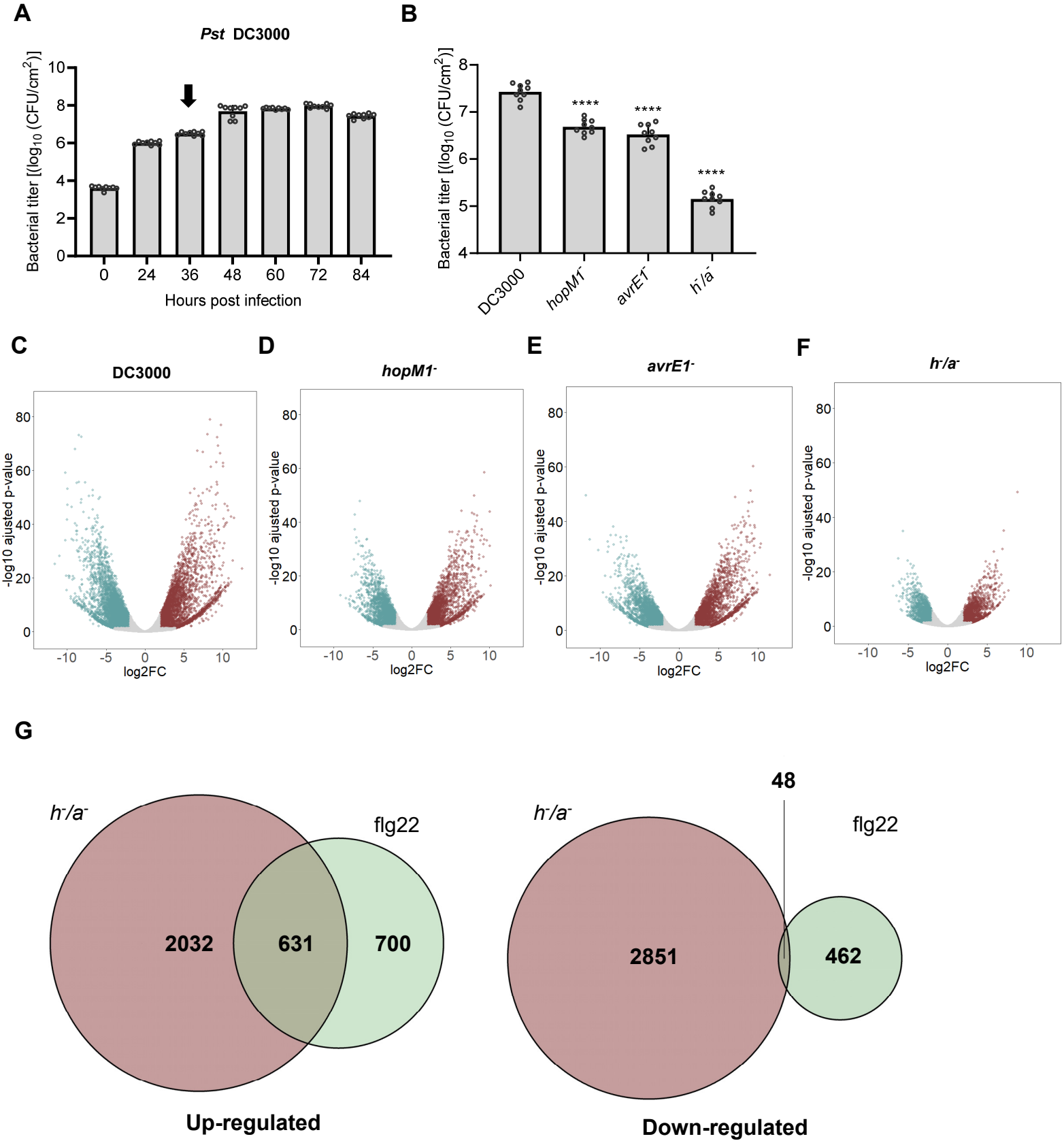
A
Pst DC3000
Bacterial titer [(log10 (CFU/cm2)]
Hours post infection
B
Bacterial titer [(log10 (CFU/cm2)]
****
DC3000
hopM1-
avrE1-
h-/a-
C
DC3000
D
hopM1-
E
avrE1-
F
h-/a-
-log10 ajusted p-value
log2FC
G
h-/a-
flg22
2032
631
700
Up-regulated
48
2851
462
Down-regulated

**Figure S1. Evaluation of bacterial proliferation and transcriptional responses of *Arabidopsis thaliana* infected with water-soaking effector mutants of *Pst* DC3000 – Related to Figure 1.** (A) Bacterial growth dynamics in *Arabidopsis* Col-0 plants syringe-infiltrated with *Pst* DC3000 (1 x $10^6$ CFU/ml) under 95% relative humidity levels over time. A black arrow indicates the timepoint used for transcriptome analysis (B) Bacterial titers of *Pst* DC3000 mutants 36 hpi in *Arabidopsis* Col-0 syringe-infiltrated with 1 x $10^6$ CFU/ml. Data are represented as mean ± SEM. ****P < 0.00005, one-way ANOVA. (C-F) Volcano plot representing differentially expressed genes (DEGs) at 36 hpi in *Arabidopsis* plants infected with 1 x $10^6$ CFU/ml *Pst* DC3000 (C), *hopM1*$^-$ (D), *avrE1*$^-$ (E), *h*$^-$/*a*$^-$ (F). Blue, red and gray dots represent significantly down-regulated, up-regulated and not significantly altered DEGs, respectively. (G) Venn diagrams displaying specific and shared differentially expressed genes (DEGs) in *Arabidopsis thaliana* Col-0 challenged with *Pst h*$^-$/*a*$^-$ (1 x $10^6$ CFU/ml at 36 hpi) or flg22 (1 µM at 24 hours post treatment; (Winkelmüller et al., 2021)).

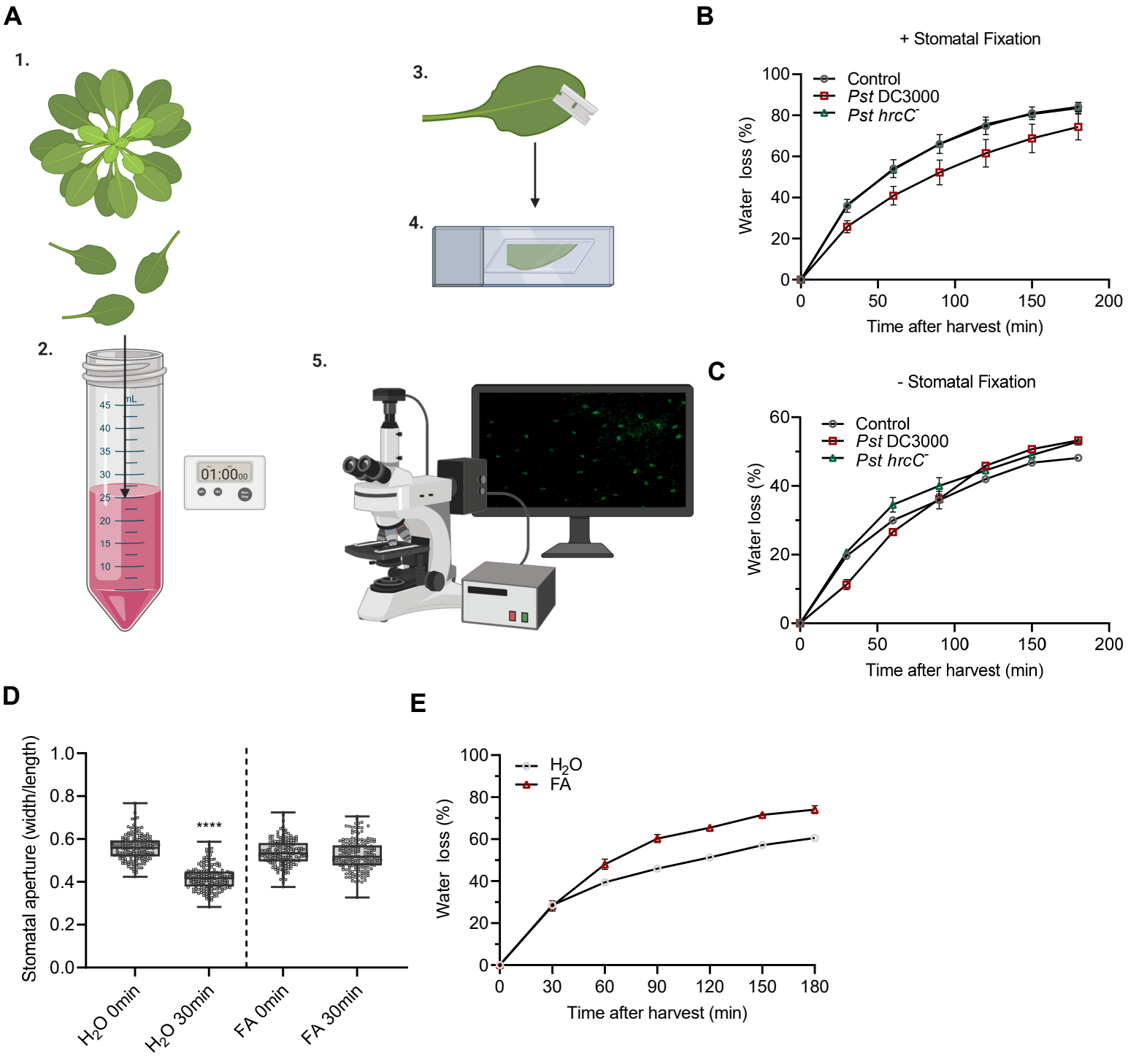


**Figure S2. Evaluation of the stomatal fixation method – Related to Figure 2.** (A) Schematic representation of the stomatal fixation method. Briefly, four-week-old leaves were harvested (1) and submerged in a formaldehyde solution (4% v/v) containing rhodamine 6G (0.1 µM) (2) before a section was cut (3) and mounted on a microscopy slide (4). Stomata were visualized with a GFP channel using an epifluorescence microscope (5). (B-C) *Arabidopsis* leaves were infiltrated with *Pst* DC3000, *Pst hrcC*$^{-}$ (1 x $10^8$ CFU/ml) or $MgCl_2$ 10 mM (control). Leaves were harvested at 24 hpi and water loss measured by calculating leaf weight from leaves in which stomata were either unfixed (B) or fixed (C) with FA. (D) Stomatal aperture measurements of *Arabidopsis* Col-0 plants that were either fixed or not with a 4% formaldehyde (FA) solution and left at 20% RH for 30 minutes. Plants were kept at >95% RH prior to stomatal aperture measurements. (E) Water loss from detached leaves that were either fixed or not with FA. Data are represented as mean ± SEM. ****P < 0.00005, two-tailed Student's t-test.

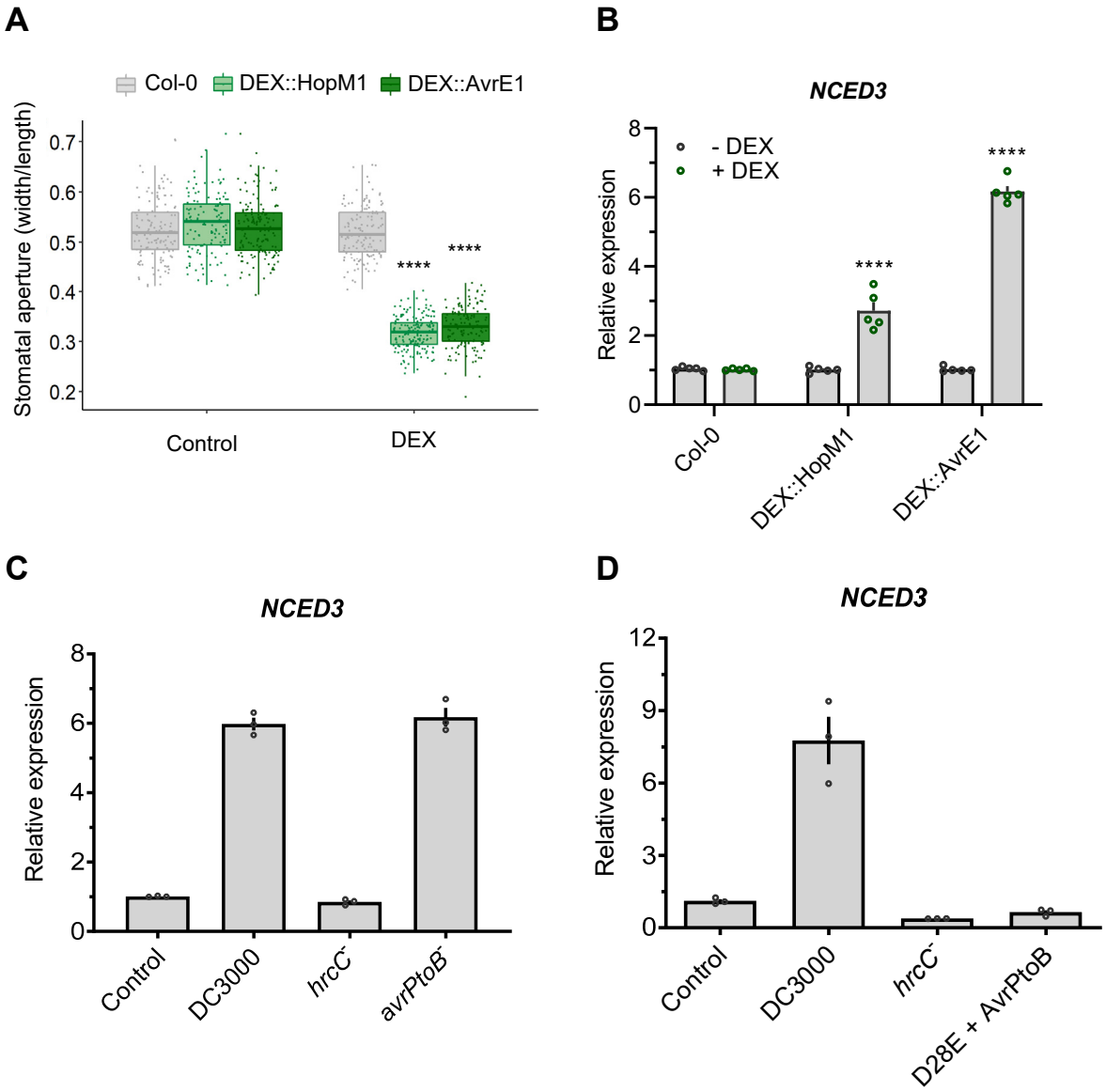


**Figure S3. HopM1 and AvrE1, but not AvrPtoB, induces *NCED3* expression leading to stomatal closure in *Arabidopsis* – Related to Figure 3.** (A) Stomatal aperture measurements in leaves of *Arabidopsis* transgenic lines carrying DEX-inducible expression cassettes driving the HopM1 and AvrE1 following a mock (control) or DEX (10 μM) treatment. Stomatal apertures were measured 6 hours post treatment. (B) Relative expression level of *NCED3* in the lines described in (A) following a mock (- DEX) or + DEX (10 μM) treatment. Leaves were harvested 6 hours post treatment. (C) Relative expression of *NCED3* in *Arabidopsis* Col-0 plants infiltrated with *Pst* DC3000, *hrcC*$^{-}$, *avrPtoB*$^{-}$ (1 × $10^8$ CFU/ml) at 24 hpi measured by RT-qPCR. (D) Relative expression of *NCED3* in *Arabidopsis* Col-0 plants infiltrated with *Pst* DC3000, *hrcC*$^{-}$, D28E + AvrPtoB (1 × $10^8$ CFU/ml) at 24 hpi measured by RT-qPCR. *NCED3* expression levels were normalized to *ACT2* expression levels. Data are represented as mean ± SEM. ****P < 0.00005, one-way ANOVA (A) or two-tailed Student's t-test (b).

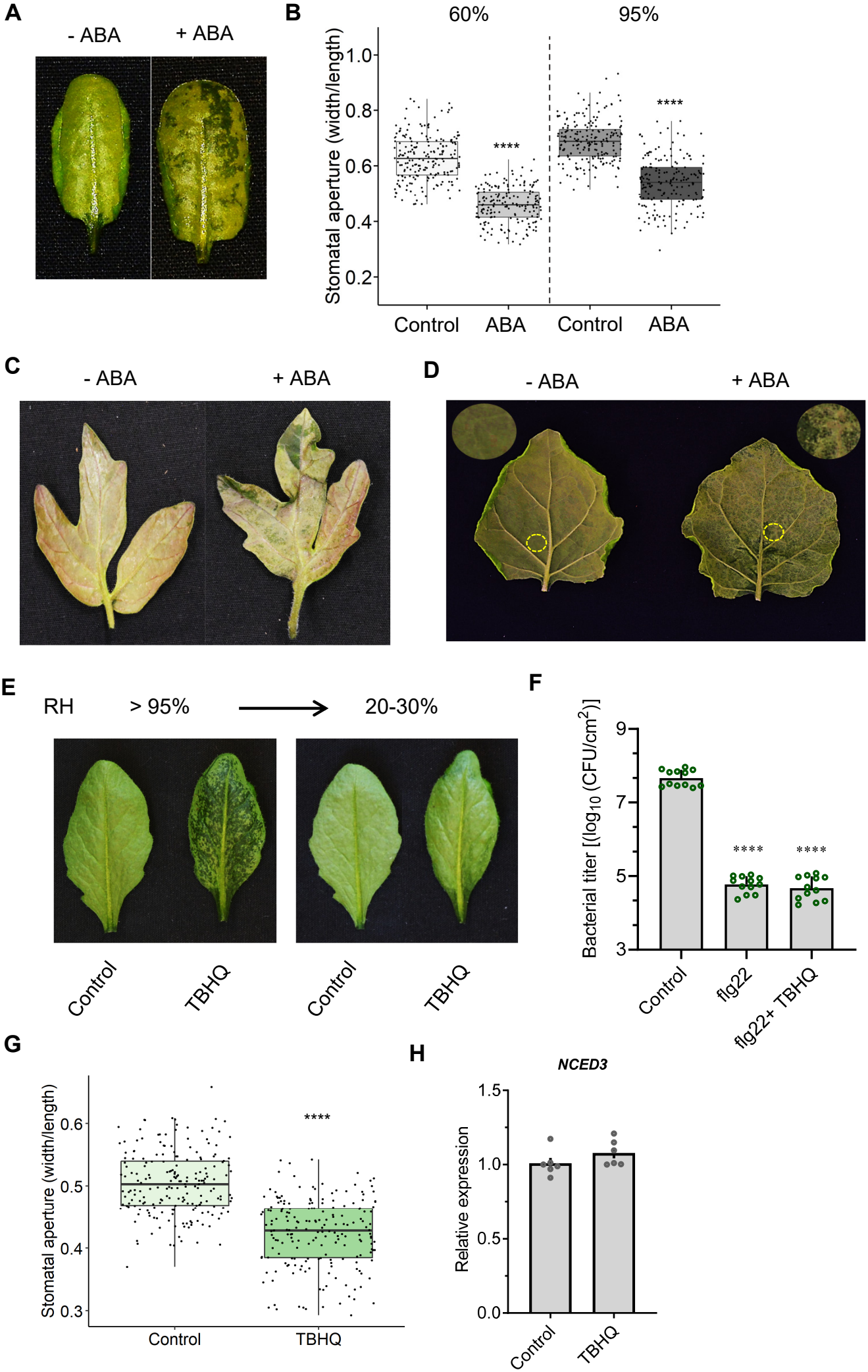
A
- ABA
+ ABA
B
60%
95%
Stomatal aperture (width/length)
1.0
0.8
0.6
0.4
0.2
****
****
Control
ABA
Control
ABA
C
- ABA
+ ABA
D
- ABA
+ ABA
E
RH
> 95%
20-30%
Control
TBHQ
Control
TBHQ
F
Bacterial titer [(log10 (CFU/cm2)]
9
7
5
3
****
****
Control
flg22
flg22+ TBHQ
G
Stomatal aperture (width/length)
0.6
0.5
0.4
0.3
****
Control
TBHQ
H
NCED3
Relative expression
1.5
1.0
0.5
0.0
Control
TBHQ

**Figure S4. Ectopic ABA or TBHQ application induces stomatal closure and water-soaking lesions under elevated relative humidity levels – Related to Figure 3.** (A) Appearance of water-soaking lesions upon spray application of water (-ABA) or 30 µM ABA (+ABA) in *Arabidopsis* Col-0. (B) Stomatal aperture measurements of *Arabidopsis* Col-0 plants sprayed with control solution or ABA (30 µM) under 60% or 95% humidity, as indicated. (C-D) Appearance of water-soaking lesions upon spray application of water (-ABA) or 30 µM ABA (+ABA) in tomato (C) and *Nicotiana benthamiana* (D) plants. Plants were domed and kept under high relative humidity (>95%) for 6 to 8 hours to allow water-soaking lesions to develop. (E) Appearance of water-soaking lesions in *Arabidopsis* Col-0 leaves treated with a solution containing 0.025% Silwet L-77 and either TBHQ (100 µM) or not (control). Plants were kept under > 95% RH for 8 hours to allow water-soaking lesions to develop. Photos were taken immediately after from the > 95% RH environment and after 1 hour after leaving them at ~20-30% RH to confirm the nature of the water-soaking lesions. (F) *Arabidopsis* Col-0 basal leaves were infiltrated with a control solution, flg22 (1 µM) or flg22 + TBHQ (100 µM) two days prior to syringe infiltration with *Pst* DC3000 (1 x $10^5$ CFU/ml). Bacterial titers of *Pst* DC3000 were analysed at 3 dpi. (G) Stomatal aperture measurements from leaves mentioned in (E). (H) Relative expression levels of *NCED3* in *Arabidopsis* plants mentioned in **a**, as measured by RT-qPCR. Samples were harvested 8 hours post treatment immediately after removal from the > 95% RH environment. Data are represented as mean ± SEM. ****$P < 0.00005$, two-tailed Student's t-test.

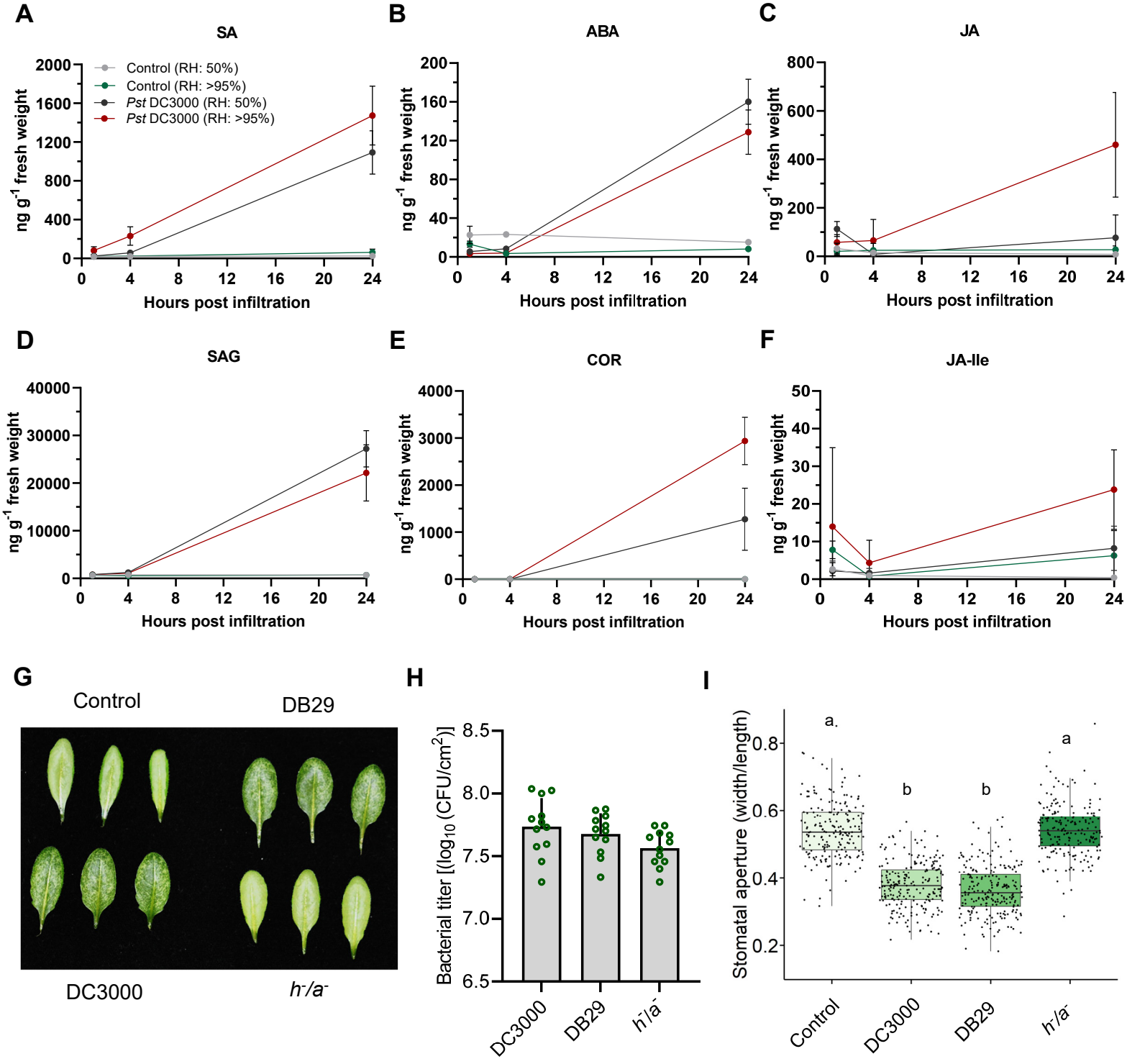


**Figure S5. Pathogen-induced phytohormone profiles under different humidity settings and subsequent effects of COR biosynthesis on water-soaking lesion symptoms – Related to Figure 4.** (A-F) Quantification of SA (A), ABA (B), JA (C), SAG (D) COR (E) and JA-Ile (F) in *Arabidopsis* Col-0 leaves mock inoculated (control) or inoculated with *Pst* DC3000 (0.5 x $10^8$ CFU/ml), as measured by UPLC-MS at 24 hpi, as indicated. Plants were grown at 50% and >95% RH after inoculation, as indicated. (G) Water-soaking phenotypes in leaves of *Arabidopsis* Col-0 plants mock inoculated (control), inoculated with DC3000, DB29 (coronatine mutant) and *h*$^-$/*a*$^-$ mutants (inoculation: 1x$10^8$ CFU/ml) at 24 hpi. (H) Bacterial titers in leaves presented in (G). (I) Stomatal aperture measurements of *Arabidopsis* Col-0 plants inoculated as in (A) at 24 hpi (n > 150 stomata). Data are represented as mean ± SEM. Different letters indicate statistically significant differences (adjusted P < 0.05, one-way ANOVA).

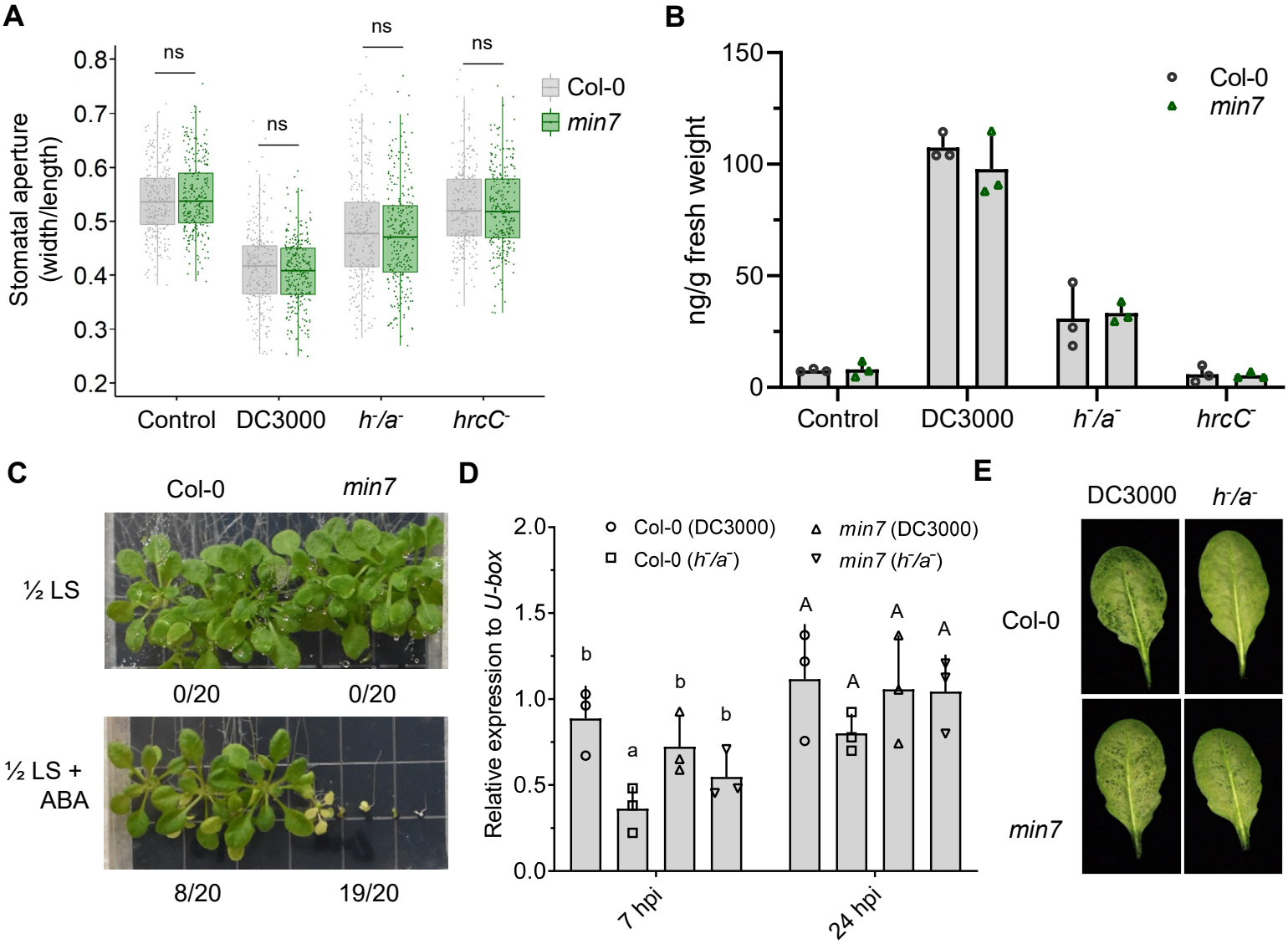


**Figure S6. Arabidopsis *min7* mutants are more sensitive to ABA and MIN7 partially contributes to HopM1-mediated induction of water-soaking lesions – Related to Figure 6.** (A) Stomatal aperture measurements of *Arabidopsis* Col-0 and *min7* mutant plants syringe-infiltrated with *Pst* strains (1 × $10^8$ CFU/ml) measured at 24 hpi (n > 150 stomata). (B) ABA quantification in *Arabidopsis* Col-0 and *min7* mutant leaves infected with 1 x $10^8$ CFU/ml of the indicated *Pst* strains by UPLC-MS at 24 hpi. (C) Col-0 and *min7* seeds were sown on ½ LS agar plates lacking or containing 1 µM ABA and kept for three days in the dark at 4 ℃. Plates were placed vertically in a growth chamber set at 21 ℃, 12:12 h light:dark photoperiod at a light intensity of 100 µE $m^{-2}$ $s^{-1}$. Plant images were taken after 4 weeks. Numbers below plant images indicate numbers of chlorotic and/or small plants, indicating the degree of ABA sensitivity for Col-0 and *min7* plants (n=20 plants), as indicated. (D) Four-week-old Col-0 and *min7 Arabidopsis* plants were infiltrated with 1 × $10^7$ CFU/ml *Pst* DC3000 or *h-/a-*, as indicated. After recovery from infiltration, plants were grown at ~95% relative humidity until leaf sampling for total RNA extraction. Relative expression of *NCED3* was assessed by qRT-PCR. Data are represented as mean ± SEM (n=3 biological replicates with each dot indicating a biological replicate) from one representative experiment analyzed with two-way ANOVA with Tukey's honest significant difference (HSD) for significance ($p < 0.05$). Samples sharing the same letters are not significantly different. (E) Water-soaking phenotype in *Arabidopsis* Col-0 and *min7* mutant plants 24 hours after infiltration as described in D. Experiments in (A-B) were performed at the Université de Sherbrooke, where no water-soaking lesions occurred in *min7* mutant plants upon infection with *Pst h-/a-* and experiments described in (C-E) were performed at Duke University. Experiments were repeated three times with similar results.