

**Supplemental Figure 1.** Recombinant phytochrome proteins. All phytochrome proteins were expressed by using *Pichia* expression system as described in METHODS, and purified by streptavidin affinity chromatography. *A.* Purified apo- and holo-phyA assembled with PCB, PEB and P $\Phi$ B. Iane L, loaded extract of PCB-phyA; Iane S, protein standards; Iane 1, apo-phyA; Iane 2, PEB-phyA; Iane 3, PCB-phyA; Iane 4, P $\Phi$ B-phyA. *B.* Absorption spectra of purified recombinant holo-phyA proteins. *C.* Difference spectra of wild-type phyA (WT) and S598A mutant phyA proteins. *D.* SDS-PAGE and zinc blot of phytochrome proteins used in this work. Two different elution fractions were loaded on the SDS-PGE gel. Lane S, Protein standards.