

Pye, M.F.; Roubtsova, T.V.; DiLeo, M.V.; MacDonald, J.D.; and Bostock, R. M. 2010. Factors contributing to abscisic acid-mediated predisposition to disease caused by *Phytophthora capsici*. *Phytopathology* 100:S104.

Plants respond to changes in the environment with complex signaling networks controlled in part by phytohormones that display positive and negative downstream crosstalk. Disease response pathways are influenced by systemic increases in abscisic acid (ABA), such as occurs following brief dehydration stresses. Experiments with ABA-modified tomato plants indicate that ABA plays a critical, and perhaps dominant, role in predisposition to *Phytophthora capsici*. To further assess ABA's contribution relative to other factors in root stress-induced predisposition, this study examines how other phytohormones influence disease severity following an episode of salt stress, and if plants expressing anti-apoptotic genes are altered in their predisposition phenotype. Ethylene (ET), jasmonic acid (JA), and salicylic acid (SA) were studied using tomato perception and deficient mutants. Several anti-apoptotic transgenes with different modes of action were examined for their potential to affect predisposition. ET, which can exacerbate disease symptoms in plant-microbe interactions, did not contribute to predisposition in our assay. JA- and SA-deficient mutants displayed a more severe disease phenotype than their respective wildtype backgrounds in both control and salt stressed treatments. Increased levels of ABA following salt stress might perturb SA and JA signaling to enhance predisposition of mutants already compromised in these defense signaling networks.