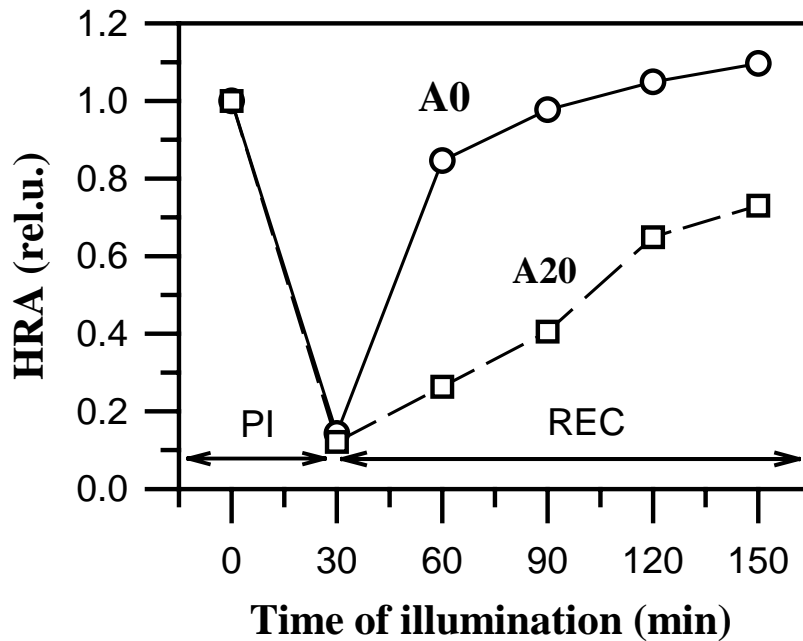
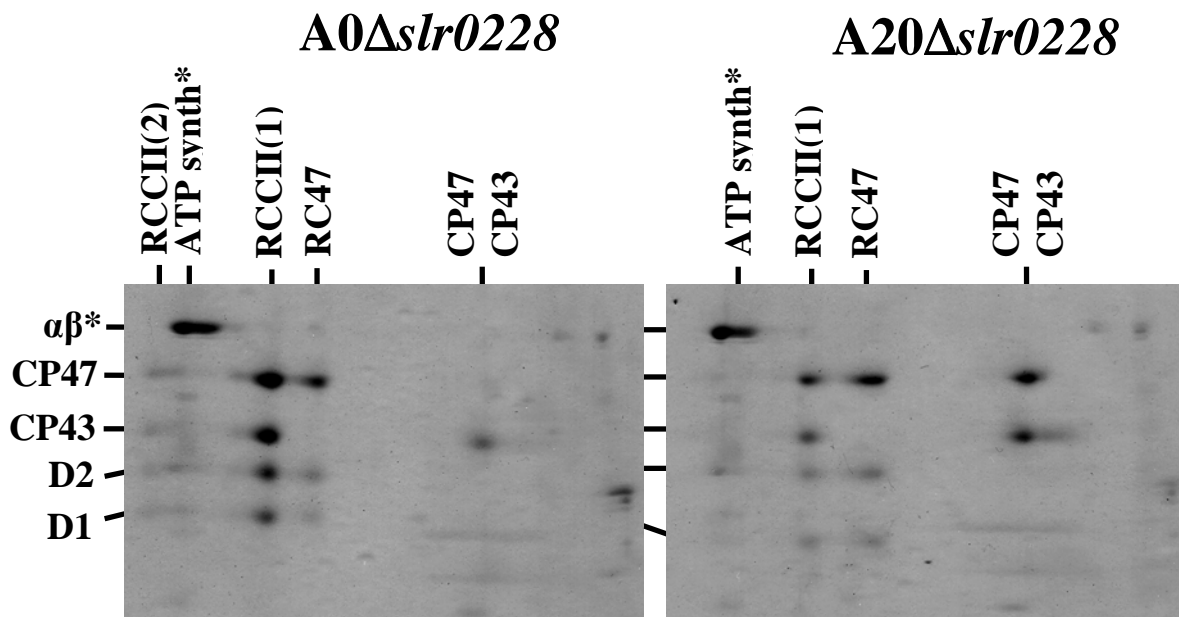


Supplemental Figure 1: Growth of the strains A0 and A20 during incubation of cells at 125 and 500 μmol photons m⁻² s⁻¹. Strains grown in conical flasks at 25 μmol photons m⁻² s⁻¹ were diluted to OD_{750nm} 0.7 and 1.3 and exposed in the plan-parallel cuvettes to white light of 125 (solid line) and 500 (dotted line) μmol photons m⁻² s⁻¹, respectively. Values in the plot represent mean of 2 measurements and the curves approximately correspond to the doubling time 9 h and 13 h for A0 and A20 at 125 μmol photons m⁻² s⁻¹, respectively, and 6 h and 25 h for A0 and A20 at 500 μmol photons m⁻² s⁻¹, respectively.



Supplemental Figure 2: Recovery of the PSII activity in the strains A0 and A20 after the photoinhibitory treatment.

Cells were illuminated at $2000 \mu\text{mol photons m}^{-2} \text{s}^{-1}$ for 30 min (PI), then the cells were transferred to low irradiance of $50 \mu\text{mol photons m}^{-2} \text{s}^{-1}$ and incubated for additional 120 min (REC). Aliquots of the suspensions were taken during illumination at the times indicated and HRA was assayed in whole cells as described in Material and Methods. Values in the plot represent mean of 2 measurements. Initial values were in the range as shown in Table 1.



Supplemental Figure 3. Protein complexes resolved by BN-PAGE and separation of large PSII proteins of PSII complexes revealed by 2D electrophoresis from thylakoids of the strains *A0Δslr0228* and *A20Δslr0228* cultivated at $5 \mu\text{mol photons m}^{-2} \text{s}^{-1}$. Thylakoid proteins from the strains were separated by 2D BN/SDS-PAGE. 2D gel was stained by Coomassie Blue. $6 \mu\text{g}$ of chlorophyll per sample were loaded onto the gel, α and β subunits of ATP synthase (designated by $\alpha\beta^*$) were used as internal standards for checking correct loading of gels. Identity of proteins was verified by immunodetection.