

# ***Drosophila* VCP/p97 Mediates Dynein-Dependent Retrograde Mitochondrial Motility in Axons.**

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## **Supplementary Information**

### **Supplementary Figure 1. *dVCP* RNAi Phenotypes and Transgenic *dVCP* Expressions. (A, D)**

Whole body lysates from adult flies five days after eclosion were immunoblotted as indicated. Protein band intensities are normalized to those of  $\beta$ -actin and graphed as relative change compared to “*Da-GAL4>Wild-Type*” for (A) and “*Da-GAL4>dVCP-WT*” for (D).  $\beta$ -Actin levels are not significantly different among all genotypes. (A) n=3 independent experiments. (D) n=5 independent experiments. (B) The average velocity of non-stationary mitochondria in each direction is shown (n=32–128 mitochondria). The frequency that each mitochondrial instantaneous velocity changes to zero (stop), and that the direction of the instantaneous velocity reverses (reverse) is quantified (n=164–334 mitochondria). 20–23 axons were imaged from 7-10 larvae per genotype. (C) Representative confocal stack images show the membranes of neuromuscular junction boutons visualized by anti-HRP and mitochondrial puncta visualized by mito-GFP at

muscle 12 hemisegment A3 in third instar larvae. Similar results were seen in 3 larvae per genotype.

Scale bar=30  $\mu\text{m}$ .

# Supplementary Figure 1

