

Table 1 – Parameters System 1

Parameter	Description	Value- Union of 2% best sets
k1	Formation rate of CpxRn upon phosphorylation by CpxRn-P by CpxAP	0.2969
k2	Formation rate of CpxRc upon phosphorylation by CpxRc-P by CpxAP	0.3298
k3	formation rate of CpxP-Ag upon binding of Ag by CpxAP followed by release of CpxA	1.0087
k4	formation rate of CpxRn ^P upon phosphorylation of CpxRn by CpxA	1.1203
k5	formation rate of CpxRc ^P upon phosphorylation of CpxRc by CpxA	1.1381
k6	formation & maturation rate of the full YFP upon dimerization of CpxRn ^P and CpxRc ^P	1.4478
k7	formation rate of CpxAP upon binding of CpxA by CpxP	0.0845
α 1	CpxP production rate	0.0705
β 1	degradation rate of CpxP-Antigen	0.5006
β 2	degradation rate of CpxP	0.8410

Table 2 – Parameters System 2

Parameter	Description	Value- Union of 2% best sets
k1	formation rate of CpxP-Ag upon binding of Ag by CpxAcP followed by release of CpxAc	3.1765
k2	formation rate of CpxRn ^P upon phosphorylation of CpxRn by CpxAc	0.4389
k3	formation & maturation rate of the full YFP upon phosphorylation of CpxRn by CpxAc ^P	2.8632
k4	formation & maturation rate of the full fluorescent protein	0.2167
k5	formation rate of CpxRn upon dephosphorylation of CpxRn ^P by CpxAcP	1.2508
k6	formation & maturation rate of the full YFP upon dephosphorylation of CpxRn ^P by CpxAcP	0.0600
α 1	CpxP production rate	0.2142
β 1	degradation rate of CpxP-Antigen	0.7090
β 2	degradation rate of CpxP	0.6784



Table 3 – Parameters System 3

Parameter	Description	Value- Union of 2% best sets
k1	formation rate of CpxAP upon binding of CpxA by CpxP	0.2032
k2	formation rate of CpxP-Ag upon binding of Ag by CpxAP followed by release of CpxA	0.3516
k3	formation rate of CpxAcP upon binding of CpxAc by CpxP	0.5729
k4	formation rate of CpxAnP upon binding of CpxAn by CpxP	0.3688
k5	formation rate of CpxP-Ag upon binding of Ag by CpxAcP followed by release of CpxAc	1.0525
k6	formation rate of CpxP-Ag upon binding of Ag by CpxAnP followed by release of CpxAn	1.0849
k7	formation rate of C-terminal split YFP, CpxA and CpxR-P upon phosphorylation of CpxR by CpxAc	1.1505
k8	formation rate of C-terminal split YFP, CpxAP and CpxR upon dephosphorylation of CpxR-P by CpxAcP	0.2083
k9	formation rate of N-terminal split YFP, CpxA and CpxR-P upon phosphorylation of CpxR by CpxAn	0.8811
k10	formation rate of N-terminal split YFP, CpxAP and CpxR upon dephosphorylation of CpxR-P by CpxAnP	0.6717
k11	formation rate of CpxR-P upon phosphorylation of CpxR by CpxA	0.7785
k12	formation rate of CpxR upon dephosphorylation of CpxR-P by CpxAP	0.3631
k13	formation & maturation rate of the full YFP in the cytoplasm	2.0804
k14	formation rate of CpxR upon dephosphorylation of CpxR-P by CpxAcP	0.6720
k15	formation rate of CpxR-P upon phosphorylation of CpxR by CpxAc	0.5937
k16	formation rate of CpxR upon dephosphorylation of CpxR-P by CpxAnP	0.6810
k17	formation rate of CpxR-P upon phosphorylation of CpxR by CpxAn	0.6346
α 1	CpxP production rate	0.0742
β 1	degradation rate of CpxP-Antigen	0.4542
β 2	degradation rate of CpxP	0.8437

