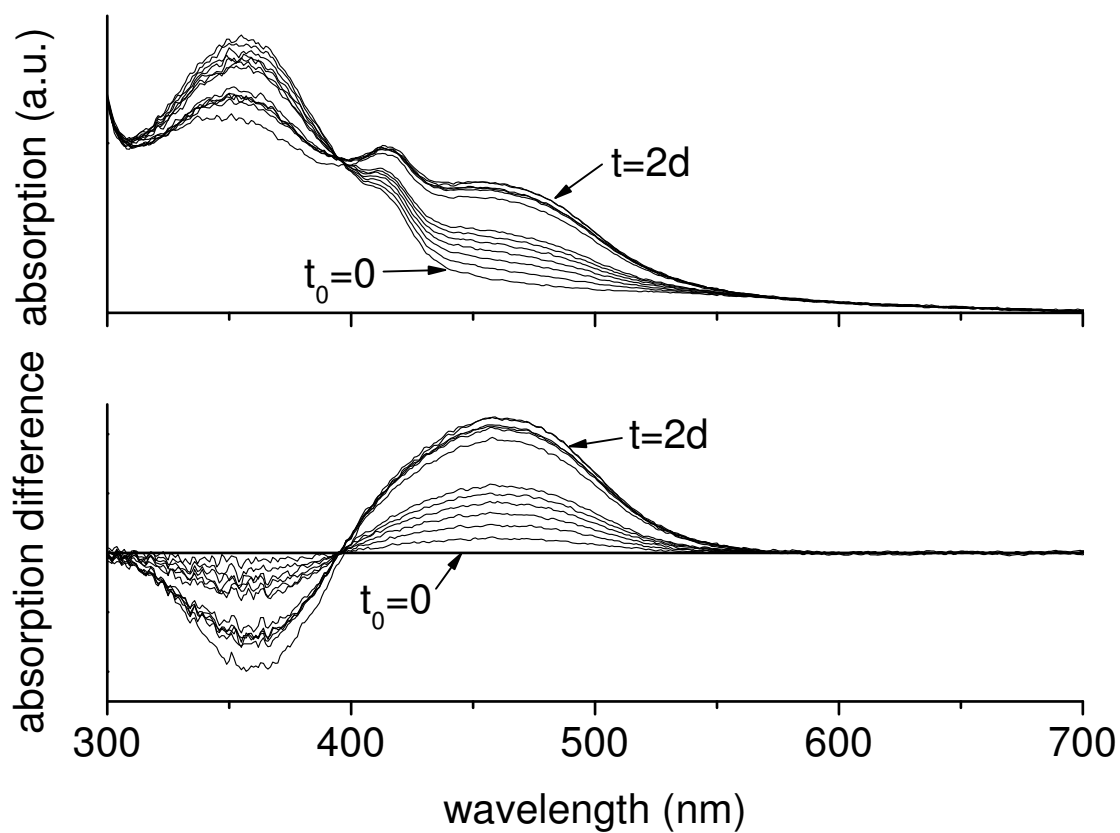
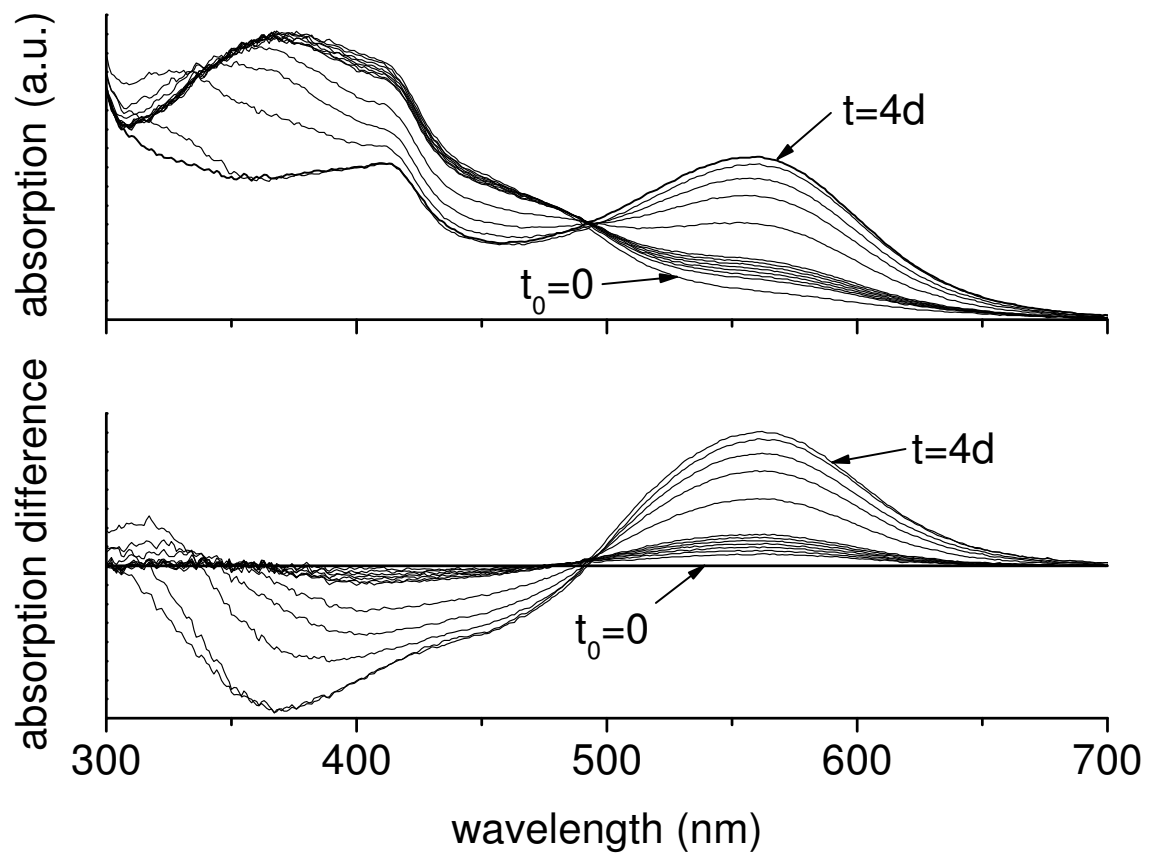


## Supplementary



**Figure S1:** Time resolved kinetics ( $t_0=0$  to  $t=2$  days) of the Bacterioopsin reconstitution experiment with the MOPh-2-CHO model chromophore. The lower panel shows the derived difference spectra  $t-t_0$  indicating the formation of the chromophore-Bacterioopsin complex (MOPh-2-SBH<sup>+</sup>-bO).



**Figure S2:** Time resolved kinetics ( $t_0=0$  to  $t=4$  days) of the Bacterioopsin competition experiment starting with the chromophore-Bacterioopsin complex MOPh-2-SBH+-bO after addition of 1:1 native retinal. The difference spectra show absorption, which corresponds to the absorption of native Bacteriorhodopsin, while the absorption of the chromophore-Bacterioopsin complex MOPh-2-SBH+-bO and of free retinal decreases.