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Reconstitution Approach to Tune Spectral Features of Light Harvesting Complexes for Improved Light Absorption and Energy Transfer

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Abstract

Light harvesting complexes developed by living organisms render themselves as an excellent system for understanding basic physical and chemical processes behind the conversion of sunlight energy. Although light harvesting complexes are pretty robust, biochemical reconstitution and genetic modifications have proven the flexibility to tailor their absorption spectra and energy transfer. Importantly, the refolding of the protein and the exchanging of the pigment in micellar media results in very similar pigment arrangement within the native complexes. Here, we show reconstitution approaches with different pigments that have been carried out in PCP, LHCII, and LH1 complexes. Monitoring on the spectral changes and energy transfer has also been described.

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Keywords: reconstitution methods, pigment-protein, light harvesting complex, light absorption, energy transfer

BCHL	Bacteriochlorophyll
β-OG	n-octyl beta-D-glucopyranoside
B780	Monomeric LH1 subunit
B820	Dimeric LH1 Subunit

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