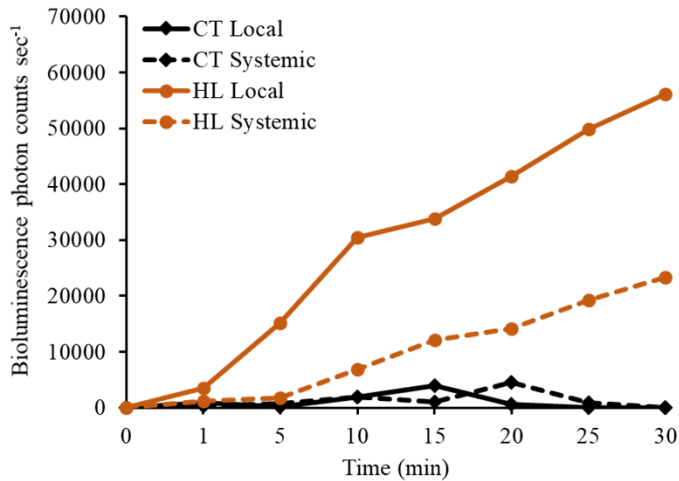
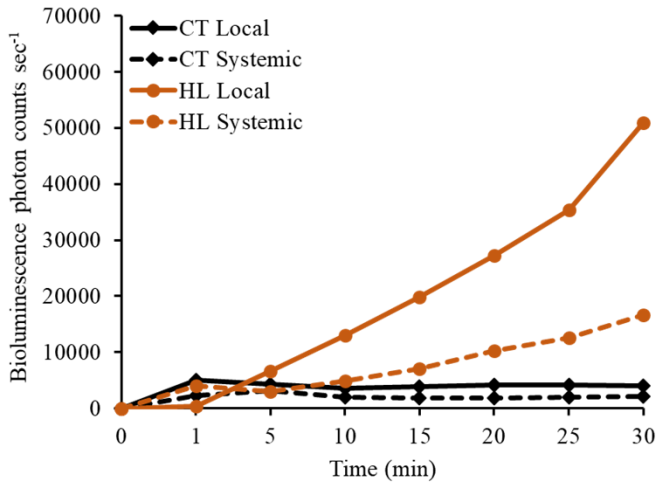
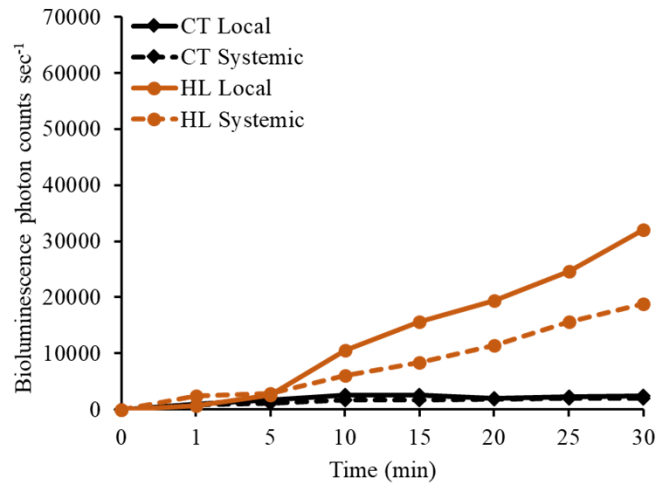
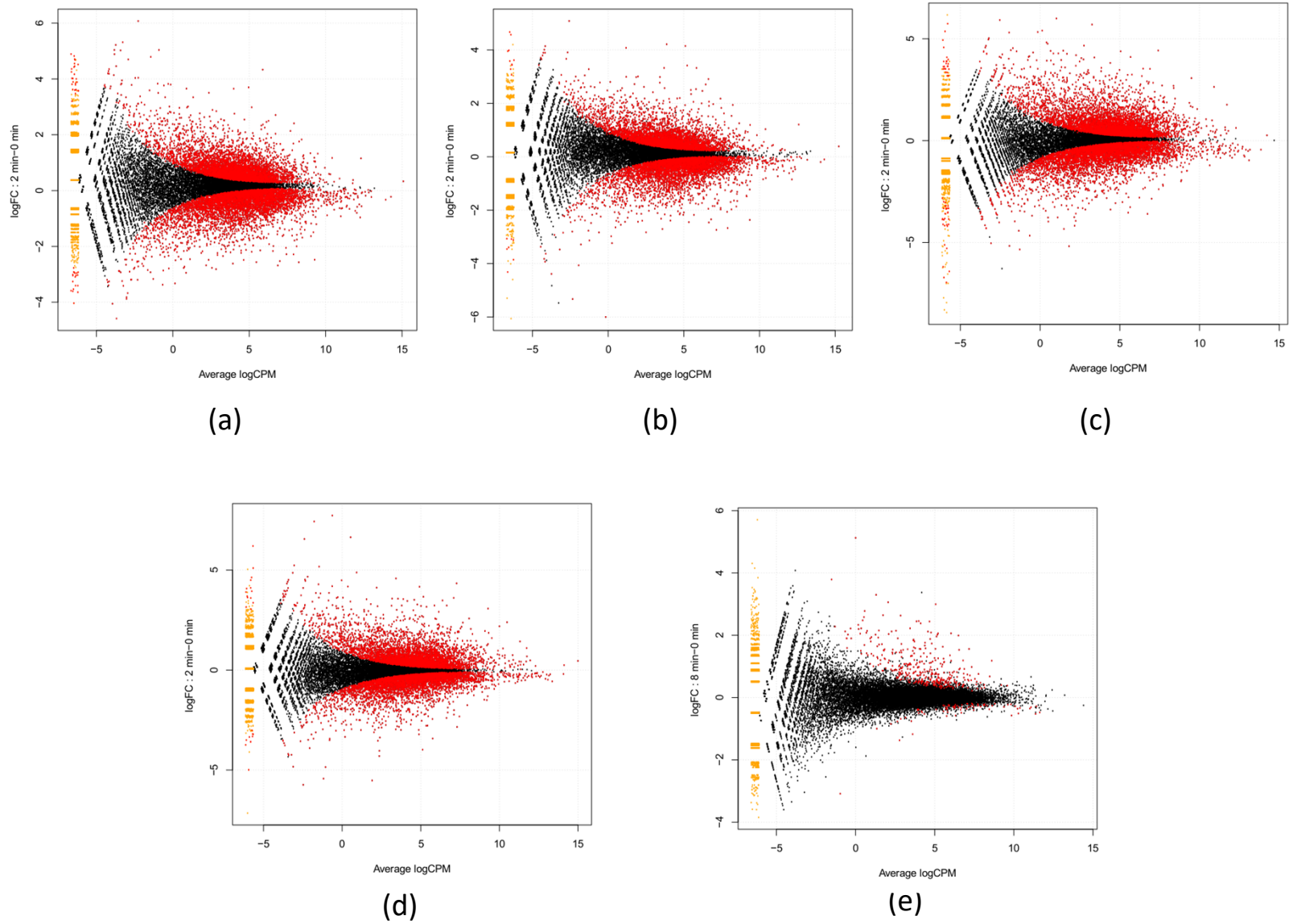


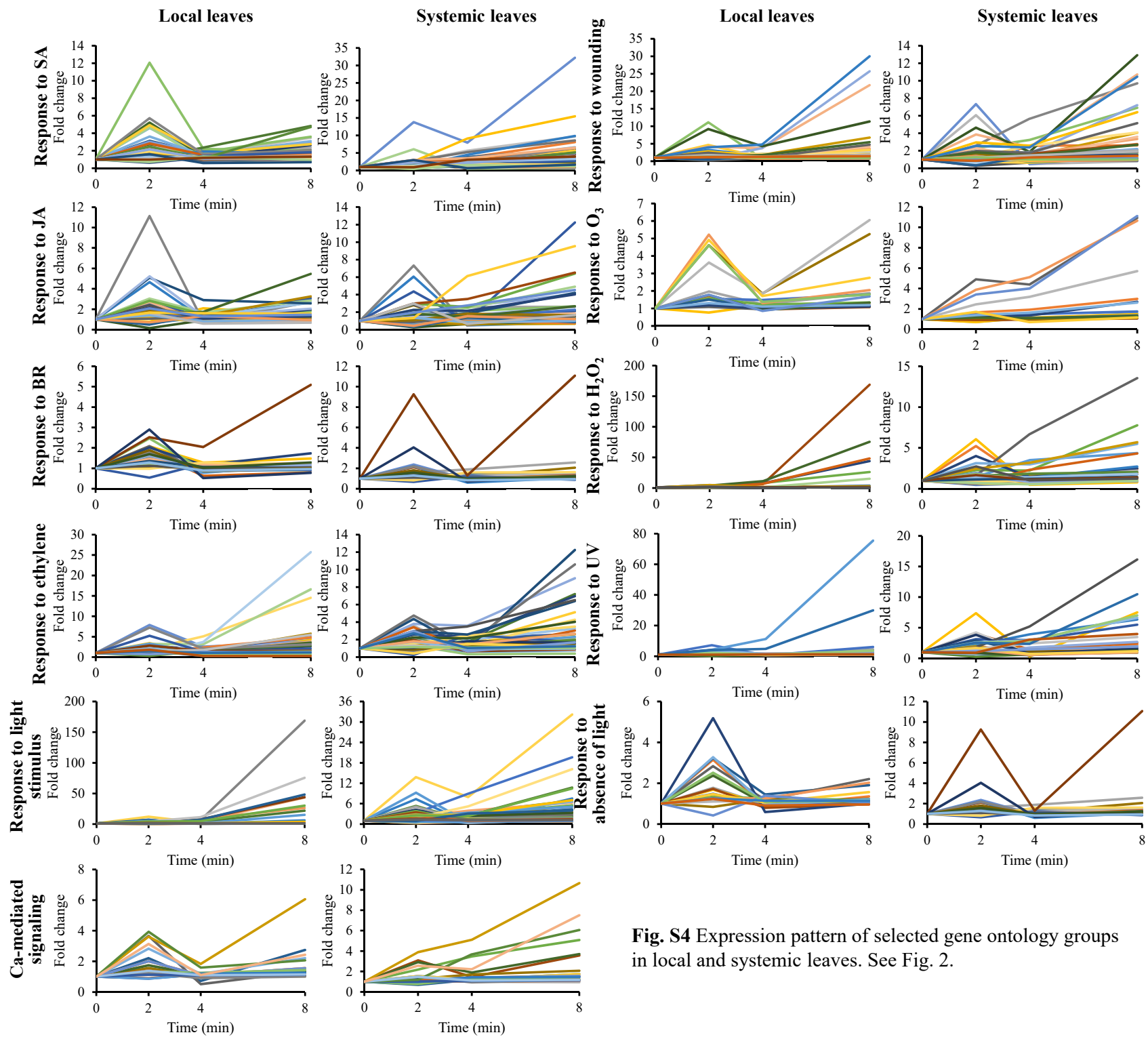
**Fig. S1** Definition of local and systemic leaves used for this study.



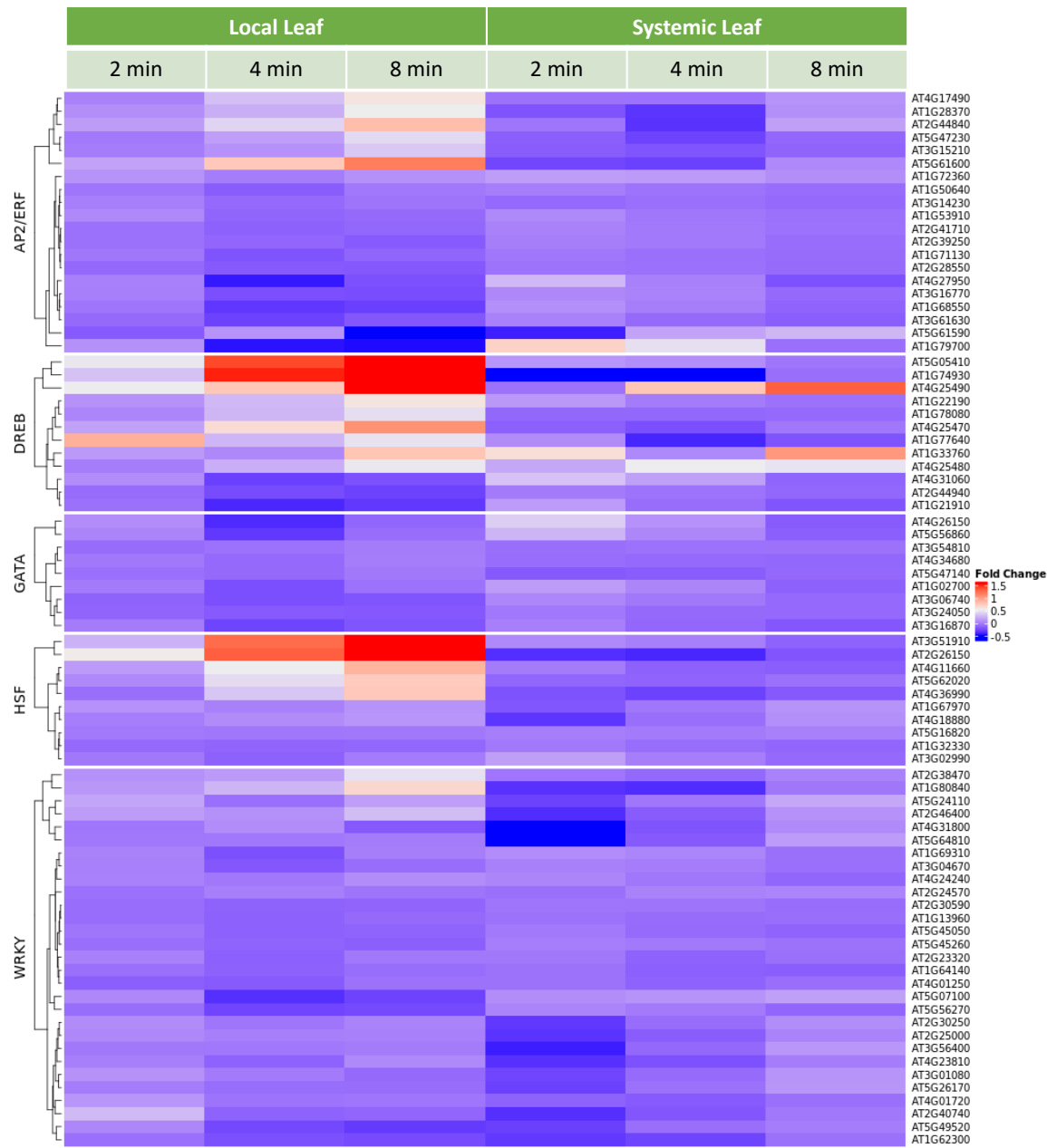
**Fig. S2** Response of *Zat12::Luciferase* reporter plants to local application of light stress. Results are presented for 3 individual plants. *Col* plants expressing the *Zat12::Luciferase* reporter construct were grown and imaged with a NightOWL LB983 NC100 (Berthold, <https://www.berthold.com/>) imager as described in Devireddy et al., 2018.



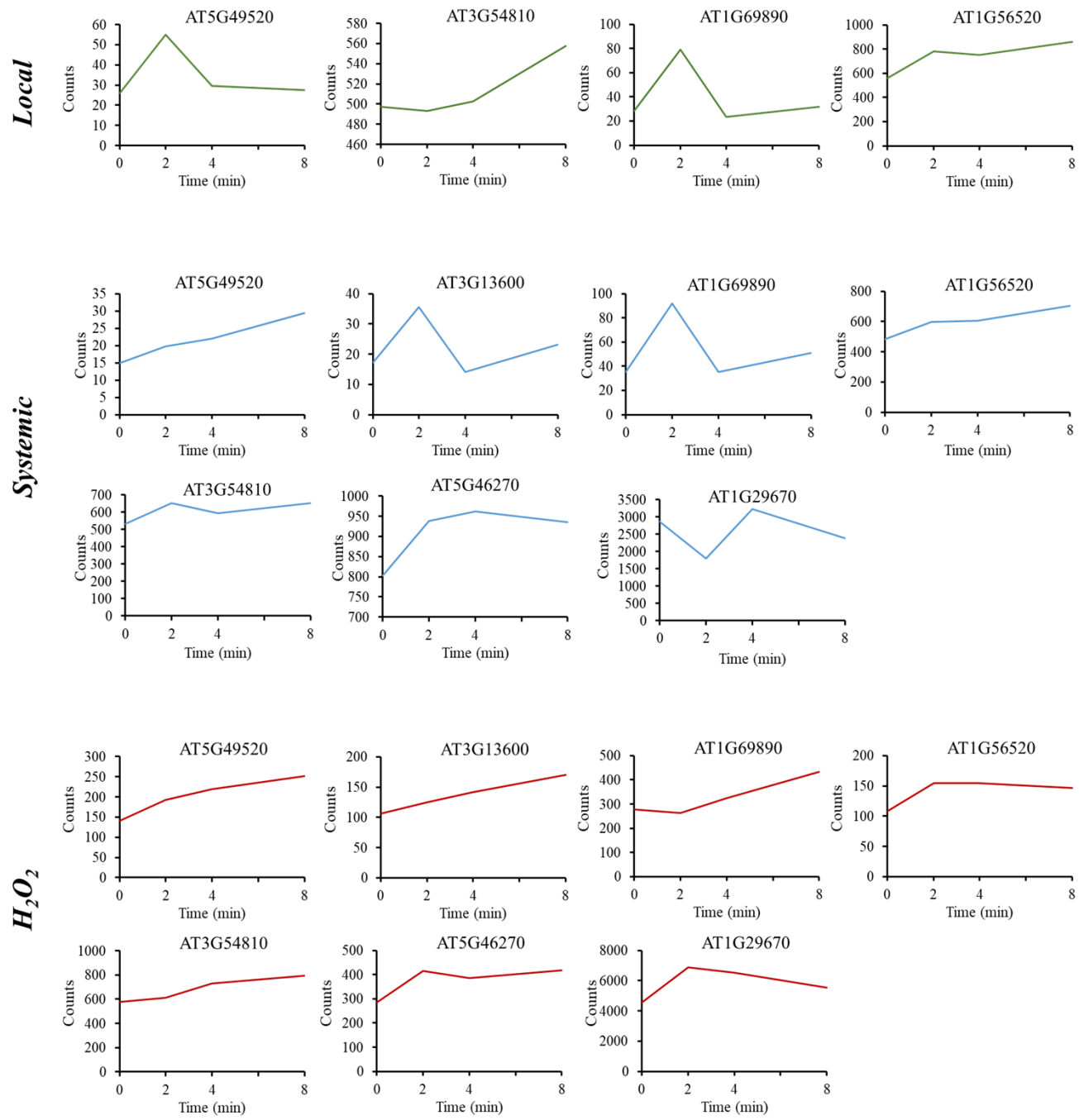
**Fig. S3** Smear (Bland–Altman) plots generated in edgeR for local and systemic leaves at 0 and 2 min, and for the H<sub>2</sub>O<sub>2</sub> treatment at 0 and 8 min. (a) Col Local Leaf (b) Col systemic leaf (c) rbohD local leaf, (d) rbohD systemic leaf, and (e) Seedlings exposed to H<sub>2</sub>O<sub>2</sub>.



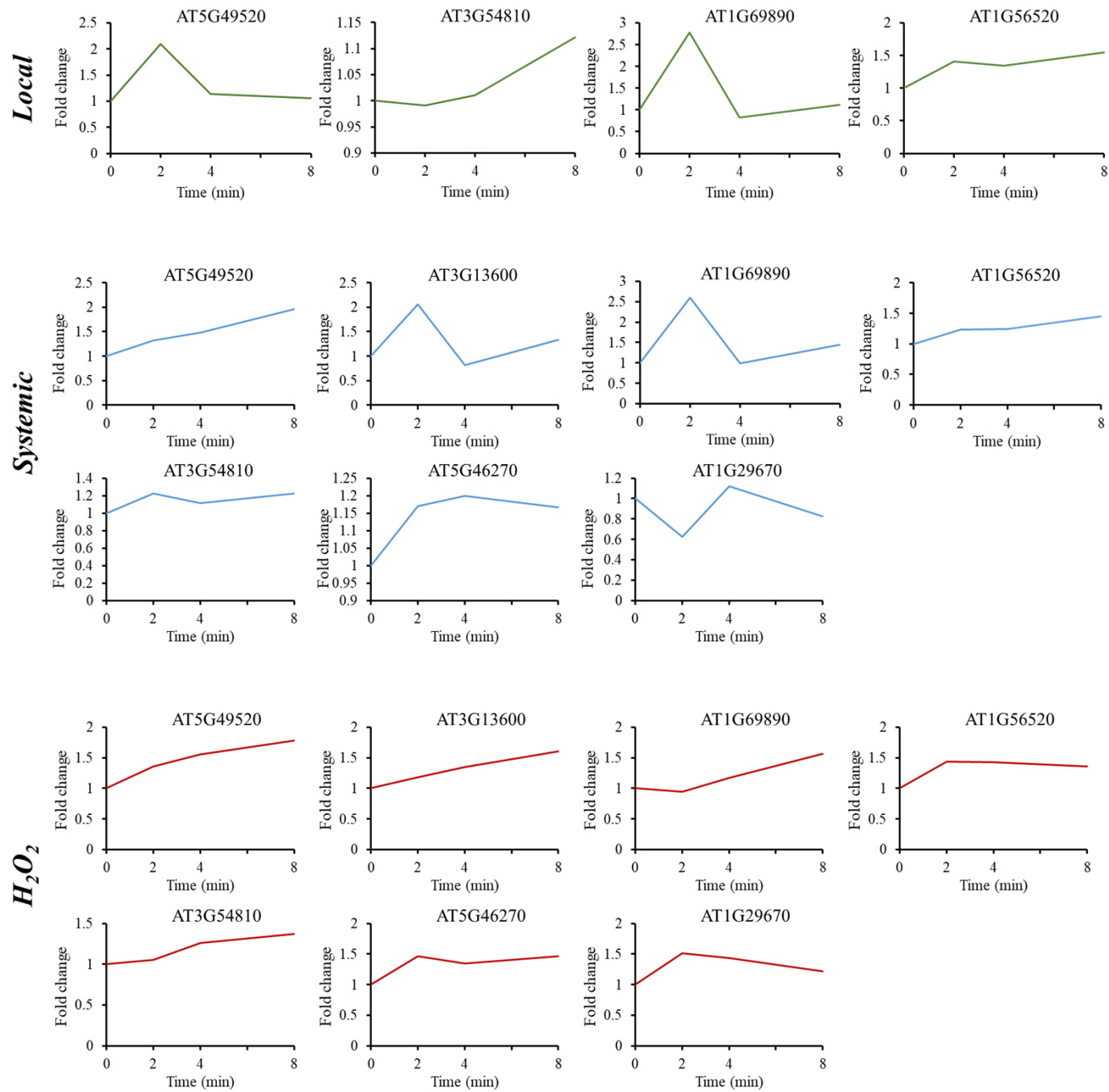
**Fig. S4** Expression pattern of selected gene ontology groups in local and systemic leaves. See Fig. 2.



**Fig. S5** Heatmap representation of Figure 3. Fold-changes were log<sub>2</sub> transformed, and used to generate the figure using the ComplexHeatmap package version 1.18.1 available in BioConductor 3.7. Rows were initially grouped by their transcription factor family, and then separately subjected to hierarchical clustering with complete linkage cluster analyses of their Euclidean distance.

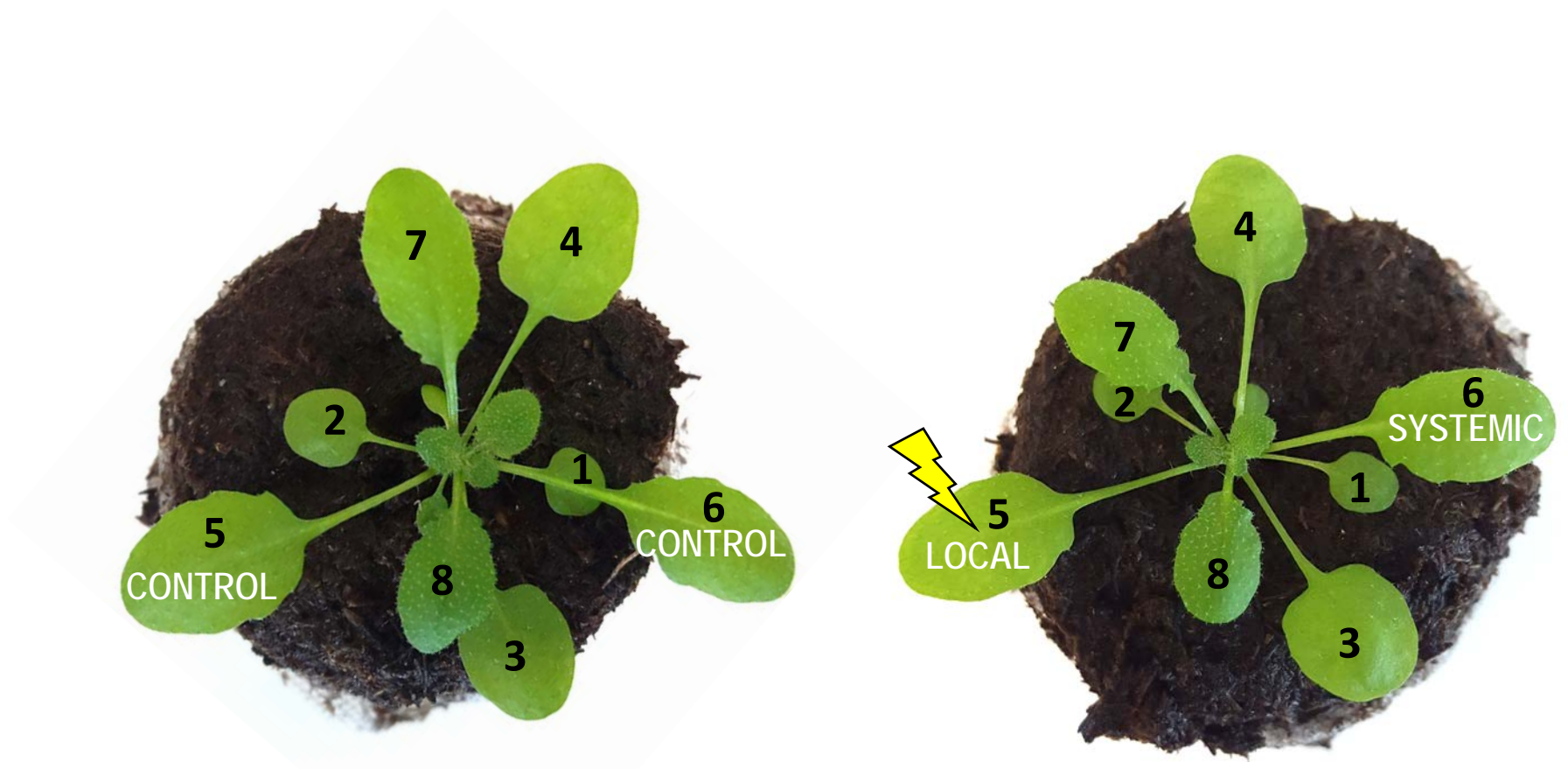


**Fig. S6** Expression pattern (in counts) of the 7 transcripts selected for analysis using knockout mutants (Figure 7).



**Fig. S7** Expression pattern (in fold) of the 7 transcripts selected for analysis using knockout mutants (Figure 7).





**Fig. S8.** Position of leaves used for electrolyte leakage assay. Leaves that were used for the ion leakage experiment shown in Figure 7 were fully-expanded leaves (positions 5 or 6 for “control”, and 5 and 6 for “local” and “systemic”, respectively). Significant differences in electrolyte leakage were not found between control leaves in positions 5 and 6. In addition, in control plants, we did not find significant differences in electrolyte leakage between control leaves and leaves in position 5 locally treated with high light for 10 min, reflecting that those leaves were not significantly damaged by the stress treatment and showing their potential capacity to deal with high light.