Photosynth Res (2018) 135:141–142
DOI 10.1007/s11120-017-0445-0

ERRATUM

Erratum to: Interaction of the signaling state analog and the apoprotein form of the orange carotenoid protein with the fluorescence recovery protein

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Published online: 19 September 2017

Erratum to: Photosynth Res DOI 10.1007/s11120-017-0346-2

In Fig. 1a in the original article, the amino acid side chains were incorrectly labeled in the structure representation of the orange carotenoid protein (OCP). The corrected Fig. 1 is printed in this erratum.

The online version of the original article can be found under doi:10.1007/s11120-017-0346-2.

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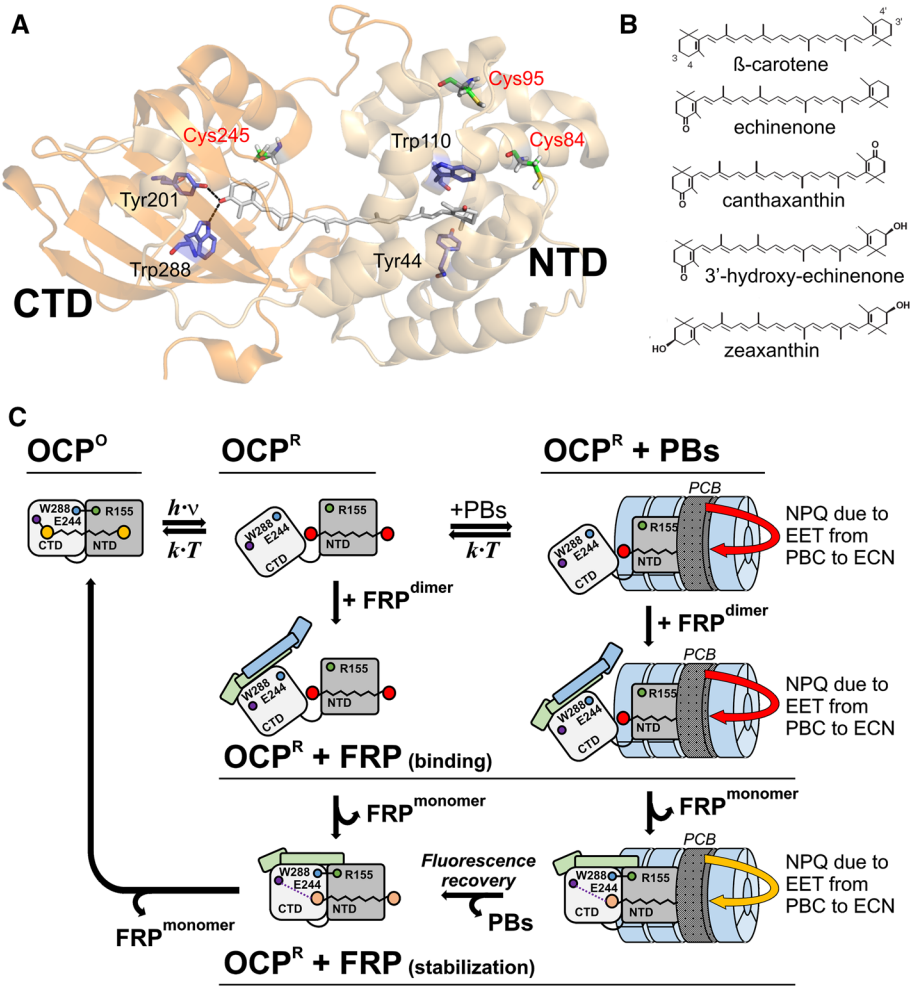

Fig. 1 Structure of the OCP protein and scheme for the interplay of OCP with PBs and FRP during NPQ. **a** OCP crystal structure (PDB entry 4XB5, (Leverenz et al. 2015)) with the canthaxanthin cofactor shown in stick representation. OCP is divided into an N-terminal and a C-terminal domain (NTD, CTD), with Trp288 and Tyr201 in the CTD involved in H-bond interactions (black dashed lines) to the 4-keto group of one of the β-rings. Tyr44 and Trp110 in the NTD are also involved in carotenoid coordination. The three cysteines in *Synechocystis* OCP are also shown (Cys84 and Cys95 in the NTD and Cys245 in the CTD). **b** Chemical structures of some carotenoids mentioned in this work. **c** Scheme of the major stages of NPQ. Upon absorption of blue-green light, the orange form of OCP (OCP^O) is photoconverted into the active red state (OCP^R) (Wilson et al. 2008). Consequently, NTD and CTD dissociate, the salt bridge between Glu244 (CTD) and Arg155 (NTD) breaks and the carotenoid translocates into the NTD. NPQ activation in vivo is limited by the rate at which the OCP^R binds to PBs (Gorbunov et al. 2011; Maksimov et al. 2015a). During this dark phase of NPQ activation, OCP^R forms a stable complex with PBs, leading to PBs fluorescence quenching (Maksimov et al. 2014). Alternatively, OCP^R can spontaneously reconvert into the OCP^O form, or form a complex with FRP. The presence of FRP leads to an almost 10-fold increase of the OCP^R-OCP^O conversion rate (Boulay et al. 2010). Finally, under low-light conditions, OCP uncouples from PBs and energy flow from PBs to the photosynthetic reaction centers is restored. Of note, FRP exists in a dimeric form that becomes monomeric upon interaction with the OCP^R form (Sluchanko et al. 2017). Therefore, the interaction between OCP and FRP involves FRP dimer dissociation prior to or during binding to OCP^R