

RelB antitoxin system



Formulae for two certain parts

CI and cI

$$\frac{d[CI]}{dt} = \chi_{P_{CI}} k_1 k_3 [cI^F] - r_2 [CI]$$

$$[cI^F] = [cI] \frac{1}{1 + \chi_{P_{CI}} \left(\frac{Q_2}{[CI]} \right)^{n_2}}$$

Parameter Table

Symbols	Parameters	Values and Units
k_1	Transcription rate of Pcon	1umol*min ⁻¹
k_2	Transcription rate of Ptet	5.25nmol*min ⁻¹
k_3	Translation rate of protein	42 min ⁻¹
k_4	Transcription rate of Plsr	2.3umol*min ⁻¹
K_5	Dissociation constant of CI	8nm
k_9	Transcription rate of pLux	5.25nmol*min ⁻¹
k_11	Transcription rate of Pci	1umol*min ⁻¹
r_1	Degradation rate of mRNA	0.0173 min ⁻¹
r_2	Degradation rate of CI	0.0692 min ⁻¹
r_6	Degradation rate of LuxI	0.0167 min ⁻¹
r_7	Degradation rate of AHL	0.0228 min ⁻¹
r_9	Degradation rate of TetR	0.0167 min ⁻¹
r_11	Degradation rate of CheZ	0.2604 min ⁻¹
n_1	Hill coefficient of TetR	2
n_2	Hill coefficient of Atz	2
n_5	Hill coefficient of CI	2

Q_1	Dissociation constant of TetR and m_CI2	40nm
Q_2	Dissociation constant of Atz-RBS and Atz	4mol

Reference: <http://2009.igem.org/Team:SJTU-BioX-Shanghai>