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Abs # 545: Lignin production and monolignol pathway gene expression is suppressed by abscisic acid during defence reactions of Arabidopsis.

Presenter: Cahill, David  cahill@deakin.edu.au

Authors: Cahill, David  Mohr, Peter G.

Affiliations: Deakin University

The phytohormone, abscisic acid (ABA) has been shown to influence the outcome of the interactions between various hosts with biotrophic and hemibiotrophic pathogens. Susceptibility to avirulent isolates can be induced by addition of low physiological concentrations of ABA to plants. In contrast, addition of ABA biosynthesis inhibitors induced resistance following challenge of plants by virulent isolates. ABA deficient mutants of Arabidopsis, such as aba1-1, were resistant to virulent isolates of *Peronospora parasitica*. In interactions of Arabidopsis with avirulent isolates of *Pseudomonas syringae* pv. *tomato*, susceptibility was induced following addition of ABA or imposition of drought stress. These results indicate a pivotal, albeit undefined, role for ABA in determining either susceptibility or resistance to pathogen attack. We have found that the production of the cell wall strengthening compound, lignin, is increased during resistant interactions of aba1-1 but suppressed in ABA induced susceptible interactions. Using RT-PCR and microarray analysis we have found down-regulation by ABA of key genes of the phenylpropanoid pathway especially of those genes involved directly in lignin biosynthesis. ABA also down-regulates a number of genes in other functional classes including those involved in defence and cell signalling.