Supplemental Table 1. Details of mutant lines used in this study. The principal characteristics of the lines are given, as well as the reference(s) in which the mutant and/or mutation was first reported or characterized.

---

cat2 T-DNA knockout for CATALASE2.
Conditional photorespiratory oxidative stress mutant (Queval et al. 2007). Constitutive activation of salicylic acid pathway under oxidative stress conditions (Chaouch et al. 2010). Wild-type phenotype when grown under high CO_2.

gr1 T-DNA knockout for GLUTATHIONE REDUCTASE1.
Wild-type phenotype in optimal conditions due to back-up NADPH-thioredoxin system for GSSG reduction (Marty et al. 2009), but *gr1* shows altered responses to oxidative stress (Mhamdi et al. 2010a).

cad2 Deletion mutation in *GSH1* gene leading to loss of two amino acids in γ-GLUTAMYLCYSTEINE SYNTHETASE. Identified in a screen for enhanced cadmium sensitivity, *cad2* has about 30% wild-type leaf glutathione contents (Howden et al. 1995; Cobbett et al. 1998). Wild-type phenotype in optimal growth conditions.

rax1 Point mutation in *GSH1* gene leading to an amino acid substitution in γ-GLUTAMYLCYSTEINE SYNTHETASE. Identified in a screen for altered high light responses, *rax1* has about 30-40% wild-type leaf glutathione contents (Ball et al. 2004). Wild-type phenotype in optimal growth conditions.

pad2 Point mutation in *GSH1* gene leading to an amino acid substitution in γ-GLUTAMYLCYSTEINE SYNTHETASE. Identified in a screen for decreased phytoalexin (camalexin) contents, *pad2* has about 20-25% wild-type leaf glutathione contents (Parisy et al. 2007). Wild-type phenotype in optimal growth conditions.

sid2 Point mutation in ISOCHORISMATE SYNTHASE 1.
Identified in a screen for decreased induction of salicylic acid (Nawrath and Métraux 1999). Allowed ICS1 to be identified as major source of pathogen-induced salicylic acid production in Arabidopsis (Wildermuth et al. 2001). In response to bacterial challenge, salicylic acid stays close to basal uninduced Col-0 levels or below. Wild-type phenotype in optimal growth conditions.

npr1 Point mutation in NONEXPRESSOR OF PATHOGENESIS RELATED GENES 1.
Identified in a screen for mutants that fail to induce pathogenesis-related genes (Cao et al. 1994). The NPR1 protein was subsequently shown to be thiol-regulated, with reduction allowing the protein to move into the nucleus from the

cytosol to induce *PR* genes (Mou et al. 2003). Wild-type phenotype in optimal growth conditions.

References to table

Ball L, Accotto G, Bechtold U, Creissen G, Funck D, Jimenez A, Kular B, Leyland N, Mejia-Carranza J, Reynolds H, Karpinski S. and Mullineaux PM. Evidence for a direct link between glutathione biosynthesis and stress defense gene expression in Arabidopsis. *Plant Cell* 16: 2448–2462, 2004.

Cao H, Bowling SA, Gordon AS, and Dong X. Characterization of an Arabidopsis Mutant That Is Nonresponsive to Inducers of Systemic Acquired Resistance. *Plant Cell* 6: 1583–1592, 1994.

Chaouch S, Queval G, Vanderauwera S, Mhamdi A, Vandorpe M, Langlois-Meurinne M, Van Breusegem F, Saindrenan P, and Noctor G. Peroxisomal hydrogen peroxide is coupled to biotic defense responses by ISOCHORISMATE SYNTHASE 1 in a daylength-related manner. *Plant Physiol* 153: 1692–1705, 2010.

Cobbett CS, May MJ, Howden R, and Rolls B. The glutathione-deficient, cadmium-sensitive mutant, *cad2-1*, of *Arabidopsis thaliana* is deficient in γ–glutamylcysteine synthetase. *Plant J* 16: 73–78, 1998.

Howden R, Anderson CR, Goldsbrough PB, and Cobbett CS. A cadmium-sensitive, glutathione-deficient mutant of *Arabidopsis thaliana*. *Plant Physiol* **107:** 1067-1073, 1995.

Marty L, Siala W, Schwarzländer M, Fricker MD, Wirtz M, Sweetlove LJ, Meyer Y, Reichheld JP, and Hell R. The NADPH-dependent thioredoxin system constitutes a functional backup for cytosolic glutathione reductase in *Arabidopsis*. *Proc Natl Acad Sci USA* 106: 9109–9114, 2009.

Mhamdi A, Hager J, Chaouch S, Queval G, Han Y, Taconnat L, Saindrenan P, Gouia H, Issakidis-Bourguet E, Renou JP, and Noctor G. *Arabidopsis* GLUTATHIONE REDUCTASE 1 plays a crucial role in leaf responses to intracellular H_2O_2 and in ensuring appropriate gene expression through both salicylic acid and jasmonic acid signaling pathways. *Plant Physiol* 153: 1144–1160, 2010.

Mou Z, Fan W, and Dong X. Inducers of plant systemic acquired resistance regulate NPR1 function through redox changes. *Cell* 113: 935–944, 2003.

Nawrath C, and Métraux J-P. Salicylic acid induction-deficient mutants of Arabidopsis express PR-2 and PR-5 and accumulate high levels of camalexin after pathogen inoculation. *Plant Cell* 11: 1393-1404, 1999.

Parisy V, Poinssot B, Owsianowski L, Buchala A, Glazebrook J. and Mauch F. Identification of PAD2 as a γ-glutamylcysteine synthetase highlights the importance of glutathione in disease resistance in Arabidopsis. *Plant J* 49: 159–172, 2007.

Queval G, Issakidis-Bourguet E, Hoeberichts FA, Vandorpe M, Gakière B, Vanacker H, Miginiac-Maslow M, Van Breusegem F, and Noctor G. Conditional oxidative stress responses in the *Arabidopsis* photorespiratory mutant *cat2* demonstrate that redox state is a key modulator of daylength-dependent gene expression and define photoperiod as a crucial factor in the regulation of H_2O_2-induced cell death. *Plant J* 52: 640–657, 2007.

Wildermuth MC, Dewdney J, Wu G, and Ausubel FM. Isochorismate synthase is required to synthesize salicylic acid for plant defence. *Nature* 414: 562–565, 2001.