

OS02-2 Photosensing by membrane-embedded receptors and its application for photo-inducible protein expression

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Light provides critical information for organisms. We are focusing on the molecular mechanisms of photosignal transduction in microorganisms [1]. In particular, sensory rhodopsins involved in taxis responses are our target proteins. Rhodopsin molecules are photochemically reactive membrane-embedded proteins with seven transmembrane α -helices that form a pocket for the chromophore retinal (vitamin A aldehyde). They are widespread in prokaryotes and in eukaryotes. In the first half of my talk, I would like to focus on the recent progress toward understanding of signal relay mechanism of the sensory rhodopsins responsible both for negative and positive phototaxis [2-4]. In the latter half, I would like to introduce the photo-inducible protein expression system by using anabaena sensory rhodopsin [6].

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