

Parameter	Value	Reference
<i>Simulation parameters</i>		
Simulation time step (δt)	0.01 s	This study
Simulation box size	50 x 50 μm	This study
Thermal energy ($k_B \cdot T$)	$4.07 \times 10^{-21} \text{ N} \cdot \text{m}$	-
Viscosity (η) (10 % glycerol)	$1.3 \times 10^{-3} \text{ Pa} \cdot \text{s}$	(70)
<i>MT and motor mechanics</i>		
MT bending modulus (κ)	$2 \times 10^{-23} \text{ N} \cdot \text{m}^2$	(68)
Motor stiffness (k_m)	$2 \times 10^{-4} \text{ N/m}$	(9)
Attachment distance (d_a)	$2 \times 10^{-8} \text{ m}$	Based on typical molecular distances
Attachment rate (r_a)	5 s^{-1}	(44)
Basal detachment rate (r_d^0)	0.04 s^{-1}	(9)
Basal motor velocity (v_0)	$1.02 \times 10^{-7} \text{ m/s}$	(9)
Stall force (F_s)	$4.8 \times 10^{-12} \text{ N}$	(20)
Motor density (ρ_m)	10^{-1} to $10^2 \text{ motors}/\mu\text{m}^{-2}$	This study

TABLE 1: Simulation parameters of the gliding assay. Parameters of the mechanics of MTs and dynein are taken from literature while the motor density was varied.

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