

P003 Structural Plasticity of the *Rhodobacter* Photosystem
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Experimental systems based on bacteria of the genus *Rhodobacter* (*Rb.*), particularly *Rh. sphaeroides* and *Rb. capsulatus*, have produced many insights into the mechanism of light energy transduction in photosynthesis, including the structural basis of light harvesting and photochemical charge separation. Structural and spectroscopic studies have been greatly assisted by the availability of bacterial strains with altered photosystems, such as mutants lacking one or both types of light harvesting complex for example, or with an altered complement of carotenoids (so-called green or blue-green mutants), together with the ability of the bacterium to assemble the photosynthetic apparatus when growing in the dark under conditions of low aeration.

The present work involves a systematic study of the structural and functional consequences of (1) expression of structural genes *in trans* in deletion mutants, (2) variation in growth conditions, (3) deletion of one or more light harvesting complexes, (4) changes in the carotenoid composition of the photosystem and (5) removal of the PufX protein. Particular attention is played to the effects of such changes on the composition of the so-called “core complex” formed between the reaction centre and the LH1 antenna protein, and the ability of the bacterium to grow under photosynthetic conditions.