

Supplementary Information 4. Description of parameters and their values used in the model

Parameter	Description	Value	Source
R (J/mol/K)	Ideal gas constant	8.31	Constant
T (K)	Absolute temperature	310	Physiological condition
η (Pa s/ $\mu\text{m}^2/\text{mM}$)	Interfacial drag coefficient	1×10^{-3}	Based on ⁶⁹
$\eta_{\text{st,LV}}^0$ (Pa s/ $\mu\text{m}^2/\text{mM}$)	Focal adhesion strength coefficient	800	Based on ⁶²
k_{σ_n} (Pa/mM)	Passive F-actin stress coefficient	100	Estimated
J_{actin}^f (nm mM/s)	Coefficient of actin polymerization	2.5	Based on ⁶²
$\theta_{c,c}$ (μM)	Critical G-action concentration	0.2	Based on ⁷⁰
γ (1/s)	Constant rate of actin depolymerization	6×10^{-4}	Based on ⁷¹
θ_* (mM)	Average actin concentration	300	Based on ^{70,72}
D_c ($\mu\text{m}^2/\text{s}$)	Diffusion coefficient of ion	100	Based on ²¹
D_{θ_c} ($\mu\text{m}^2/\text{s}$)	Diffusion coefficient of G-actin	10	Estimated
$k_{\text{sol}}^{f(b)}$ ($\mu\text{m}/\text{s}$)	Passive ion channel permeability	50	Based on ⁶²
$J_{c,\text{active}}^b$ ($\mu\text{m mM}/\text{s}$)	Active ion flux at the back	-5300	Based on ⁶²
$\alpha^{f(b)}$ ($\mu\text{m}/\text{Pa}/\text{s}$)	Water permeability	10^{-4}	Based on ⁶²
$p_0^{f(b)}$ (Pa)	Hydraulic pressure at infinity	0	Free constant
$c_0^{f(b)}$ (mM)	Extracellular ion concentration	340	Physiological condition

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