Supplementary Information for

DYF-5/MAK-dependent phosphorylation promotes ciliary tubulin unloading.

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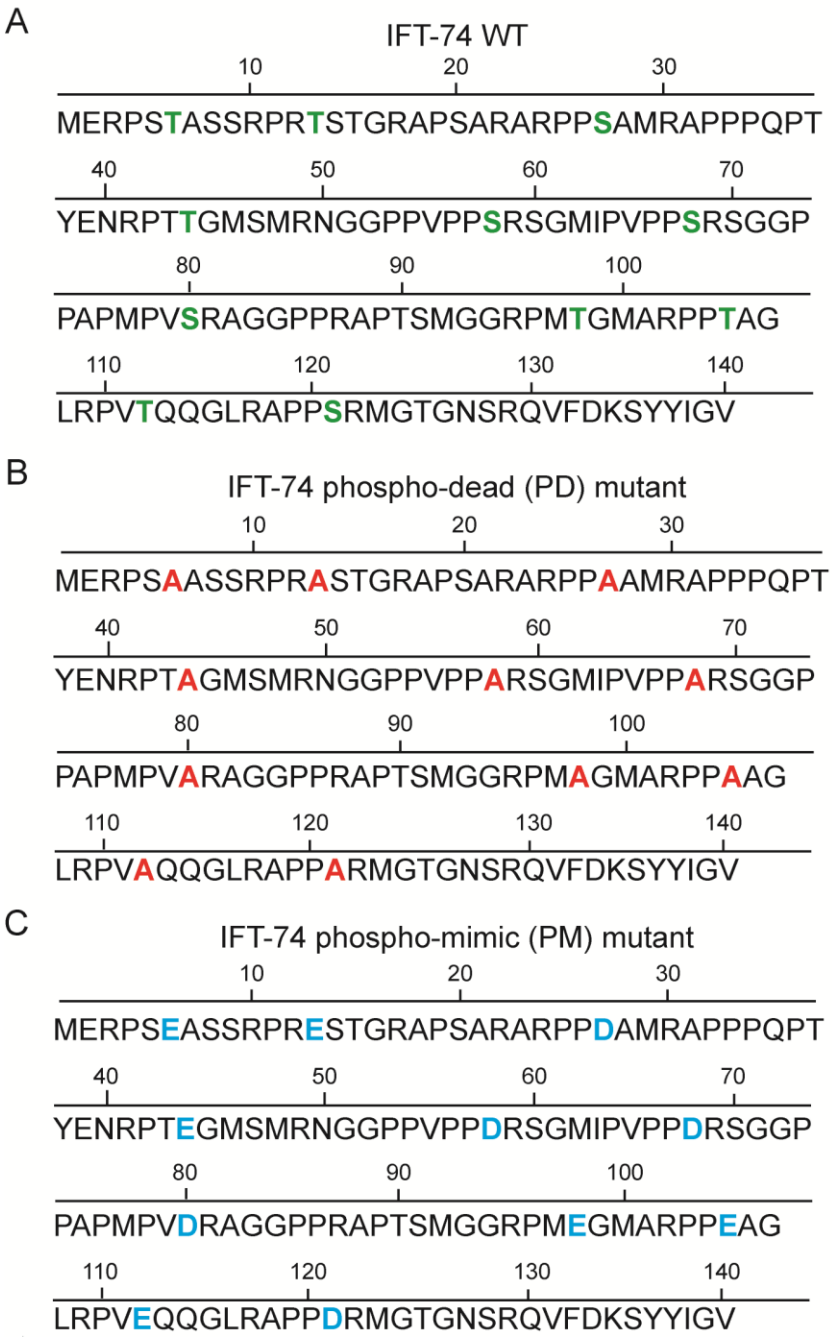

Fig. S1. Amino acid mutations of in IFT-74 phospho-mimic (PM) and phospho-dead (PD) mutants.

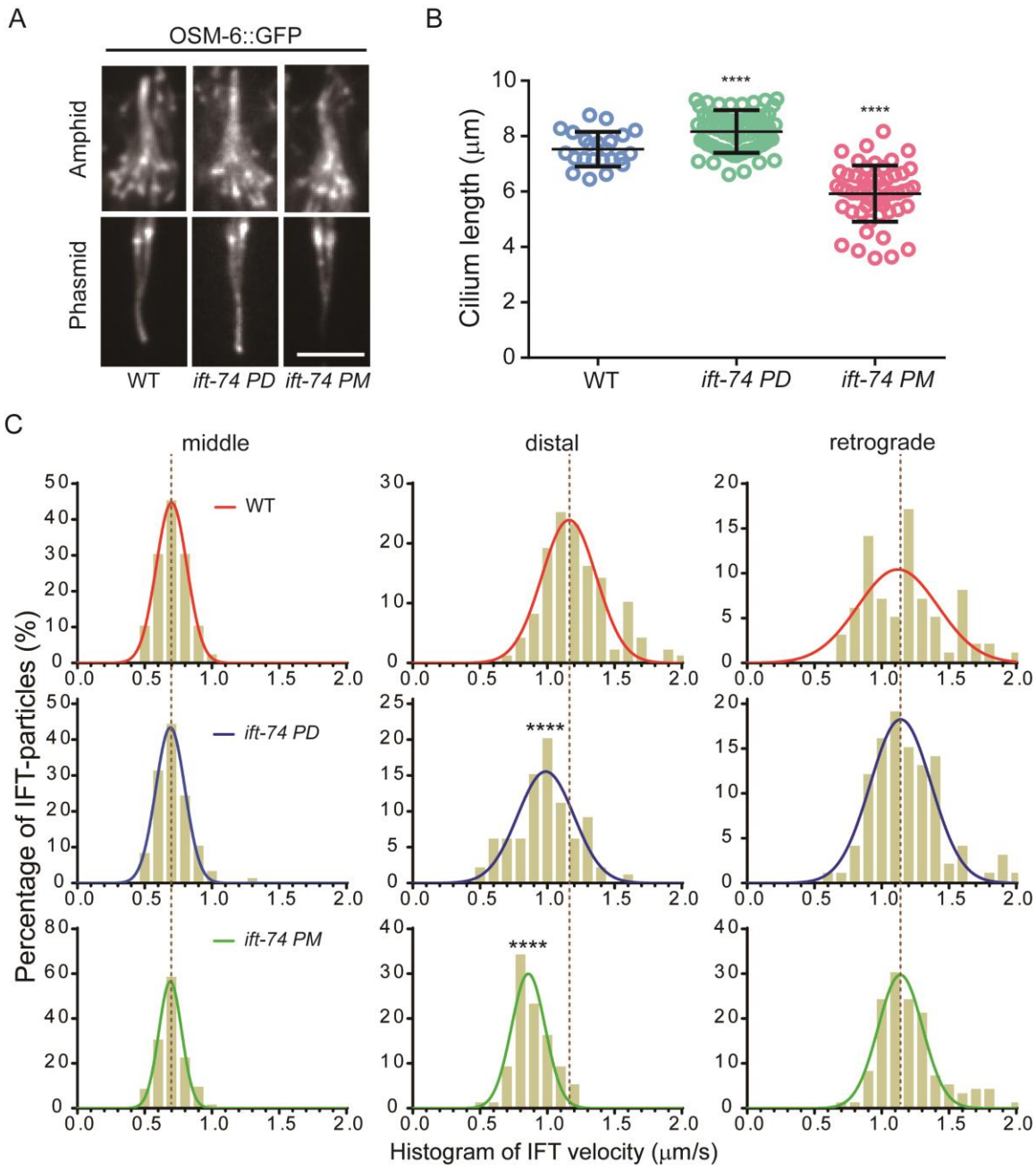

Fig. S2. Cilium morphology and IFT velocity in *ift*-74 *PM* and *PD* mutant animals based on OSM6::GFP. (**A**) Amphid (top) and phasmid (bottom) cilia morphology in ift-74 PM and PD mutants in comparison with wild-type (N2) animals. Cilia were imaged with GFP-tagged OSM-6. (**B**) Cilium length. Scale bar: 5 μm. (**B**) Cilium length in wild-type and *ift-74 PM*/*PD* animals (mean ± SD; n = 30; ****P < 0.0001). OSM-6::GFP was used as the cilium marker. (C) Histogram of IFT velocities in wild-type and *ift*-74-mutant animals. Left: anterograde IFT along the middle segments. Middle: anterograde IFT along the distal segments. Right: retrograde IFT. OSM-6::GFP was used as the IFT marker for the measurement. Each plot was fit by a Gaussian distribution. Comparisons were performed between the wild-type and mutants. ****P < 0.0001.

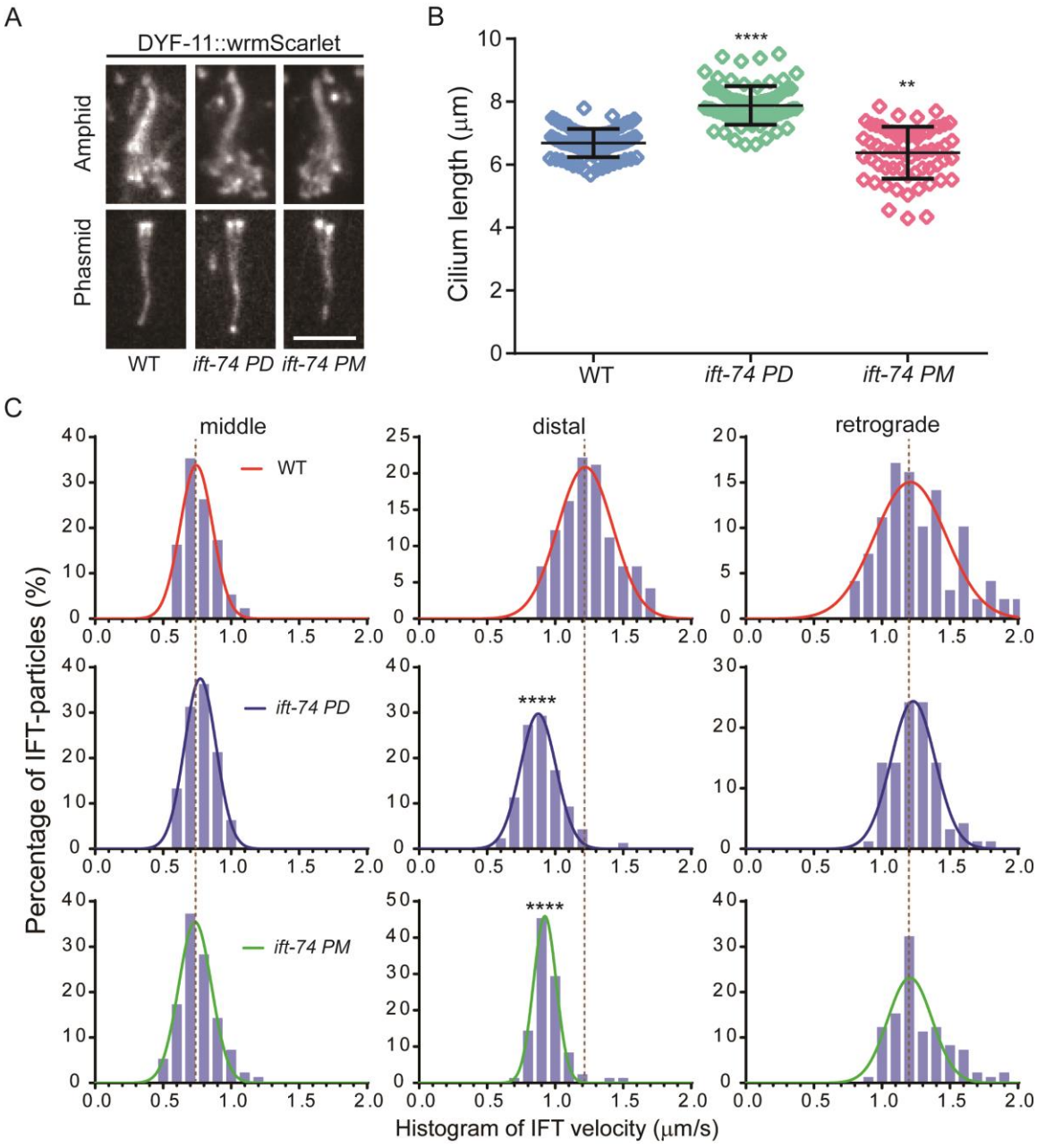

Fig. S3. Cilium morphology and IFT velocity in *ift*-74 *PM* and *PD* mutant animals based on DYF-11::wrmScarlet. (**A**) Amphid (top) and phasmid (bottom) cilia morphology in ift-74 PM and PD mutants in comparison with wild-type (N2). Cilia were imaged with wrmScarlet-tagged DYF-11. (**B**) Cilium length. Scale bar: 5 μm. (**B**) Cilium length in wild-type and *ift-74 PM*/*PD* animals (mean ± SD; n = 30; ***P* < 0.01, *****P* < 0.0001). DYF-11::wrmScarlet was used as the cilium marker. (C) Histogram of IFT velocities in wild-type and *ift*-74-mutant animals. Left: anterograde IFT along the middle segments. Middle: anterograde IFT along the distal segments. Right: retrograde IFT. DYF-11::wrmScarlet was used as the IFT marker for the measurement. Each plot was fit by a Gaussian distribution. Comparisons were performed between the wild-type and mutants. *****P* < 0.0001.

Table S1. *C. elegans* strains used in this study

Strain name	Genotype	Method	Resouce
N2	Wild type	/	CGC
GOU2362	*cas499 [ift-74::gfp knock-in]*	Microinjection	This study
SP1745	*dyf-5 (mn400)*	/	CGC
GOU4775	*dyf-5 (mn400); ift-74 (cas499)*	Genetic cross	This study
PHX4679	*syb4679 [ift-74 PD knock-in]*	Microinjection	Suny Biotech
PHX4674	*syb4674 [ift-74 PM knock-in]*	Microinjection	Suny Biotech
GOU4784	*ift-74 (syb4679); mnIs17 [osm-6::gfp unc-36(+)]*	Genetic cross	This study
GOU4785	*ift-74 (syb4674); mnIs17 [osm-6::gfp unc-36(+)]*	Genetic cross	This study
GOU4772	*cas1086 [dyf-11::wrmScarlet knock-in]*	Microinjection	This study
GOU4786	*ift-74 (syb4679); dyf-11 (cas1086)*	Genetic cross	This study
GOU4787	*ift-74 (syb4674); dyf-11 (cas1086)*	Genetic cross	This study
PHX4963	*syb4963 [ift-74 PD::gfp knock-in]*	Microinjection	Suny Biotech
PHX4964	*syb4964 [ift-74 PM::gfp knock-in]*	Microinjection	Suny Biotech