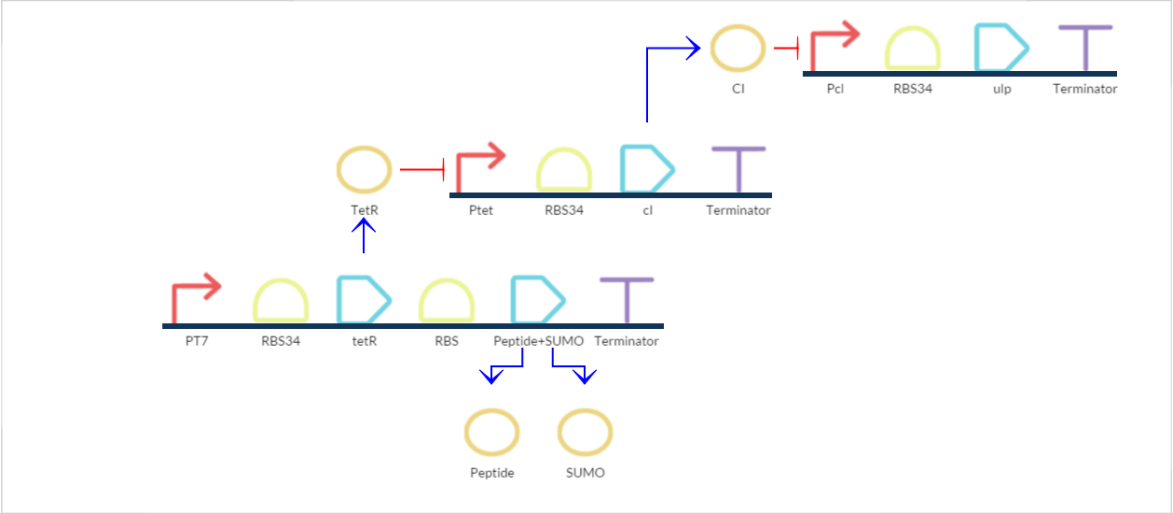
Timer Plus Sumo



Formulae for two certain parts

TET and tet

$$\frac{d[\mathrm{TET}]}{dt} = \chi_{PT7} c_{T7} \left[l_{T7} + (1 - l_{T7})\mathrm{s} \right][tet] - D_{TET}[\mathrm{TET}]$$

CI and cI

$$\frac{d[\mathrm{CI}]}{dt} = \chi_{Ptet} c_{Ptet} [\mathrm{cI}^F] - D_{CI}[\mathrm{CI}]$$

$$[\mathrm{cI}^F] = \left(l_{Ptet} + \frac{1 - l_{Ptet}}{1 + \chi_{Ptet} \left(\frac{[TET]}{k_{tet}} \right)^{n_{tet}}} \right) [\mathrm{cI}]$$

SUMO and Peptide-SUMO

$$\frac{d[\mathrm{SUMO}]}{dt} = \chi_{PT7}\, \mathrm{c}_{T7} \left[l_{T7} + (1 - l_{T7})\mathrm{s} \right][\mathrm{Peptide}\text{-}SUMO] - D_{SUMO}[\mathrm{SUMO}]$$

Peptide and Peptide-SUMO

$$\frac{d[\mathrm{Peptide}]}{dt} = \chi_{PT7}\, \mathrm{c}_{T7} \left[l_{T7} + (1 - l_{T7})\mathrm{s} \right][\mathrm{Peptide}\text{-}SUMO] - D_{Peptide}[\mathrm{Peptide}]$$

Parameter Table

Symbols	Parameters	Values and Units
c_T7	Maximum transcription rate of T7	4.16nm*min^-1
l_T7	Leakage factor of T7	0.002

D_TET	Degradation rate of TET	0.1386 min^-1
c_Ptet	Maximum transcription rate of Ptet	2.79nm*min^-1
D_CI	Degradation rate of CI	0.042min^-1
l_Ptet	Leakage factor of Ptet	0.002
k_tet	Dissociation constant of Ptet	6
n_tet	Hills coefficient	3
D_SUMO	Degradation rate of SUMO	6.3*10^-8 min^-1
D_Peptide	Degradation rate of Peptide	6.3*10^-8 min^-1

Reference: http://2013.igem.org/Team:TU-Delft