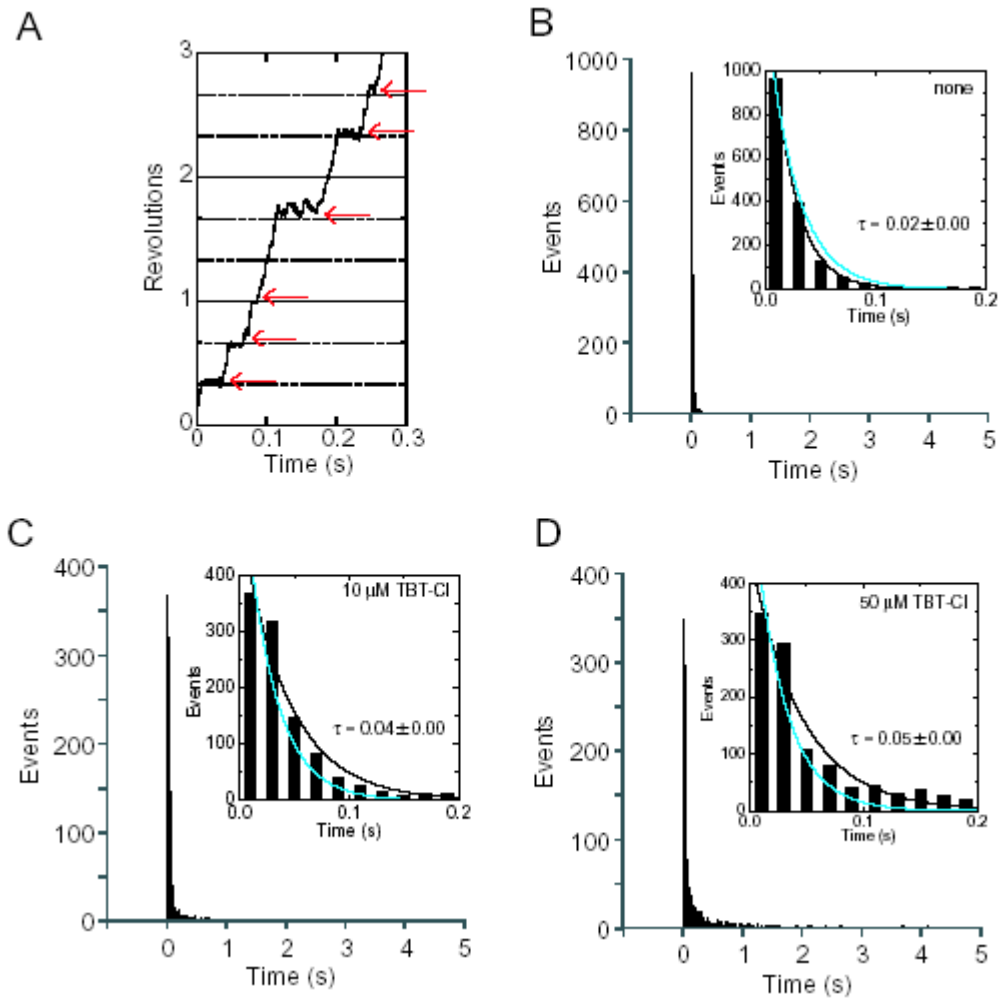


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**Supporting Material**

**Mechanism of Inhibition of the V-type Molecular Motor by Tributyltin Chloride**

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**Supplementary Figure.** Undefined dwell times of  $V_1$ . (A) Expanded time courses of rotation at 4 mM ATP without TBT-Cl. Red arrows show undefined pauses. (B) Histogram of the undefined dwell time during rotation at 4 mM ATP in the absence of TBT-Cl ( $n=1616$ , 5 molecules). (C) and (D) Histogram of the all pausing time during rotation at 4 mM ATP in the presence of 10  $\mu$ M ( $n=1151$ , 5 molecules) (C) and 50  $\mu$ M TBT-Cl ( $n=1400$ , 7 molecules) (D). (Insets) Expanded time range of histograms. Each histogram with this bin size (0.02 s) are well fitted with single exponential,  $y = C \times \exp(-t/\tau)$  (Black curve lines). Blue lines show the result of a global fit to the histograms with a time constant:  $\tau_{ud} = 0.03 \pm 0.00$ . At long time region with this bin size, the counts were very low and these are excluded from fitting.

[TBT-Cl]		Moving	Short pause	Long pause
10 $\mu$ M	Before	34.2 $\pm$ 7.8	49.8 $\pm$ 5.4	16.1 $\pm$ 4.7
	After	33.8 $\pm$ 10.0	50.8 $\pm$ 10.1	15.4 $\pm$ 4.3
50 $\mu$ M	Before	30.8 $\pm$ 5.1	47.3 $\pm$ 8.6	21.9 $\pm$ 4.9
	After	24.9 $\pm$ 6.2	50.3 $\pm$ 9.7	24.8 $\pm$ 4.3

**Supplementary Table.** Comparison of occurrence of the short pause before and after the long pause. To see if the long pause and short pause are correlated, the occurrence of short pauses before and after long pauses was examined. 126 (10  $\mu$ M TBT-Cl) and 384 (50  $\mu$ M TBT-Cl) long pauses were examined for this analysis.