Table 1. Organelle transport in wild-type and *unc-104* mutant larval motor axons

Organelle[a]	Genotype[b]	Flux[c] (org./min)	Net velocity[d,e] (μm/s)	Forward runs[d,f] % Time	Forward runs[d,f] Velocity (μm/s)	Forward runs[d,f] Length (μm)	Reverse runs[d,f] % Time	Reverse runs[d,f] Velocity (μm/s)	Reverse runs[d,f] Length (μm)	Pauses % Time
Anterograde organelles										
DCV(ANF)	+/+	104.0 ± 7.4	1.05 ± 0.10	85.14 ± 3.87	1.14 ± 0.06	41.75 ± 6.54	1.24 ± 0.89	−0.41 ± 0.06	1.21 ± 0.50	13.6 ± 3.59
	O1.2/P350	34.4 ± 4.3*	0.72 ± 0.06*	82.01 ± 3.14	0.62 ± 0.07*	29.65 ± 5.12	3.07 ± 1.11	−0.42 ± 0.04	1.33 ± 0.32	14.9 ± 2.91
	O3.1/P350	22.2 ± 6.4*	0.49 ± 0.05*	82.73 ± 3.23	0.58 ± 0.03*	12.31 ± 2.42*	2.20 ± 0.97	−0.39 ± 0.05	0.88 ± 0.13*	15.1 ± 2.69
STV(Syt)	+/+	8.4 ± 1.2	0.69 ± 0.09	78.48 ± 2.20	0.84 ± 0.05	9.63 ± 0.93	3.47 ± 0.80	−0.36 ± 0.03	1.06 ± 0.13	18.1 ± 1.92
	O1.2/P350	1.6 ± 0.5*	0.51 ± 0.06	54.20 ± 6.30*	0.58 ± 0.05*	5.70 ± 1.54	11.16 ± 5.23	−0.40 ± 0.06	1.35 ± 0.39	34.7 ± 0.05*
Mitochondria	+/+	4.1 ± 0.8	0.19 ± 0.02	59.09 ± 2.35	0.30 ± 0.01	2.06 ± 0.18	1.14 ± 0.36	−0.25 ± 0.02	0.58 ± 0.54	39.8 ± 2.24
	O1.2/P350	1.9 ± 0.2*	0.26 ± 0.04	57.24 ± 3.41	0.38 ± 0.02*	2.52 ± 0.31	1.08 ± 0.36	−0.28 ± 0.03	0.67 ± 0.15	41.7 ± 3.44
Retrograde organelles										
DCV(ANF)	+/+	38.8 ± 1.9	−0.62 ± 0.09	67.80 ± 4.26	−1.02 ± 0.09	−17.42 ± 4.06	7.27 ± 1.93	0.36 ± 0.02	1.20 ± 0.22	24.9 ± 3.70
	O1.2/P350	31.4 ± 2.4*	−0.56 ± 0.06	64.77 ± 3.33	−0.78 ± 0.05*	−10.60 ± 4.09	8.60 ± 1.99	0.33 ± 0.03	1.15 ± 0.19	26.6 ± 3.31
	O3.1/P350	13.0 ± 2.5*	−0.36 ± 0.10	60.41 ± 4.3	−0.58 ± 0.03*	−5.39 ± 0.81*	9.03 ± 1.71	0.32 ± 0.04	0.90 ± 0.11	30.6 ± 3.80
STV(Syt)	+/+	10.0 ± 1.1	−0.62 ± 0.09	76.83 ± 2.24	−0.76 ± 0.03	−9.01 ± 0.81	3.51 ± 0.62	0.38 ± 0.04	1.16 ± 0.13	19.7 ± 1.94
	O1.2/P350	11.2 ± 1.0	−0.60 ± 0.08	73.08 ± 2.07	−0.79 ± 0.03	−7.98 ± 0.75	7.33 ± 1.00*	0.32 ± 0.02	0.92 ± 0.07	19.6 ± 1.54
Mitochondria	+/+	2.4 ± 0.7	−0.21 ± 0.02	45.07 ± 4.12	−0.45 ± 0.02	−2.77 ± 0.22	4.25 ± 0.60	0.23 ± 0.01	0.54 ± 0.04	50.7 ± 4.22
	O1.2//P350	1.8 ± 0.4	−0.20 ± 0.02	37.53 ± 3.22	−0.55 ± 0.03*	−2.90 ± 0.24	7.49 ± 2.08	0.24 ± 0.01	0.60 ± 0.05	55.0 ± 3.40

[a] Organelle-targeted GFPs were imaged in motor axons of third instar segmental nerves by time-lapse fluorescence microscopy.

[b] Wild-type (+), *unc-104*$^{O1.2}$ (O1.2), *unc-104*$^{O3.1}$ (O3.1), and *unc-104*^{P350} (P350) alleles were used.

[c] Flux for DCVs and mitochondria represents the mean number (±SEM) of organelles per minute that entered the photobleached zone (1 nerve/animal, 5 animals/genotype). For Syt vesicles, flux represents the total number of vesicles that could be tracked in one nerve of each animal divided by total observation time. F-tests were used to determine variance, and *t* tests were done with unequal or equal variance at 95% confidence intervals. Significant differences for mutant relative to wild type means are noted by an asterisk ($p < 0.05$).

[d] All values other than flux were determined by measuring the position of the center of each organelle as a function of time in each video frame (1 nerve/animal, 5 animals/genotype). For DCVs and mitochondria, five organelles were tracked in each direction for each animal. For STVs, because all observable transported organelles were tracked, sample sizes from five larvae were 70 anterograde and 85 retrograde for wild type and 13 anterograde and 93 retrograde for mutant larvae. The significance of differences between wild type and mutant means were determined by linear contrast (asterisk indicates $p < 0.05$).

[e] Net velocity was determined by summing all velocities for each organelle over all time intervals, including forward runs (positive), reverse runs (negative), and pauses. Note that mean values for forward run velocity can be less than net velocity if short duration runs are numerous and slow, whereas long duration runs are few and fast. F-tests were used to determine variance, and *t* tests were done with unequal or equal variance at 95% confidence intervals. Significant differences for mutant relative to wild type means are noted by an asterisk ($p < 0.05$).

[f] Most organelles showed a strong directional bias with frequent long runs in a forward direction interrupted by pauses and infrequent short runs in the opposite or reverse direction. Thus, organelles were classed as either "anterograde" or "retrograde" and runs as either "forward" or "reverse."