

Table S2. Effect of paclitaxel on wild-type microtubule dynamics

| Parameter | Paclitaxel (nM) | | | | | |
|-------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------------|
| | 0 | 1 | 3 | 10 | 30 | 50 |
| Growth | | | | | | |
| Rate ($\mu\text{m}/\text{min}$) | 16.0 \pm 0.8 | 13.0 \pm 1.2* | 9.9 \pm 0.7* | 10.0 \pm 0.6* | 10.8 \pm 0.5* | 9.8 \pm 0.8* (61) |
| Duration (sec) | 12.0 \pm 1.1 | 8.0 \pm 0.6* | 6.6 \pm 0.6* | 6.2 \pm 0.4* | 7.4 \pm 0.9* | 5.7 \pm 0.6* (48) |
| Distance (μm) | 3.3 \pm 0.4 | 1.8 \pm 0.2* | 1.1 \pm 0.2* | 1.1 \pm 0.1* | 1.3 \pm 0.2* | 0.9 \pm 0.1* (27) |
| Shortening | | | | | | |
| Rate (μ/min) | 28.7 \pm 2.3 | 20.7 \pm 1.5* | 13.7 \pm 0.9* | 12.2 \pm 1.2* | 11.2 \pm 0.6* | 9.4 \pm 0.5* (33) |
| Duration (sec) | 10.9 \pm 1.0 | 8.3 \pm 0.7 | 5.9 \pm 0.3* | 7.3 \pm 0.8* | 6.3 \pm 0.5 | 5.5 \pm 0.3* (50) |
| Distance (μm) | 5.1 \pm 0.5 | 2.8 \pm 0.3* | 1.3 \pm 0.1* | 1.6 \pm 0.4* | 1.3 \pm 0.2* | 0.9 \pm 0.1* (18) |
| Frequency (min^{-1}) | | | | | | |
| Catastrophe | 1.5 \pm 0.1 | 2.4 \pm 0.3* | 1.8 \pm 0.3 | 1.7 \pm 0.3 | 1.2 \pm 0.2 | 1.8 \pm 0.3 (120) |
| Rescue | 6.5 \pm 0.5 | 7.3 \pm 0.4 | 10.0 \pm 0.7* | 8.0 \pm 1.0 | 8.8 \pm 1.0* | 9.8 \pm 1.2* (151) |
| Percentage of time | | | | | | |
| Growing | 30.6 \pm 2.3 | 22.1 \pm 1.7* | 14.4 \pm 2.0* | 16.5 \pm 3.0* | 14.6 \pm 2.6* | 9.5 \pm 1.5* (31) |
| Shortening | 20.3 \pm 1.8 | 23.7 \pm 3.0 | 15.0 \pm 2.4 | 15.6 \pm 2.4 | 11.0 \pm 2.1* | 12.3 \pm 2.5* (61) |
| Pausing | 49.0 \pm 3.0 | 54.2 \pm 4.4 | 70.5 \pm 4.0* | 67.9 \pm 5.0* | 74.5 \pm 3.3* | 78.2 \pm 3.4* (160) |
| Dynamicity ($\mu\text{m}/\text{min}$) | 8.8 \pm 0.8 | 7.7 \pm 1.0 | 3.5 \pm 0.6* | 3.9 \pm 0.9* | 2.8 \pm 0.4* | 2.4 \pm 0.3* (27) |
| Microtubules measured | 33 | 15 | 10 | 15 | 15 | 10 |

Values represent the mean \pm standard error.

Numbers in parentheses are percent of control (untreated wild-type cells).

Catastrophe: the transition from either growth or pause phase to shortening phase.

Rescue: the transition from shortening phase to either growth or pause phase.

Dynamicity: the total length change of individual microtubule during life history.

* $p < 0.05$ compared to cells at 0 concentration of paclitaxel.