

Supplemental Materials

Molecular Biology of the Cell

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Supplemental Figure Legends

Figure S1

Related to Figure 1. Fluorescence microscopy of polyE2-labeled axonemes. Axonemes were incubated with the biotinylated Fab fragments of polyE2 antibodies. Labeled axonemes were stained with streptavidin-Alexa 546.

Figure S2

Related to Figure 2. (A) 2D section views of the DMT structures. The red line on the cross-section indicates the position of the section. The red circle on the wild type image indicates the N-DRC. The red arrowhead on the *pf2pf3* + polyE2 image indicates the label densities. (B) Fourier shell correlation curves of the averaged tomograms. The intersection between each curve and the horizontal line at 0.5 was taken as the effective correlation.

Figure S3

Related to Figures 3 and 4. (A) Expression of modified DRC4 and DRC2. Axonemal proteins

were separated and probed with the indicated antibodies. See Table S1 for abbreviations. (B)

Swimming velocities of strains used in this study. Means \pm SEM for the mean swimming speeds were calculated from 20 cells.

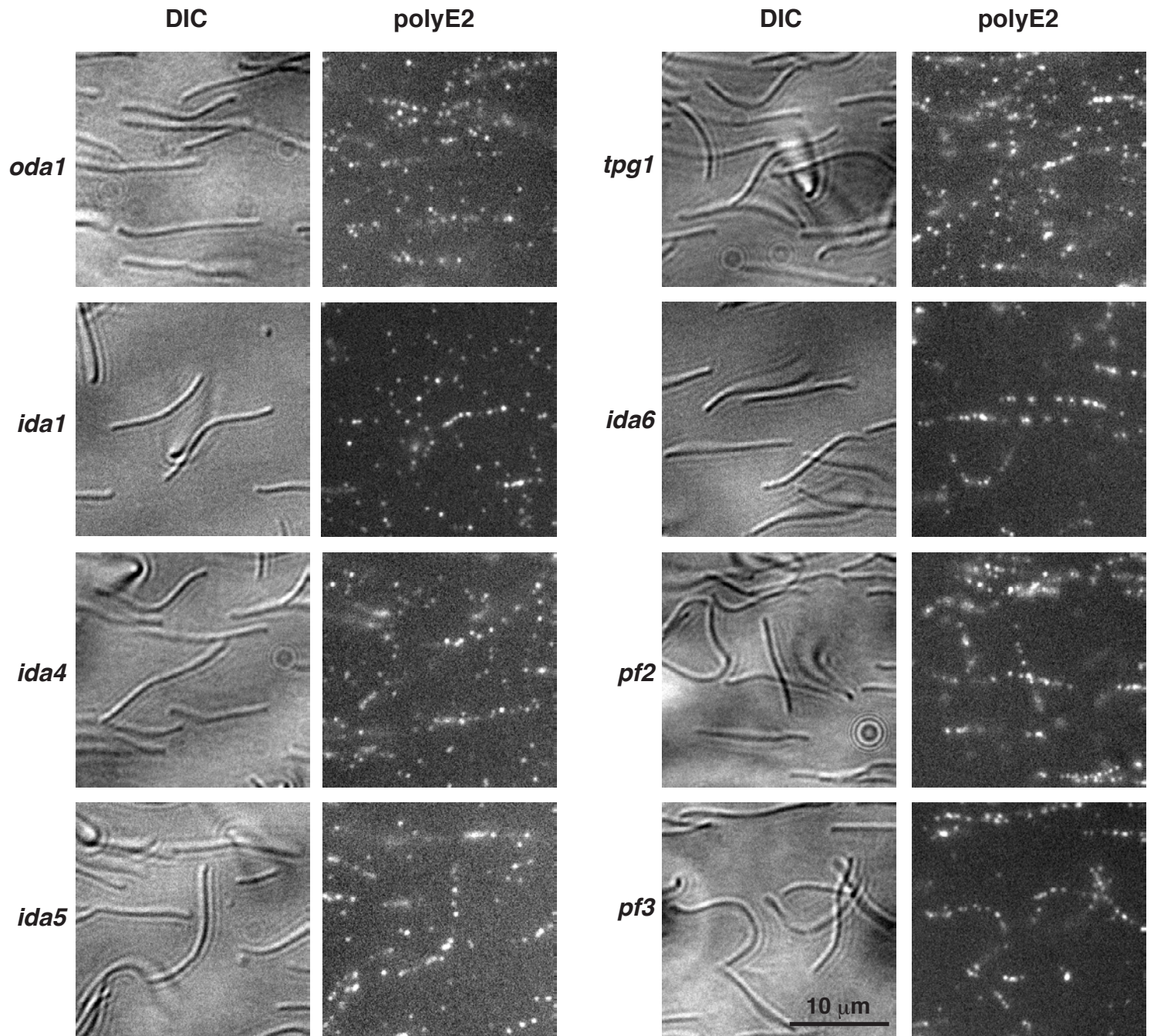
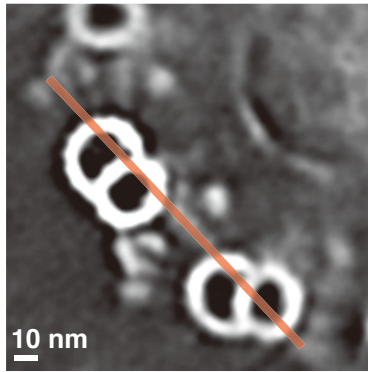
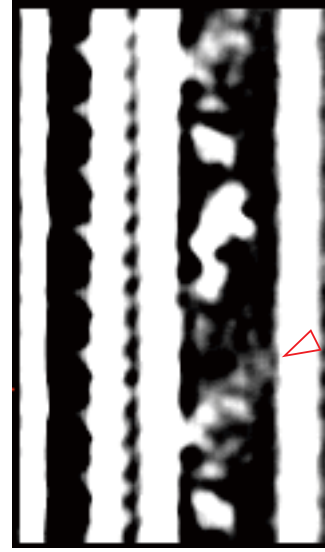


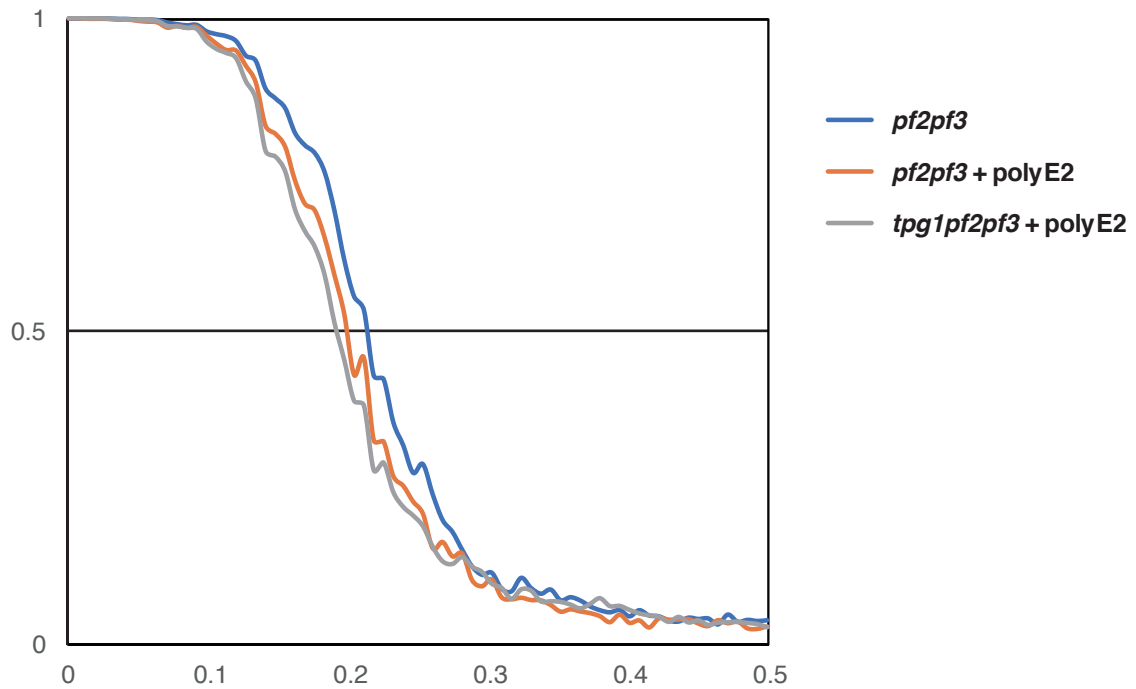
Figure S1

A

Wild type

*pf2pf3**pf2pf3* + polyE2*tpg1pf2pf3* + polyE2

10 nm

B**Figure S2**

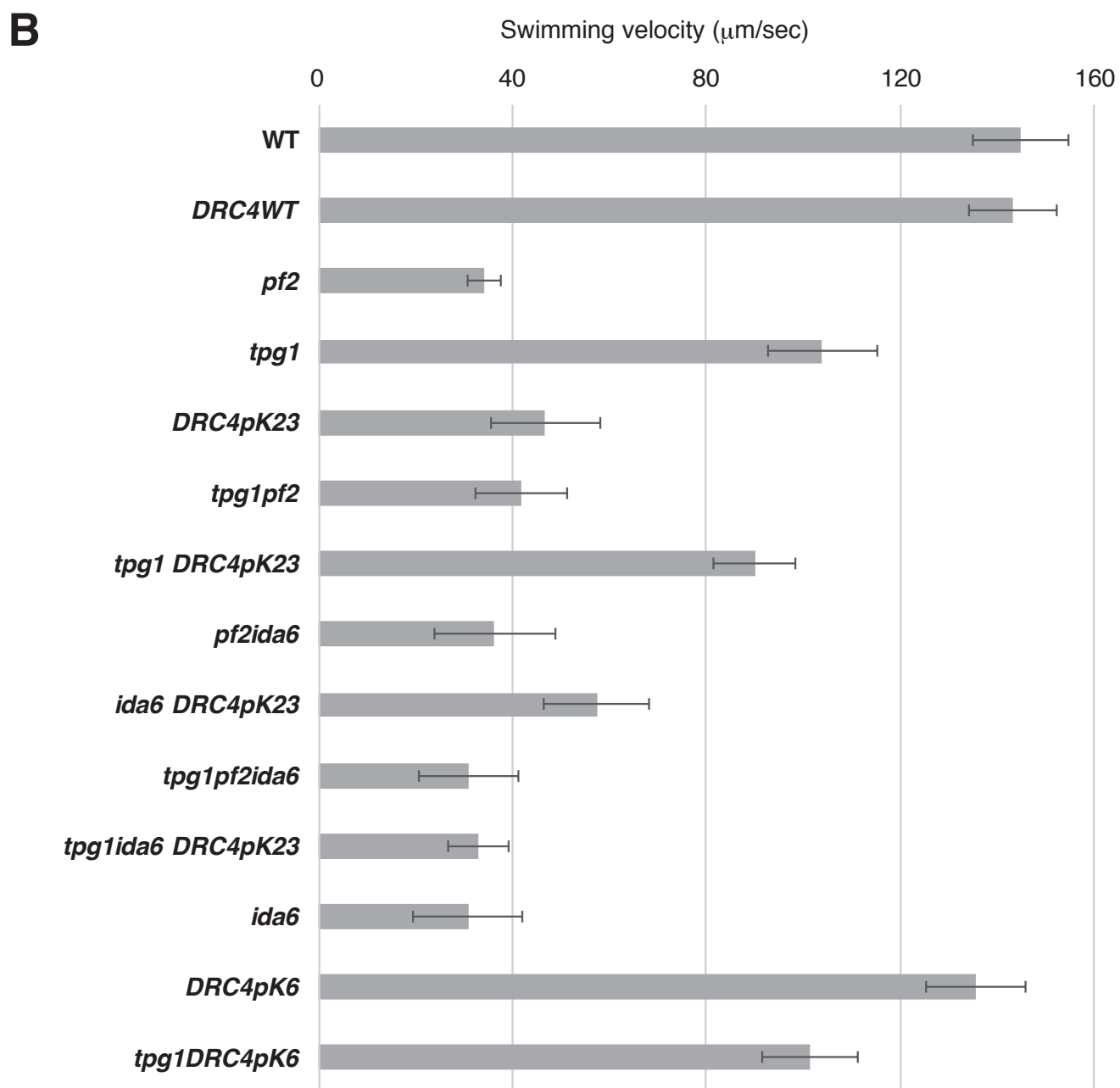
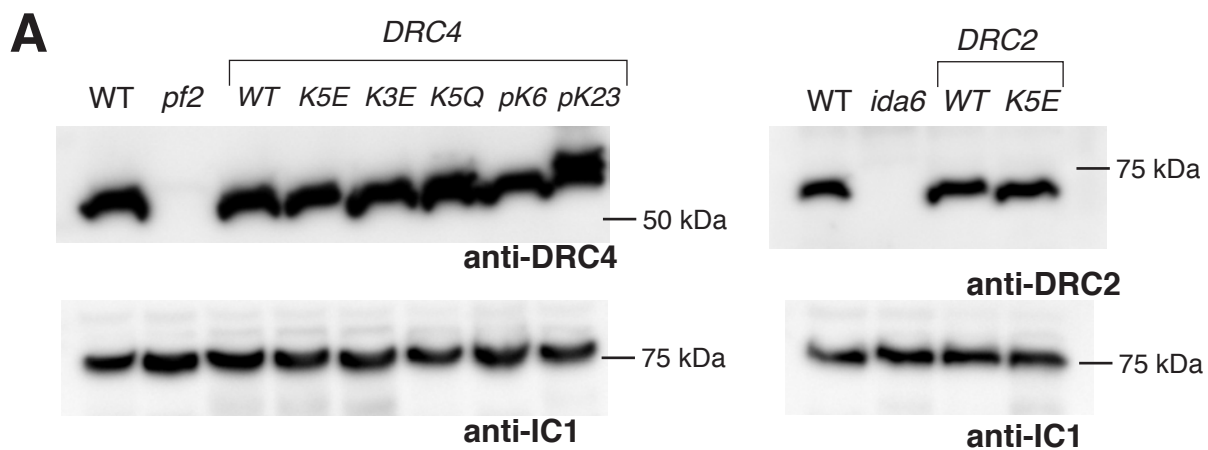


Figure S3

Strains	Abbreviations	Mutated genes	Missing structures	References
Wild-type CC-125				
<i>oda1</i>		DC2	ODA	(Takada et al., 2002; Kamiya, 1988)
<i>ida1</i>		DHC1	IDA <i>f</i>	(Kamiya et al., 1991)
<i>ida4</i>		P28	IDA <i>a, c, and d</i>	(Kamiya et al., 1991; Kagami and Kamiya, 1992; Kato et al., 1993)
<i>ida5</i>		Actin	IDA <i>a, c, d, and e</i>	(Kamiya et al., 1991; Kagami and Kamiya, 1992; Kato et al., 1993)
<i>pf2</i>		DRC4	N-DRC (partial, DRC3, 4, 5, 6, and 7), and IDA <i>e</i>	(Rupp and Porter, 2003; Lin et al., 2011; Huang et al., 1982; Oda et al., 2013)
<i>pf3</i>		DRC1	N-DRC (partial, DRC1, 2, 5, 6, and 7), and IDA <i>e</i>	(Lin et al., 2011; Huang et al., 1982; Wirschell et al., 2013; Oda et al., 2013)
<i>ida6</i>		DRC2	N-DRC (partial)	(Kato et al., 1993; Austin-Tse et al., 2013)
<i>tpg1</i>		TTLL9		(Kubo et al., 2010)
<i>pf2pf3</i>				
<i>tpg1pf2pf3</i>				
<i>pf2ida6</i>				
<i>tpg1pf2ida6</i>				
<i>pf2 DRC4WT</i>	<i>DRC4WT</i>			
<i>pf2 DRC4K5E</i>	<i>DRC4K5E</i>			
<i>pf2 DRC4K3E</i>	<i>DRC4K3E</i>			
<i>pf2 DRC4K5Q</i>	<i>DRC4K5Q</i>			
<i>pf2 DRC4NpLysArg6</i>	<i>DRC4pK6</i>			

<i>pf2 DRC4NpLys23</i>	<i>DRC4pK23</i>			
<i>tpg1pf2 DRC4NpLysArg6</i>	<i>tpg1 DRC4pK6</i>			
<i>tpg1pf2 DRC4NpLys23</i>	<i>tpg1 DRC4pK23</i>			
<i>pf2ida6 DRC4NpLys23</i>	<i>ida6 DRC4pK23</i>			
<i>tpg1pf2ida6 DRC4NpK23</i>	<i>tpg1ida6 DRC4pK23</i>			
<i>ida6 DRC2WT</i>	<i>DRC2WT</i>			
<i>ida6 DRC2K5E</i>	<i>DRC2K5E</i>			

Table S1: List of strains: See Figure S3B for swimming velocity of each strain.