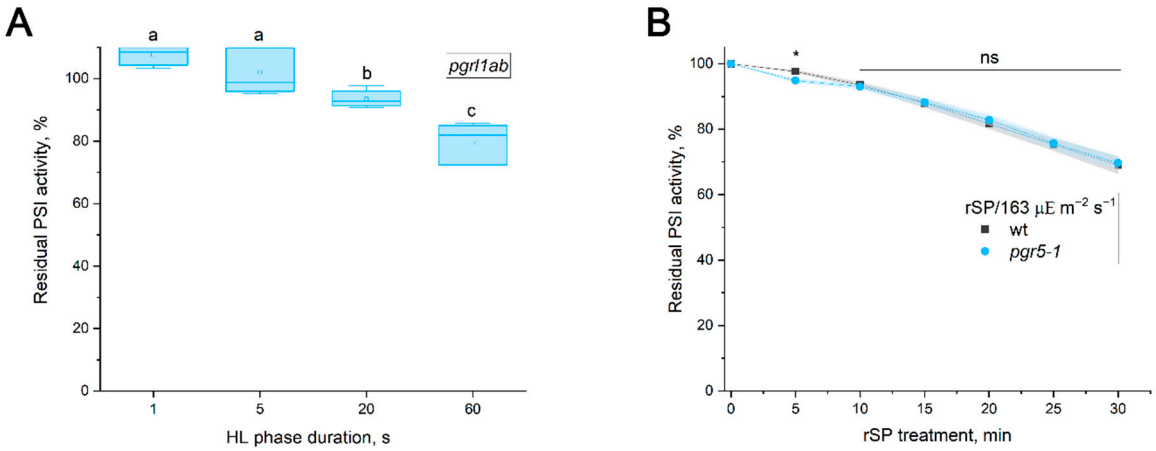
Donor- and Acceptor-Side Protection Against Photosystem I Photoinhibition in *Arabidopsis thaliana*

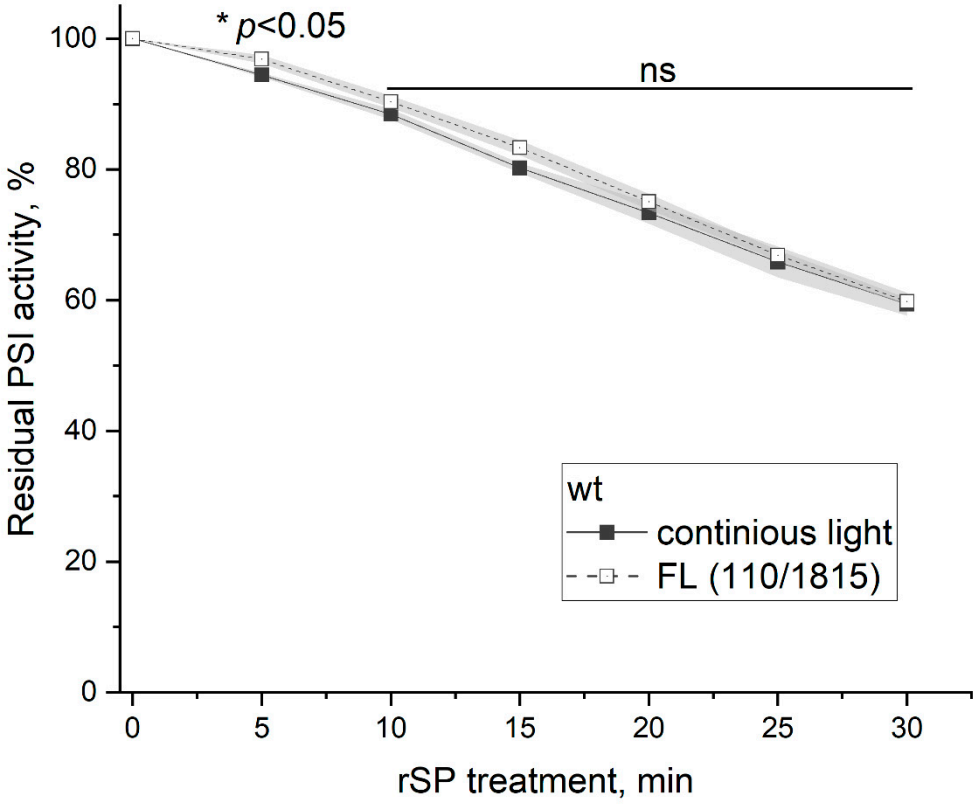
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Supplementary Material

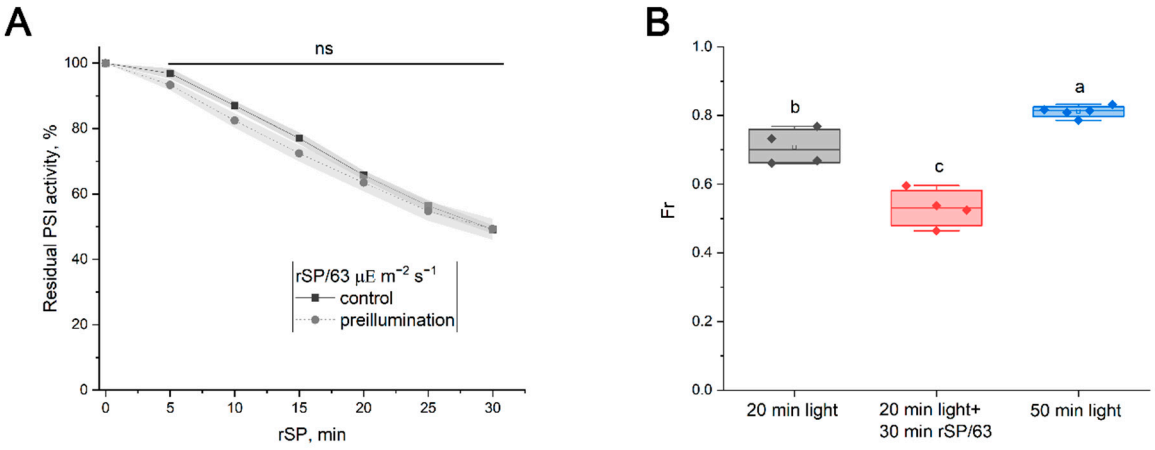


Supplementary Figure S1. (A) Dependence of FL-induced PI(I) on the HL phase duration in *pgrl1ab*. Boxplots show the median, mean, and interquartile range. Statistical significance was determined by ANOVA. Different letters indicate significant difference (p<0.05). (B) The effect of rSP applied at 163 µE m^{-2} s^{-1} on PSI activity in wild type (grey) and *pgr5-1* (blue). Data represent the mean of 5 individual leaves ± SE. Significant differences between each genotype at a given time point were determined by a Two Sample t-Test. Asterix (*) indicates significant difference with p<0.05, and ns indicates not significant (p>0.05).



Supplementary Figure S2.

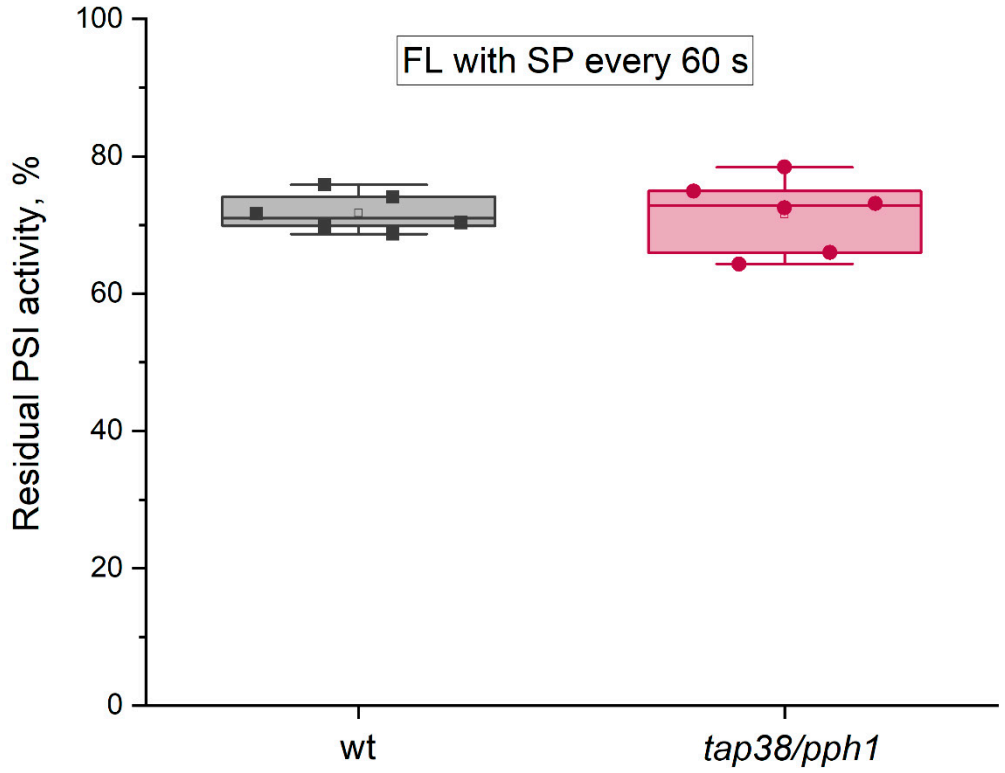
Effects of FL (four cycles of 110 µE m^{-2} s^{-1} light for 4 min and 1815 µE m^{-2} s^{-1} of light for 1 min) treatment on rSP-induced PI(I) in *Arabidopsis thaliana* leaves of WT.



Supplementary Figure S3.
(A) - Effect of preillumination for 20 minutes with light at 63 µE m^{-2} s^{-1} on rSP-induced PSI activity loss in WT leaves.

Data represent means of 4 individual leaves ± SE. Significant genotype differences at each time point were determined by a Two Sample t-Test. ns indicates not significant (p>0.05).
(B) – Effect of light duration and rSP treatment on State 2 formation assessed as Fr parameter. Data represent individual values for 4-5 leaves per variant; boxplots show the median, mean, and interquartile range. Statistical significance was determined by ANOVA. Different letters indicate significant difference (p<0.05).

Fr parameter reflected changes in cChlorophyll *a* fluorescence of leaves induced by state transitions was measured as described earlier (Haldrup et al. 2001) with modification (Vetoshkina et al., 2024) using DUAL-PAM 100 (Walz). Briefly, dark-adapted leaves were exposed to light at 63 µE m^{-2} s^{-1} for 20 minutes, 20 minutes followed rSP/63 for 30 minutes, or 50 minutes. Then, the far-red light was switched on for 25 min followed the actinic light for 5 minutes.



Supplementary Figure S4. The loss of PSI activity in *Arabidopsis thaliana* leaves of WT (grey squares) and *tap38/pph1* (red circles) induced with 7 cycles of FL with SP applied every 60 seconds. Data represent individual values for 4-5 leaves per variant; boxplots show the median, mean, and interquartile range.