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Atmospheric CO₂ Alters Resistance of Arabidopsis to *Pseudomonas syringae* by Affecting Abscisic Acid Accumulation and Stomatal Responsiveness to Coronatine

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Supplemental Information

Article title: Atmospheric CO₂ alters resistance of *Arabidopsis* to *Pseudomonas syringae* by affecting abscisic acid accumulation and stomatal responsiveness to coronatine

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Fig. S1: Effect of ABA signaling on stomatal aperture in response to *Pst* and *Pst cor* under three CO₂ conditions.

Fig. S2: Effect of ABA signaling on atmospheric CO₂-altered resistance to *Pst*.

Fig. S3: Effect of atmospheric CO₂ on ABA-induced stomatal closure.

Fig. S4: The role of ABA signaling in *Arabidopsis* resistance to *Pst*.

Fig. S1: Effect of ABA signaling on stomatal aperture in response to *Pst* and *Pst cor* under three different CO₂ conditions. Arabidopsis leaves of wild-type Ler-0 and ABA insensitive mutant *abi1-1*, cultivated under ambient (S1a), high (S1b), and low CO₂ (S1c) conditions, were dip-inoculated with a mock solution, *Pst* or *Pst cor* (5×10^7 cfu/ml). Stomatal aperture was measured at 1 h and 4 h after dip inoculation. Depicted are the averages of stomatal aperture (\pm SD) of six leaves. Different letters indicate statistically significant differences between the treatments of one plant genotype at the indicated time point (two-way ANOVA, Fisher's LSD test, $P < 0.05$; ns, not significant). Indications above the brackets specify the interaction (bacterium genotype \times time) between the two *Pst* genotype treatments (wild-type and mutant) and the time (1 hpi and 4 hpi) within the same Arabidopsis genotype (ns, not significant). Fig. S1a is representative of two independent experiments; the experiments depicted in Fig. S1b and S1c have not been repeated.

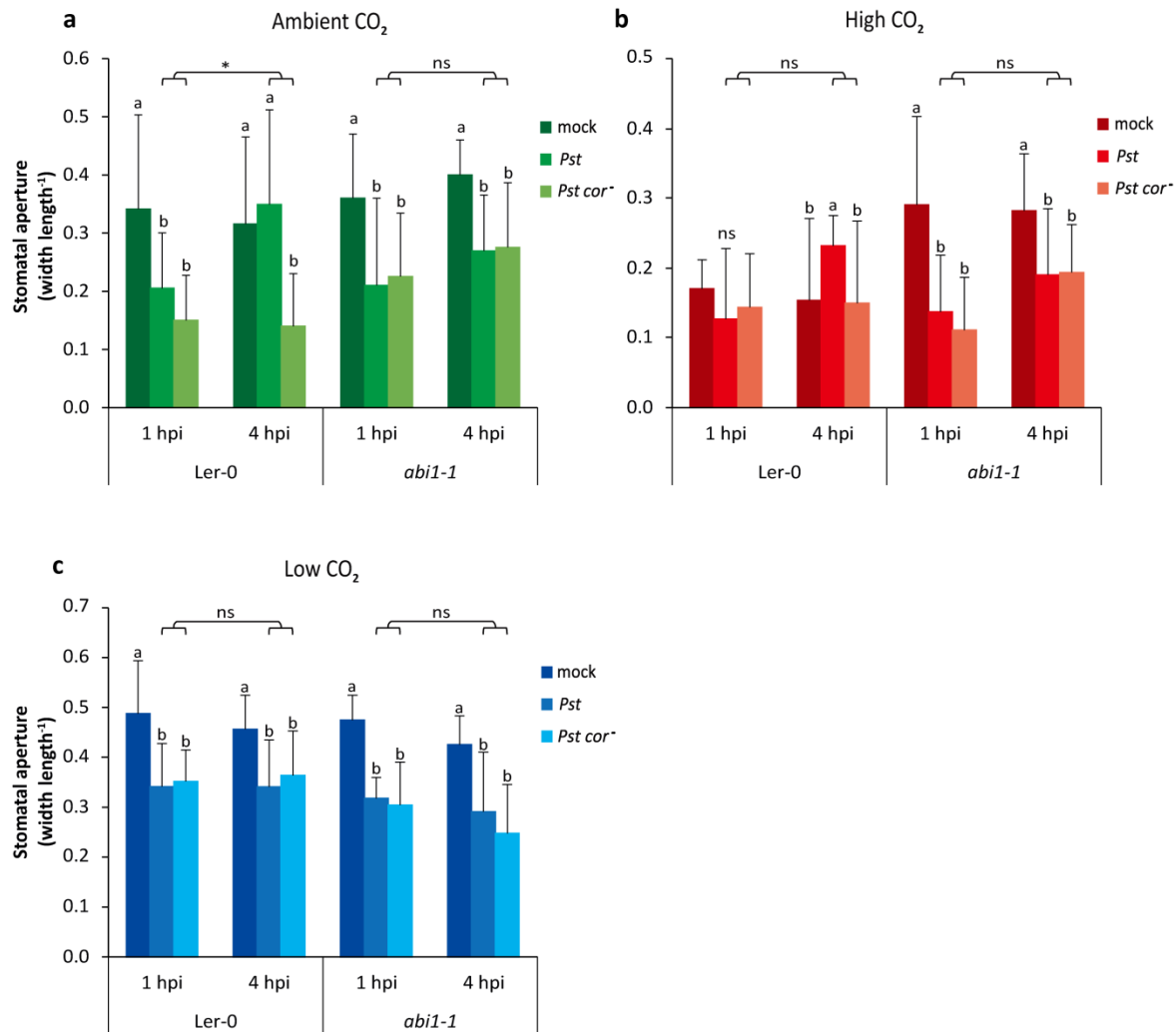


Fig. S2: Effect of ABA signaling on atmospheric CO₂-altered resistance to *Pst*. Growth of *Pst* in wild-type Ler-0 and the mutant *abi1-1* measured at 2 days and 4 days after dip inoculation. Indicated are the averages of the log₁₀-transformed bacterial titer (\pm SD; per leaf area) from eight biological replicates. Different letters indicate statistically significant differences between the CO₂ treatments within one line at the indicated time point (two-way ANOVA, Fisher's LSD test, $P < 0.05$; ns, not significant). Indications above the brackets specify the interaction (CO₂ condition \times Arabidopsis genotype) between the three CO₂ conditions and the two Arabidopsis genotype (wild-type Ler-0 and the mutant *abi1-1*) at the same time point (**, $P < 0.01$; ***, $P < 0.001$). The figure is representative of two independent experiments.

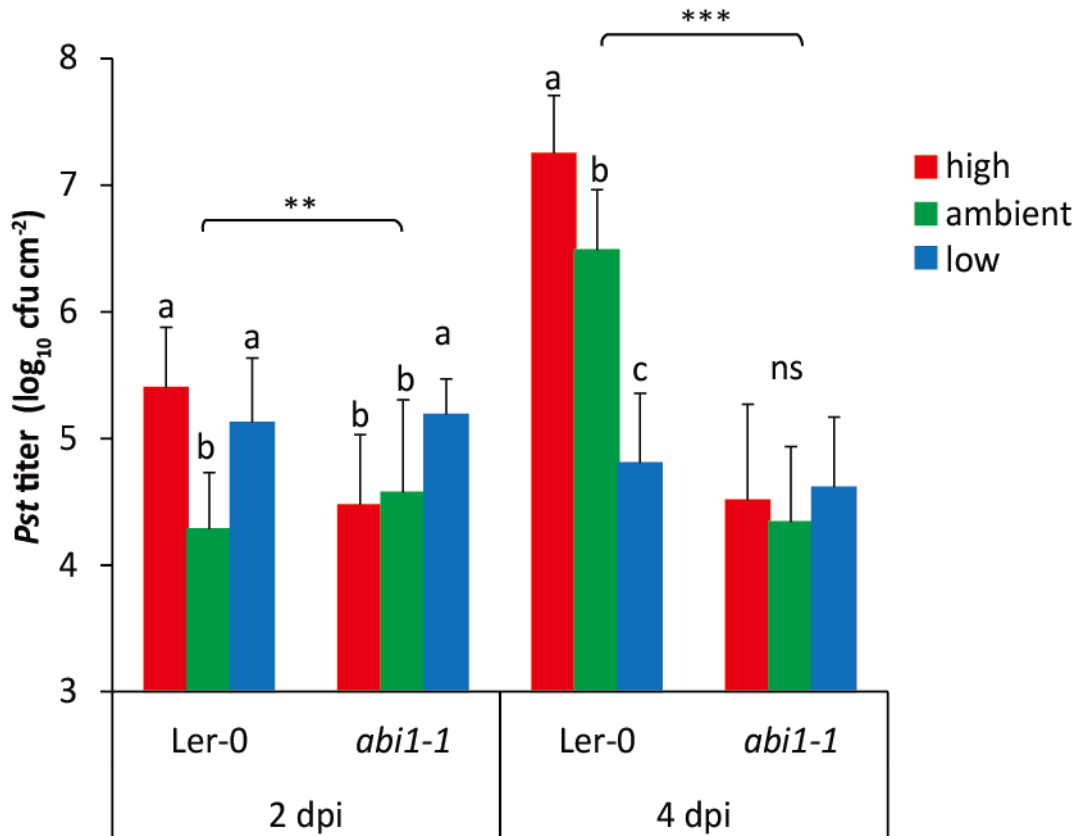


Fig. S3: Effect of atmospheric CO₂ on ABA-induced stomatal closure. Leaves of 4-week-old Arabidopsis Col-0 plants, cultivated until treatment under the ambient CO₂ condition, were exogenously supplied with a mock solution or ABA (15 μM), after which the plants were transferred to either high, ambient or low CO₂ conditions. Stomatal aperture was determined 4 h after treatment. Depicted are the averages of stomatal aperture (±SD) of six leaves. Asterisks indicate statistically significant differences between the treatments within the same atmospheric CO₂ level (Student's *t*-test, ***, *P*<0.0001, **, *P*<0.001). The asterisk above the bracket indicates there is a statistically significant interaction between the three CO₂ conditions and the treatment (two-way ANOVA, Fisher's LSD test, *P*<0.05). The figure is representative of two independent experiments.

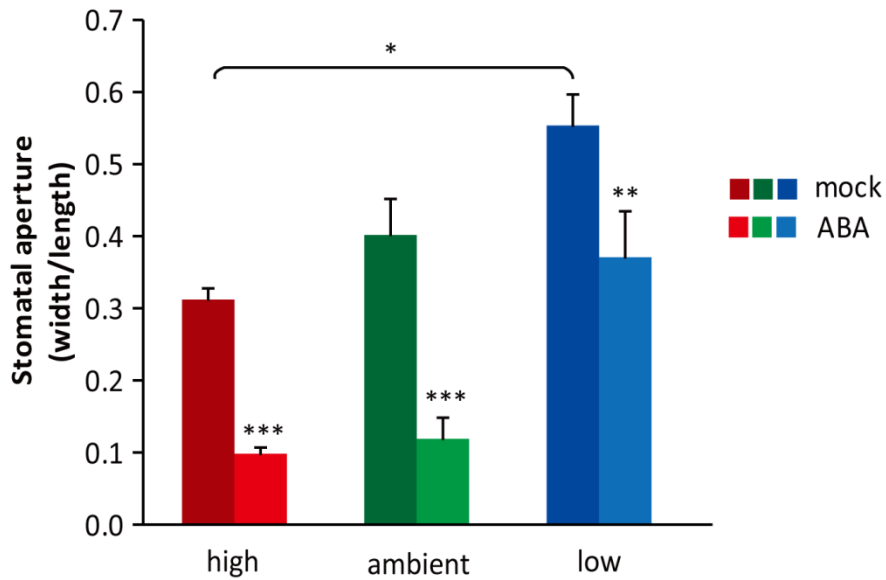


Fig. S4: The role of ABA signaling in Arabidopsis resistance to *Pst*. Growth of *Pst* in the ABA hypersensitive mutant *abi1-2*, wild-type Col-0 and the ABA deficient mutant *aba2-1* measured at 3 h, 2 days and 4 days after dip inoculation under the ambient CO₂ condition. Indicated are the averages of the log₁₀-transformed bacterial titer (\pm SD; per g of leaves) from eight biological replicates. Different letters indicate statistically significant differences between the genotypes at the specific time point (two-way ANOVA, Fisher's LSD test, $P < 0.05$; ns, not significant). Indications above the brackets specify the interaction (Arabidopsis genotype \times time) between the three Arabidopsis genotype (wild-type Col-0 and the mutants *abi1-2*, *aba2-1*) and time (3 hpi and 4 dpi) (***, $P < 0.001$). The figure is representative of two independent experiments.

