

# Lack of Salicylic Acid in *Arabidopsis* Protects Plants against Moderate Salt Stress

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Previous studies showed that salicylic acid (SA)-deficient transgenic *Arabidopsis* expressing the salicylate hydroxylase gene *NahG* had a higher tolerance to moderate salt stress. SA may potentiate the stress response of germination and growth of *Arabidopsis* seedlings by inducing reactive oxygen species (ROS). However, the detailed mechanism for a better adaption of *NahG* plants to moderate salt stress is largely unknown. In the present study we found that a higher GSH/GSSG (glutathione/oxidized glutathione) ratio and ASA/DHA (ascorbic acid/dehydroascorbate) ratio in *NahG* plants during the stress may be the key reason for their stress-tolerance advantage. *NahG* plants actually could not produce more active antioxidant enzymes than the wild-type ones under natural conditions, but maintain higher activities of glutathione reductase (GR) and dehydroascorbate reductase (DHAR) during the stress. Hereby, the reduced glutathione and reduced ascorbic acid contents are higher in *NahG* plants under salt stress. However, *NahG* plants do not adapt better under severe salt stress. All antioxidant enzyme activities, GSH/GSSG ratio and ASA/DHA ratio declined substantively at 400 mM NaCl stress in both *NahG* and wild-type seedlings.

**Key words:** Ascorbic Acid, Glutathione, Salicylic Acid, Oxidative Damage