S1 Table: Parameters used in the model and source

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| --- | --- | --- | --- | --- |
| **Data used for model calibration** | **Symbol** | **Value** | **Unit** | **Data source** |
| Membrane tension of Ns shRNA cells | T\_Ns | 0.069 | mN/m | Fig 2F (a) |
| Membrane tension of Rictor shRNA cells | T\_Rictor | 0.103 | mN/m | Fig 2F (a) |
| Membrane tension of PLD2 shRNA cells | T\_PLD2 | 0.126 | mN/m | Fig 3F (a) |
| Actin ratio (PLD2 shRNA/Ns shRNA cells) | r\_actin\_PLD2 | 1.553 |  | Fig 3E |
| Actin ratio (Rictor shRNA/Ns shRNA cells) | r\_actin\_Rictor | 1.780 |  | Fig 2E |
| Membrane tension before 70 mOsm hypo-osmotic shock | T\_before | 0.064 | mN/m | Fig 1F (a) |
| Membrane tension after 70 mOsm hypo-osmotic shock | T\_after | 0.139 | mN/m | Fig 1F (a) |
| WAVE2 complex dissociation upon 70 mOsm hypo-osmotic shock | k\_TORC\_deg | 2.76 | 1/min | Fig 4D and S3D (a) |
|  |
| **Model parameters** | **Symbol** | **Value** | **Unit** | **Data source** |
| Plasma membrane tension constant |  | 0.18 | mN/m | Fig S3D (a) |
| Plasma membrane tension offset |  | 0.03  | mN/m |  |
| Base-level mTORC2 complex activation rate | c\_{x,0} | 0.006 | 1/min | unknown |
| Membrane tension-induced mTORC2 complex activation rate | c\_{x,T} | 6 | 1/min | unknown |
| mTORC2 complex inactivation rate | d\_x | 3 | 1/min | Fig 4D and S3D (a) |
| Hill coefficient for mTORC2 complex activation | n | 5 |  | unknown |
| Half-saturation constant for mTORC2 complex activation | K\_TORC | 0.2 |  | unknown |
| Actin polymerization rate constant | c\_A | 1 | 1/(s molecules) | Weiner et al. 2007 |
| WAVE2 complex membrane binding rate | c\_H | 1 | 1/(s molecules) | Weiner et al. 2007 |
| WAVE2 complex membrane disassociation rate | d\_H | 0.36 | 1/min  | Weiner et al. 2007 |
| Total amount of WAVE2 complex molecules | H\_tot | 1500 | molecules | Weiner et al. 2007 |
| WAVE2 complex nucleation probability | c\_ | 1 | 1/s | Weiner et al. 2007 |
| Tension increase by osmotic shock | ΔT | 0.08 | mN/m | Difference T\_after and T\_before |

(a): see Section II for details