Supplementary Information

The lumenal domain of Cyt b_{559} interacting with extrinsic subunits is crucial for accumulation of functional photosystem II

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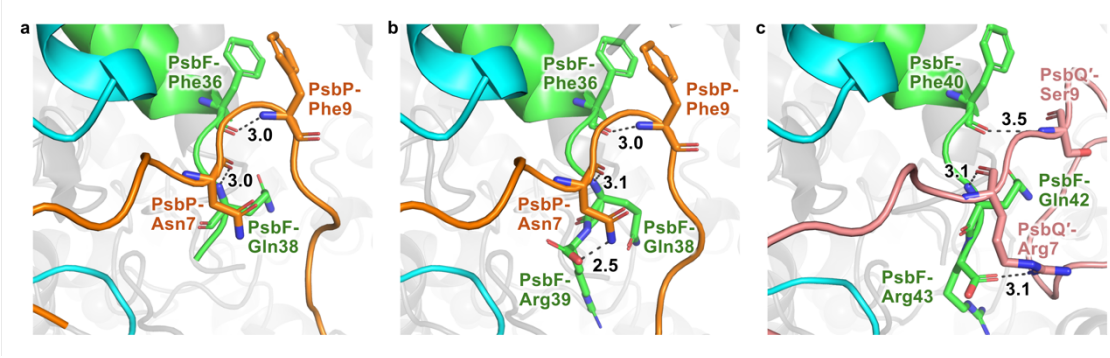
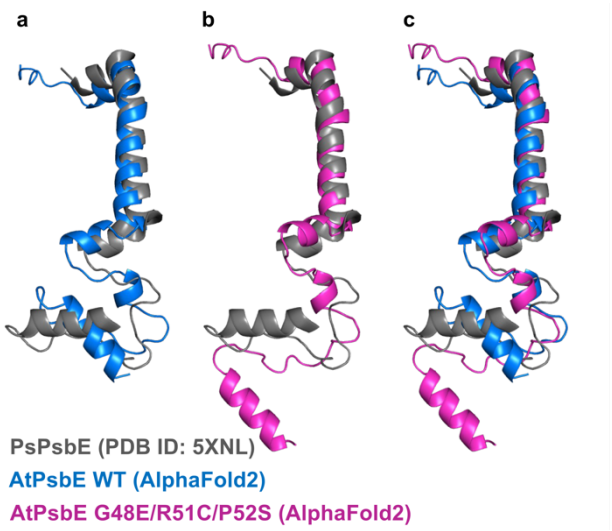
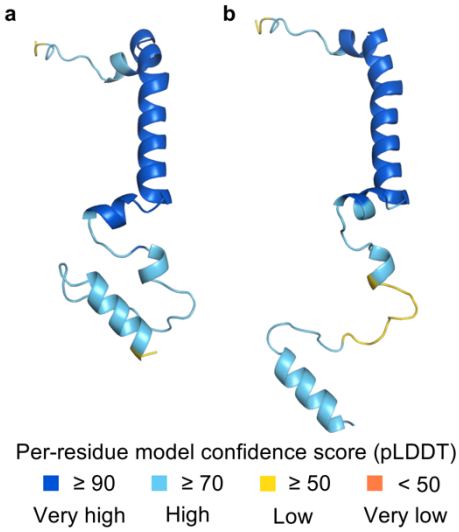
Content



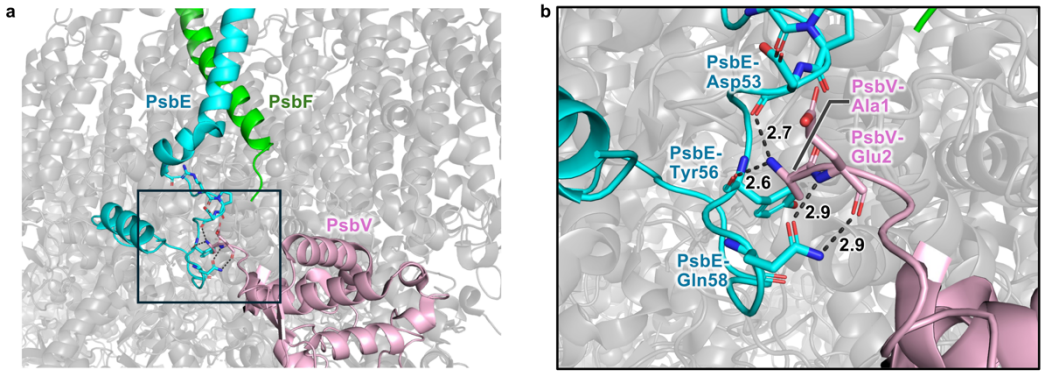
Supplementary Fig. 1 Possible interactions between the C-terminal region of PsbF and the N-terminal regions of PsbP or PsbQ′ in (**a**) *Pisum sativum* (PDB ID: 5XNL), (**b**) *Chlamydomonas reinhardtii* (PDB ID: 6KAC), and (**c**) *Thalassiosira pseudonana* (PDB ID: 8IWH). PsbE, PsbF, PsbP (in green lineage PSII), and PsbQ′ (in red lineage PSII) are shown as cyan, green, orange, and pink cartoon views, respectively. Residues that can be involved in the interactions are shown as stick models, and the black numbers indicate the N–O distances (Å).



Supplementary Fig. 2 Comparison of PsbE structures in wild-type and G48E/R51C/P52S mutants predicted by AlphaFold2. Superposition of PsbE in *Pisum sativum* PSII (PDB ID: 5XNL) (gray cartoon view) and (**a**) predicted *Arabidopsis thaliana* wild-type PsbE structure (blue cartoon view), (**b**) predicted *A. thaliana* G48E/R51C/P52S mutant PsbE structure (pink cartoon view), and (**c**) predicted *A. thaliana* wild-type and G48E/R51C/P52S mutant PsbE structures.



Supplementary Fig. 3 *Arabidopsis thaliana* (**a**) wild-type and (**b**) G48E/R51C/P52S mutant PsbE structures predicted by AlphaFold2 colored based on pLDDT scores. The predicted PsbE structures are the same as those shown in Supplementary Fig. 2.



Supplementary Fig. 4 Possible interactions between the lumenal domain of PsbE and the N-terminus of PsbV. (**a**) PsbE, PsbF, and PsbV in *Thermostichus vulcanus* PSII (PDB ID: 7D1U) is shown as cyan, green, and pink cartoon views, respectively. (**b**) Enlarged view of the region indicated with a black box. Residues that can be involved in the interactions are shown as stick models, and the black numbers indicate the N–O distances (Å).