROAD-SPECTRUM RESISTANCE TO PATHOGENS**

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Plant mitogen-activated protein kinase (MAPK) cascades transduce environmental molecular signals and developmental cues into cellular responses. Among these signals are the pathogen-associated molecular patterns (PAMPs) that upon recognition by plant pattern recognition receptors (PRR), including Receptor-Like Kinases (RLKs), activate MAPK cascades that regulate PAMP-triggered immunity responses (PTI). Here, we show that the YODA (YDA) MAPK kinase kinase (MAP3K), which controls stomatal patterning and other developmental processes, also regulates *Arabidopsis* PTI. We found a hypomorphic, non-embryo lethal mutant allele of *YDA* (*elk2* or *yda11*) that was highly susceptible to biotrophic and necrotrophic fungal pathogens. Remarkably, plants expressing a constitutive active form of YDA (CA-YDA) showed broad-spectrum resistance to different types of pathogens, including fungi, oomycetes and bacteria, indicating that YDA has a relevant function in plant PTI. This function is distinct from the immune responses regulated by CERK1 and FLS2 PRRs, which are required for *Arabidopsis* resistance to fungi and bacteria, respectively. YDA controls resistance to the fungus *Plectosphaerella cucumerina* and stomatal patterning by interacting genetically with ERECTA (ER) RLK, a PRR regulating these processes. YDA-mediated resistance is independent of defense pathways regulated by salicylic acid, jasmonic acid or ethylene, and of previously characterised PTI responses. Our data indicate that ER and YDA are components of a novel immune pathway that regulates cell wall integrity and defense responses, which confer broad-spectrum resistance to pathogens.