

**Table EV1:** Parameter values for the model of Rata et al. 2018, used for the simulations shown in Figure 1, 2 and EV2. Compared to the original work we rescaled all kinetic parameters, except those indicated in bold, by a factor of 0.025 to account for the duration of G2-phase of several hours (right column). The total cdk2-cyclin A concentration is varied to model the differences between cells.

Name	Name in code	Description	Value	Ratio to parameters in Rata et al. (2018)
$k_{aPP1}$	kapp1	Constitutive dephosphorylation and thereby activation of PP1	$0.01725 \text{ h}^{-1}$	0.025
$k_{aPP1a}$	kapp1a	Dephosphorylation of PP1 by dephosphorylated PP1 in trans	$1.0581 \text{ h}^{-1}$	0.025
$k_{iPP1}$	kipp1	Constitutive phosphorylation and hence inactivation of PP1	$0.0027 \text{ h}^{-1}$	0.025
$k_{Cdk1,PP1}$	kipp1C	Phosphorylation of PP1 by Cdk1	$1.1323 \text{ h}^{-1}$	0.025
$k_{PP1,Gwl}$	kPP1Gw	Dephosphorylation of Gwl by PP1	$27.7086 \text{ h}^{-1}$	0.025
$k_{ass}$	kass	Association of pENSA with PP2A:B55	$925.9211 \text{ h}^{-1}$	0.025
$k_{dis}$	kdis	Dissociation of the pENSA:PP2A:B55 complex	$0.0132 \text{ h}^{-1}$	0.025
$k_{catB55}$	kcatB55	Dephosphorylation of pENSA when in complex with PP2A:B55	$1.5507 \text{ h}^{-1}$	0.025
$k_{Gwl,ENSA}$	kGwENSA	Phosphorylation of ENSA by Gwl	$31.3216 \text{ h}^{-1}$	0.025
$k_{PPX,Gwl}$	kppxGwl	Basal dephosphorylation of Gwl	$0.234 \text{ h}^{-1}$	0.025
$k_{Cdk1,Sub}$	<b>kcBc1Sub</b>	<b>Phosphorylation of the substrate by Cdk1</b>	<b><math>0.12 \text{ h}^{-1}</math></b>	<b>0.250</b>
$k_{B55,Sub}$	<b>kB55Sub</b>	<b>Dephosphorylation of the substrate by PP2A:B55</b>	<b><math>0.8895 \text{ h}^{-1}</math></b>	<b>0.250</b>
$k_{Cdk1,Gwl}$	kcBc1G	Phosphorylation of Gwl by Cdk1	$0.35895 \text{ h}^{-1}$	0.025
$k_{B55,Gwl}$	kB55G	Dephosphorylation of Gwl by PP2A:B55	$744.8454 \text{ h}^{-1}$	0.025
$k_{Cdk2,Gwl}$	kcAc2G	Phosphorylation of Gwl by Cdk2	$0.2874 \text{ h}^{-1}$	0.025
$k_{Cdc25S}$	k25S	Dephosphorylation of Y15 of Cdk1 by unphosphorylated Cdc25	$0.0075 \text{ h}^{-1}$	0.025
$k_{Cdc25F}$	k25F	Dephosphorylation of Y15 of Cdk1 by phosphorylated Cdc25	$1.4117 \text{ h}^{-1}$	0.025
$k_{Wee1S}$	kweeS	Phosphorylation of Y15 of Cdk1 by phosphorylated Wee1	$0.0075 \text{ h}^{-1}$	0.025
$k_{Wee1F}$	kweeF	Phosphorylation of Y15 of Cdk1 by unphosphorylated Wee1	$70.9406 \text{ h}^{-1}$	0.025
$k_{Cdk1,Wee1}$	kcBc1W1	Phosphorylation of Wee1 by Cdk1	$1.9698 \text{ h}^{-1}$	0.025
$k_{Cdk1,Cdc25}$	<b>kcBc125</b>	<b>Phosphorylation of Cdc25 by Cdk1</b>	<b><math>0.19698 \text{ h}^{-1}</math></b>	<b>0.0025</b>
$k_{PPX,Y15}$	kppxY15	Dephosphorylation of Wee1 and Cdc25 by a constitutive phosphatase	$0.0075 \text{ h}^{-1}$	0.025
$k_{Cdk2,Wee1}$	kcAc2W1	Phosphorylation of Wee1 by Cdk2	$0.1644 \text{ h}^{-1}$	0.025
$k_{Plk1,Cdc25}$	<b>kplk1225</b>	<b>Phosphorylation of Cdc25 by Plk1</b>	<b><math>0.01644 \text{ h}^{-1}</math></b>	<b>0.0025</b>
$k_{B55,Wee1}$	kB55W1	Dephosphorylation of Wee1 by PP2A:B55	$0.82665 \text{ h}^{-1}$	0.025
$k_{N55,Cdc25}$	kB5525	Dephosphorylation of Cdc25 by PP2A:B55	$0.82665 \text{ h}^{-1}$	0.025
$f_{Plk1}$	fplk1	Fraction active Plk1	0 - 1	NA
$CycBCdk1_{Tot}$	CycBCdk1T	Total Cdk1 Cyclin B complexes	8.1808 a.u.	1
$CycACdk2_{Tot}$	CycACdk2T	Total Cdk2 Cyclin A complexes	2 - 5 a.u.	2-5
$PP1_{Tot}$	PP1T	Total PP1	1 a.u.	1
$Gwl_{Tot}$	Gwtot	Total Gwl	1 a.u.	1
$ENSA_{Tot}$	ENSAtot	Total Ensa	1 a.u.	1
$B55_{Tot}$	B55tot	Total B55	0.25 a.u.	1
$Sub_{Tot}$	SubT	Total Cdk1 phosphorylation substrate	1 a.u.	1