



**Fig. S5** Light-induced translocation of transducin and return to the outer segment. **(A)** Schematic depiction of transducin translocation. Under intense light,  $T\alpha^{GTP}$  and  $T\beta\gamma$  translocate separately to the inner segment and following GTP hydrolysis, associate with inner segment membranes as a heterotrimer  $T\alpha^{GDP}\beta\gamma$ . Following GDP/GTP exchange, which is very slow in the absence of rhodopsin,  $T\alpha^{GTP}$  is eluted from the membrane by the acyl-binding protein UNC119.  $T\beta\gamma$  elutes and associates with a prenyl binding protein, either PrBP/ $\delta$  or phosducin<sup>37</sup>. Both  $T\alpha$ /UNC119 and  $T\beta\gamma$ /PrBP diffuse freely and re-associate with a destination membrane after GTP hydrolysis. The destination membrane could be the cell membrane at the distal inner segment where IFT cargo is assembled or one of many outer segment disks.