

Table S4

Parameter	Description	Value	Unit
k_1	On rate for binding of CheA3 and CheA4	100	(μMs^{-1})
k_2	Off rate for binding of CheA3 and CheA4	10	s^{-1}
k'_1	On rate for binding of CheA3P1 and CheA4	100	(μMs^{-1})
k''_1	On rate for binding of CheA3P1-P and CheA4	100	(μMs^{-1})
k'_2	Off rate for binding of CheA3-P1 and CheA4	10	s^{-1}
k''_2	Off rate for binding of CheA3P1-P and CheA4	10	s^{-1}
k_6	CheA3-P to CheY6 Phosphotransfer	0.775	(μMs^{-1})
k_7	CheA3-P to CheY6 Reverse phosphotransfer	0.00283	(μMs^{-1})
k'_6	CheA4/CheA3P1-P to CheY6 Phosphotransfer	0.775	(μMs^{-1})
k'_7	CheA4/CheA3P1-P to CheY6 Reverse phosphotransfer	0.00283	(μMs^{-1})
k_8	Autodephosphorylation of CheY6-P	0.169	s^{-1}
k_9	Association of phosphatase assisted dephosphorylation complex	5.6	(μMs^{-1})
k_{10}	Dissociation of phosphatase assisted dephosphorylation complex	0.04	s^{-1}
k_{11}	k_{cat} for phosphatase assisted dephosphorylation	2.5	s^{-1}
$[\text{A3}]_{\text{tot}}$	Total concentration of CheA3	2.5	μM
$[\text{A4}]_{\text{tot}}$	Total concentration of CheA4	0,20,40,60	μM
$[\text{Y6}]_{\text{tot}}$	Total concentration of CheY6	100	μM
$[\text{A3P1-P}]$	Total concentration of CheA3P1-P	30	μM