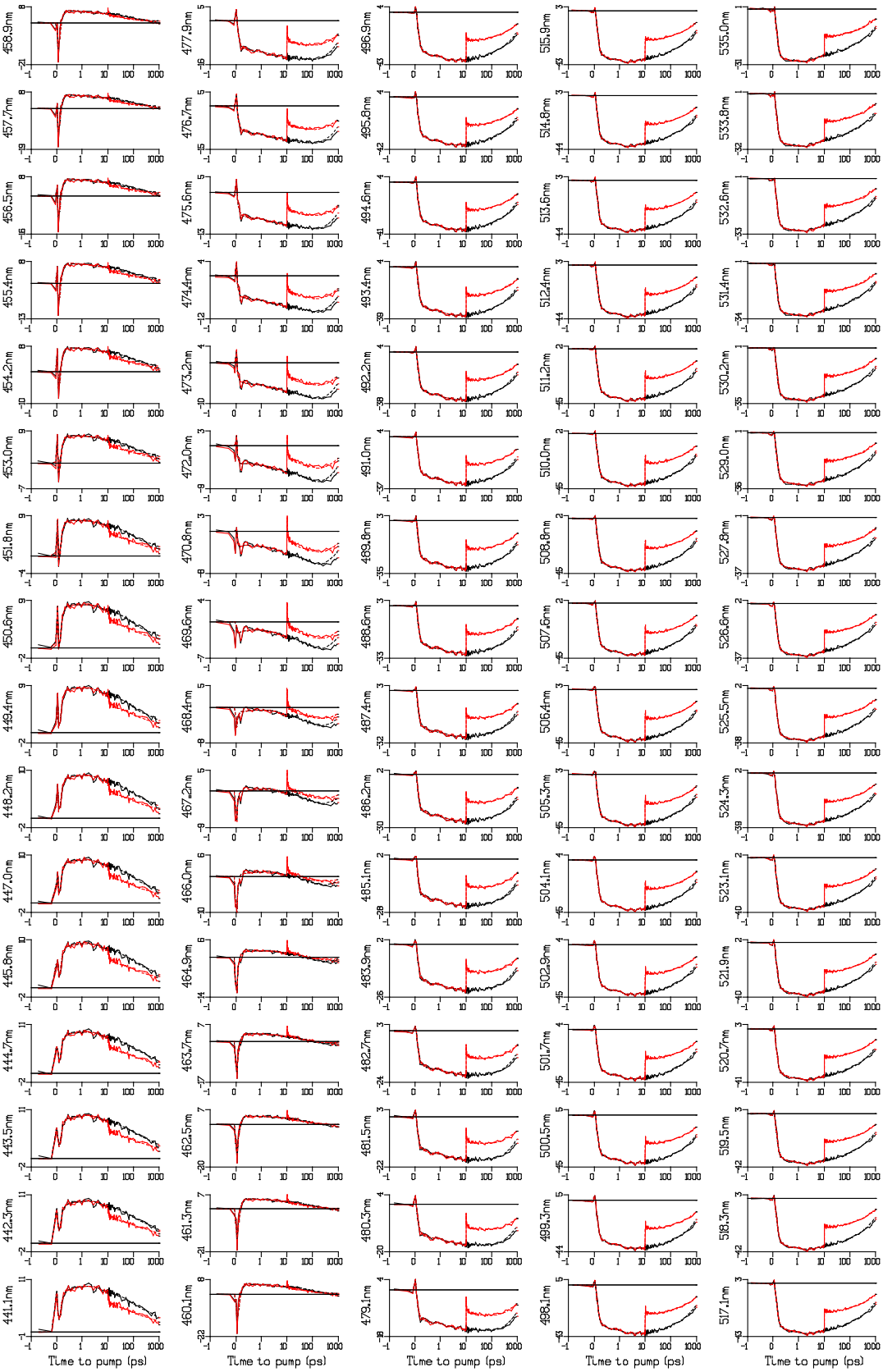
Supporting Information to

Ultrafast Proton Shuttling In *Psammocora* Cyan Fluorescent Protein

John T.M. Kennis[1,*], Ivo H.M. van Stokkum[1], Dayna S. Peterson[2], Anjali Pandit[1], Rebekka M. Wachter[2,*]

[1]Department of Physics and Astronomy and LaserLaB, Faculty of Sciences, Vrije Universiteit, De Boelelaan 1081, 1081 HV, Amsterdam, The Netherlands

[2]Department of Chemistry and Biochemistry, Arizona State University, Tempe, AZ 85287, USA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Time to pump (ps)
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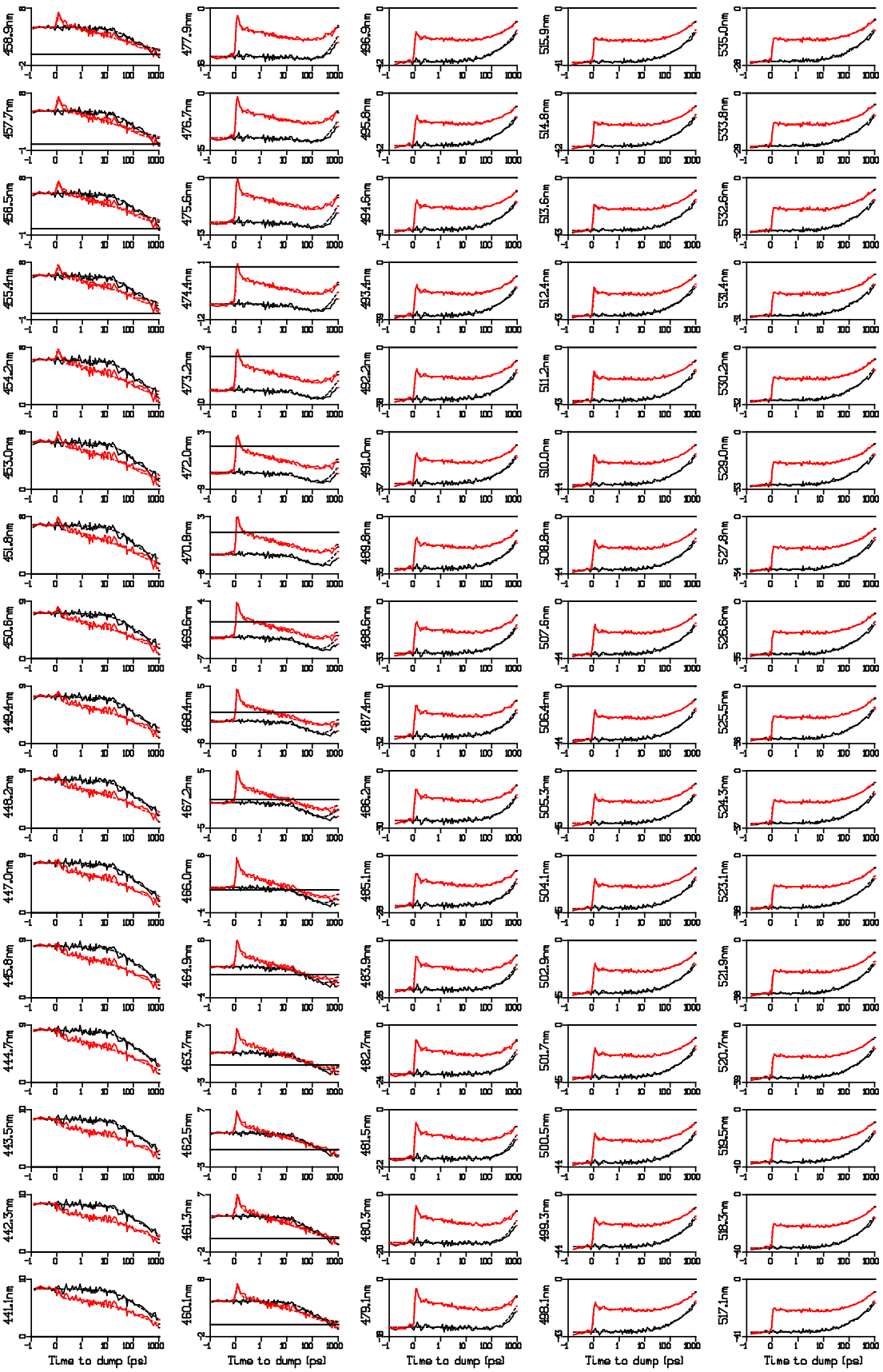
Figure S1. Kinetics at selected wavelengths (indicated as ordinate labels). Key: black pump probe, red pump dump probe, dashed lines indicate fits. Time axis is linear from -1 till 1 ps relative to the location of the **pump** IRF maximum, and logarithmic thereafter. Dump pulse was administered at 10 ps.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Time to dump (ps)
Time to dump (ps)
Time to dump (ps)
Time to dump (ps)
Time to dump (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.

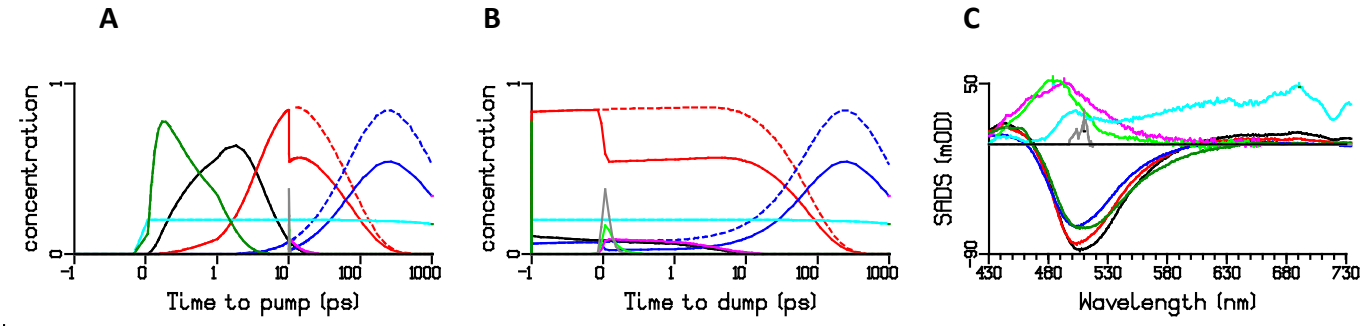

Figure S3. Elaborate target analysis results: (A) concentration profiles relative to pump pulse. Solid lines: pump dump probe, dashed lines: pump probe. Time axis is linear from -1 till 1 ps relative to the location of the pump (A) or dump (B) IRF maximum, and logarithmic thereafter. Dump IRF width was 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.

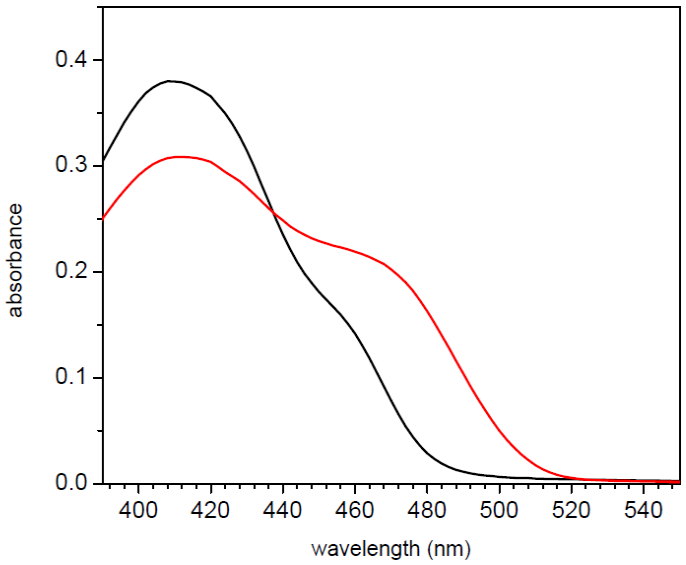

Fig. S4: Photoconversion in psam488. Black line: absorption spectrum before experiments; red line: absorption after approximately 90 minutes of femtosecond laser irradiation at 400 nm at 100 μW in 1 400 μL volume.