

---

**C19****Characterization of PpsR, a Transcriptional Repressor of the Expression of Photosystem Gene, from *Rhodobacter sphaeroides***

Seung-Hyun Cho\* and Sa-Ouk Kang

Laboratory of Biophysics, School of Biological Science, Seoul National University

PpsR from the facultative photoheterotroph *Rhodobacter sphaeroides* is involved in repression of photosystem gene expression. SDS-PAGE analysis showed that some portion of PpsR is oxidized so that intra- or inter-disulfide bond is formed between the two cysteines in each subunit. The disulfide bond was reduced by dithiothreitol and the binding activity to puc promoter region was increased. PpsR was revealed as tetramer irrespective of the presence of disulfide bond.

The repressor activity of PpsR was confirmed by the donation of extra-copy of ppsR gene. The protein was detected by western blot analysis conjugated with extra-copy of ppsR gene but not in PpsR null mutant (PPS1). PpsR exist in their reduced form under both aerobic and anaerobic growth condition, which was measured using thiol modifying agent, iodoacetamide, under the condition not disturbing the thiol redox state. There is also cooperative binding of PpsR in crude extract in *Rhodobacter sphaeroides* at the two palindromic sites in the wild type puc promoter.

The purified PpsR has binding activity to puc promoter probe but no distinct absorbance except by aromatic amino acids. In appA null mutant, the activity and amount of PpsR were decreased compared to those in wild type, and more decreased in anaerobic crude extract than in aerobic crude extract.