Supporting Information to

Ultrafast Proton Shuttling In *Psammocora* Cyan Fluorescent Protein

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Figure S1. Kinetics at selected wavelengths (indicated as ordinate labels). Key: black pump probe, red pump dump probe, dashed lines indicate fits. Time axis is linear from -1 till 1 ps relative to the location of the **pump** IRF maximum, and logarithmic thereafter. Dump pulse was administered at 10 ps.
Figure S2. Kinetics at selected wavelengths (indicated as ordinate labels). Key: black pump probe, red pump dump probe, dashed lines indicate fits. Time axis is linear from -1 till 1 ps relative to the location of the dump IRF maximum, and logarithmic thereafter.
Figure S3. Elaborate target analysis results: (A) concentration profiles relative to pump pulse. Solid lines: pump dump probe, dashed lines: pump probe. Time axis is linear from -1 till 1 ps relative to the location of the pump (A) or dump (B) IRF maximum, and logarithmic thereafter. Dump IRF width was 70 fs FWHM. (C) Species-Associated Difference Spectra (SADS) estimated from target analysis. Key: dark green 0.8 ps, black 3.5 ps, red 81 ps, blue 1.4 ns, all four excited state intermediates, two GSIs, lifetimes 0.11 ps (86%, green) and 3.6 ps (14%, magenta), cyan solvated electron (8 ns), and grey dump coherent artifact restricted to 498-518 nm. Vertical bars at extrema indicate estimated standard errors.
Fig. S4: Photoconversion in psam488. Black line: absorption spectrum before experiments; red line: absorption after approximately 90 minutes of femtosecond laser irradiation at 400 nm at 100 µW in 1 400 µL volume.