

Supplementary Table 1. Sensitivity analysis with phosphorylation and dephosphorylation parameters varied separately.

Parameter	Base Value	Range		
		$S = 1 \text{ s}^{-1}$	$S = 0.1 \text{ s}^{-1}$	$S = 0.01 \text{ s}^{-1}$
a_1	$10^{-6} \text{ (molecules}\times\text{s)}^{-1}$	$6.0 \times 10^{-7} - 1.63 \times 10^{-6}$	$4.3 \times 10^{-7} - 1.65 \times 10^{-6}$	$9.0 \times 10^{-8} - 1.71 \times 10^{-6}$
$p2_{R1}$	$10^{-6} \text{ (molecules}\times\text{s)}^{-1}$	$2.85 \times 10^{-7} - 5.31 \times 10^{-6}$	$3.11 \times 10^{-7} - 1.51 \times 10^{-5}$	$3.35 \times 10^{-7} - \infty$
$p2_{R2}$	$10^{-6} \text{ (molecules}\times\text{s)}^{-1}$	$0 - 5.31 \times 10^{-6}$	$0 - 1.51 \times 10^{-5}$	$0 - \infty$
$p3_{R1}$	$10^{-6} \text{ (molecules}\times\text{s)}^{-1}$	$4.32 \times 10^{-7} - 3.36 \times 10^{-6}$	$4.04 \times 10^{-7} - 9.64 \times 10^{-6}$	$3.55 \times 10^{-7} - \infty$
$p3_{R2}$	$10^{-6} \text{ (molecules}\times\text{s)}^{-1}$	$0 - 3.36 \times 10^{-6}$	$0 - 9.64 \times 10^{-6}$	$0 - \infty$
d_1	0.1 s^{-1}	$0 - 0.37$	$0 - 0.7$	$0 - 5.9$
d_2	100 s^{-1}	$0.3 - \infty$	$0.1 - \infty$	$3.2 \times 10^{-3} - \infty$
p_{scaff}	100 s^{-1}	$1.4 - \infty$	$0.7 - \infty$	$0.125 - \infty$
u_1	0.1 s^{-1}	$0 - \infty$	$0 - \infty$	$0 - \infty$
$u2_{R1}$	0.1 s^{-1}	$0.01 - 0.51$	$0.002 - 0.49$	$0 - 0.48$
$u2_{R2}$	0.1 s^{-1}	$0.01 - \infty$	$0.001 - \infty$	$0 - \infty$
$u3_{R1}$	0.1 s^{-1}	$0.0071 - \infty$	$10^{-4} - \infty$	$0 - \infty$
$u3_{R2}$	0.1 s^{-1}	$0.0071 - \infty$	$0 - \infty$	$0 - \infty$