

Supplementary Figures and Legends

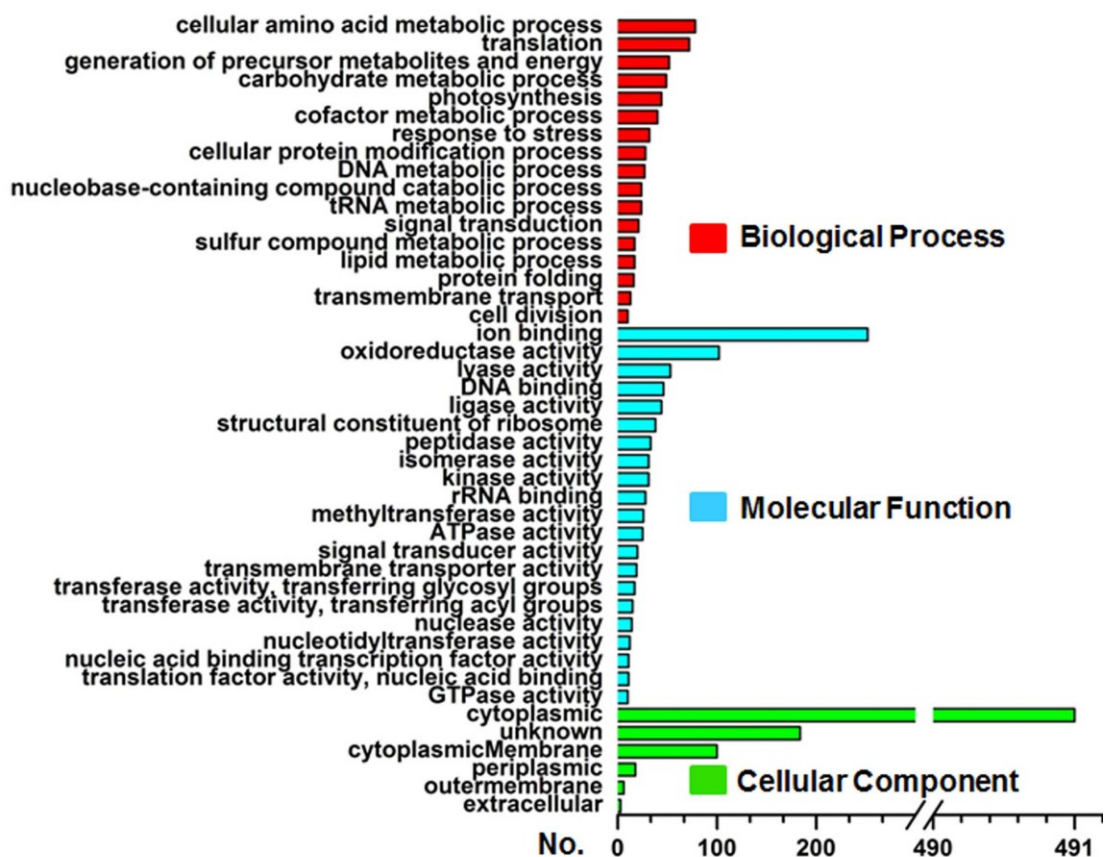


Figure S1. Functional classification of the identified acetylated proteins.

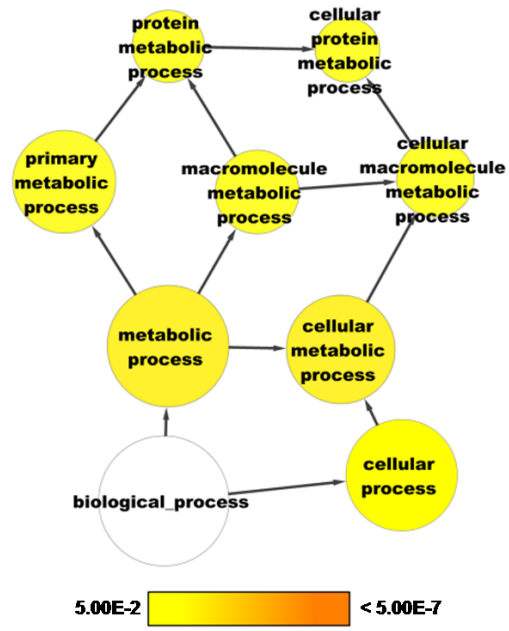


Figure S2. GO enrichment analysis for the biological process of the identified acetylated proteins.

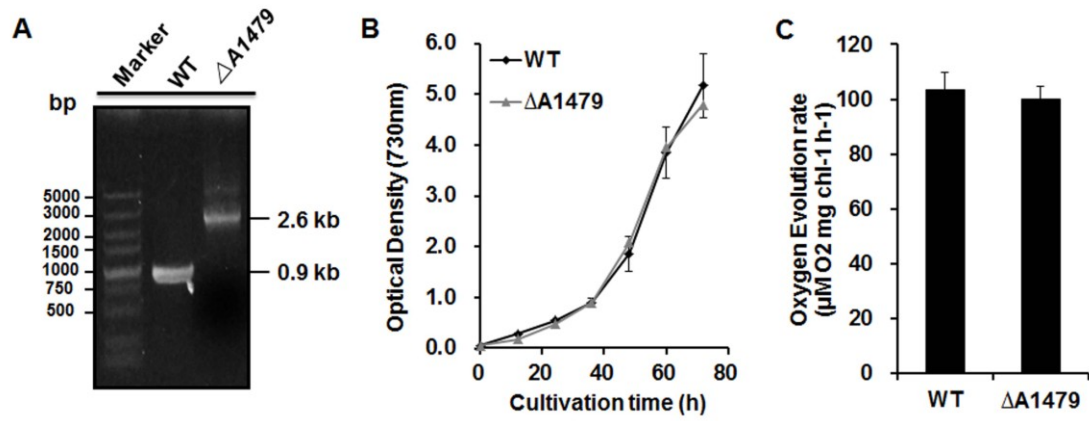


Figure S4. Construction of the neutral site platform by inaction of *SYNPCC7002_A1479* (A) and characterization of the growth rate (B) and oxygen evolution rate (C) between WT and $\Delta 1479$.

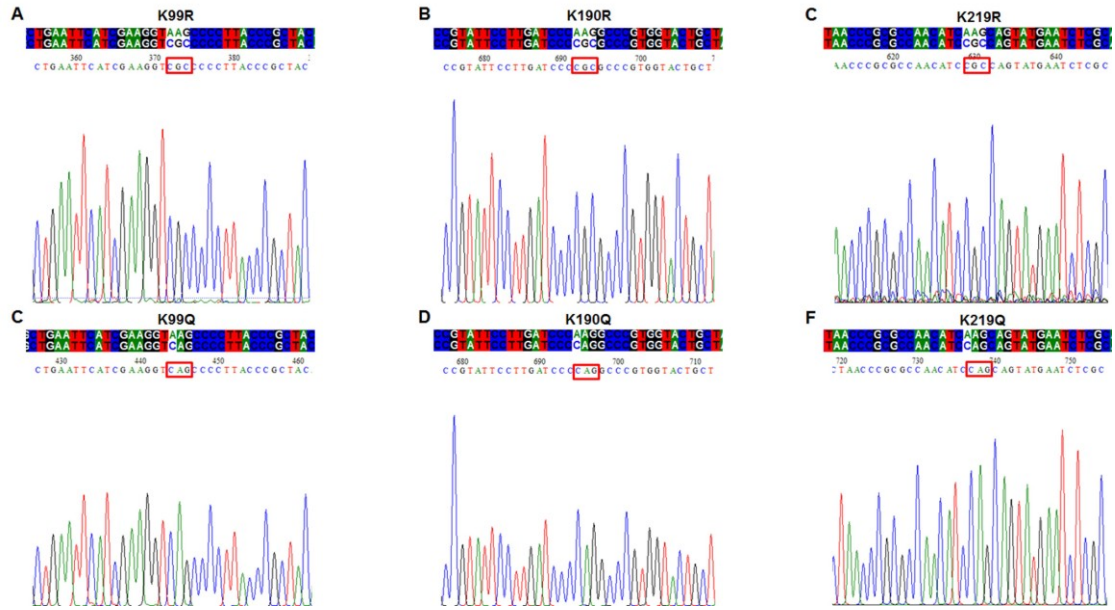


Figure S5. The mutations of PsbO strains were verified by DNA sequencing.

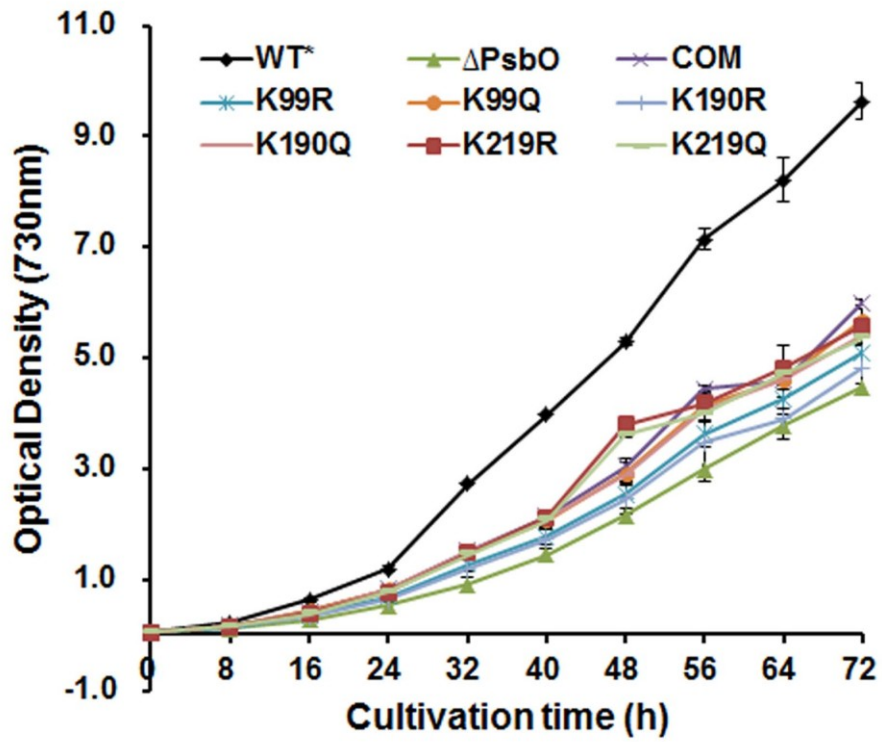


Figure S6. Growth curves of the alternative wild type (WT*) and mutant *Synechococcus* cells under optimal growth conditions.