

**Table 2. Parameter values used in the simulation**

		References
<b><i>Microtubule (MT) dynamics</i></b>		
Growth velocity ( $V_g$ ) [ $\mu\text{m/s}$ ]	0.328	(Srayko et al., 2005)
Shrinkage velocity ( $V_s$ ) [ $\mu\text{m/s}$ ]	0.537	(Kozłowski et al., 2007)
Catastrophe frequency ( $F_{cat}$ ) at cytoplasm [ $/s$ ] <sup>a</sup>	0.046	(Kozłowski et al., 2007)
Rescue frequency ( $F_{res}$ ) [ $/s$ ] <sup>b</sup>	1	
Number of fibers per pole	296	(Srayko et al., 2005)
<b><i>Pulling force, motor mediated</i></b>		
Stall force of motor ( $F_{stall}$ ) [pN]	1.1	(Gross et al., 2000)
Maximum velocity of motor ( $V_{max}$ ) [ $\mu\text{m/s}$ ]	2.0	(Gross et al., 2000)
<b><i>Pulling force, attachment of FG (cytoplasmic length dependent)</i></b>		
Density of motors ( $D$ ) [ $/\mu\text{m}$ ]	0.2	
<b><i>Pulling force, attachment of FG (cortical)</i></b>		
Potential number of force generators at the cortex	15	
( $N_{potential}$ , anterior, PAR-3 dependent)		
Potential number of force generators at the cortex	30	
( $N_{potential}$ , posterior, PAR-2 dependent)		
The mean probability of the activation of the force generators ( $p_{mean}$ ) [ $/s$ ]	0.5	(Pecreaux et al., 2006)
<b><i>Spindle as a spring</i></b>		
Natural length [ $\mu\text{m}$ ]	10-22	
Spring constant [pN/ $\mu\text{m}$ ]	1	
<b><i>Size of the cell</i></b>		
Long axis [ $\mu\text{m}$ ]	50	
Short axis [ $\mu\text{m}$ ]	30	
<b><i>Drag force of nucleus/spindle pole</i></b>		
Drag coefficient, for translational movement	190	
( $\Gamma_{trans}$ ) [pN s/ $\mu\text{m}$ ] <sup>c</sup>		
Drag coefficient, for rotational movement ( $\Gamma_{rot}$ )	25,000	
[pN s $\mu\text{m}$ ] <sup>c</sup>		
<b><i>Model-specific parameter</i></b>		
Time step [s]	0.01	

<sup>a</sup> See Table S1 for catastrophe frequency at the cortex

<sup>b</sup> A high frequency was used in this study. See text for a detailed explanation.

<sup>c</sup>  $6\pi r\eta$  for translational movement and  $8\pi r^3\eta$  for rotational movement. Here, we set  $r$  (Stokes' radius) to 10  $\mu\text{m}$  and  $\eta$  (viscosity of the cytosol) to 1.0 pNs/ $\mu\text{m}^2$ .