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# Supplementary Material

**Figure legends**

**Figure S1** Black line: absorption spectrum of PR at pH 12 (freshly prepared). Green line: Absorption spectrum of degraded PR recorded two hours after the titration. Red line: Back titration to pH 5 leads to a red shift of the absorption maximum to 450 nm, which cannot be originated from the intact PR with pSB retinal.

**Figure S2** Excitation wavelength-dependent fluorescence spectrum of PR at pH 9 shows two maxima, implying a mixture of two different species, intact PR with dSB retinal and degraded PR.