Production of LuxR protein
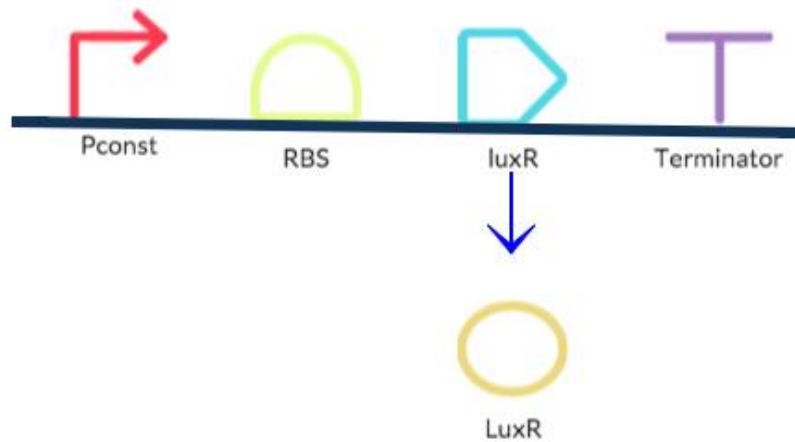

Formulae for two certain parts

LuxAHL：

$$\frac{d[\text{lux-AHL 3OC6HSL}]}{dt} = -d_{LuxAHL}[\text{lux-AHL 3OC6HSL}]$$

Mosaicoli1：

$$\frac{d[\text{LuxR}]}{dt} = \alpha\chi_{P-const1}[luxR] - d[\text{LuxR}]$$

Parameter Table

Symbols	Parameters	Values and Units
d_LuxAHL	Degradation rate of lux-AHL 3OC6HSL	0.004 min^-1
alpha_LuxR	Production rate of LuxR	0.005 uM*min^-1
d_LuxR	Degradation rate of LuxR	0.0231 min^-1
k_Rlux	Production rate of LuxR-lux-AHL	0.1 nM^-1*min^-1
k_{-Rlux}	Binding rate constant	10 min^-1
d_Rlux	Degradation rate of LuxR-lux-AHL	0.0231 min^-1
Alpha_Bxb1	Production rate of Bxb1	0.588 min^-1
d_Bxb1	Degradation rate of Bxb1	0.01 min^-1
k_Bxb1	Bxb1 repression coefficient	0.1 min^-1
Alpha_sfGFP	Production rate of sfGFP	0.473 min^-1
d_sfGFP	Degradation rate of sfGFP	0.012 min^-1
Alpha_LuxI	Production rate of LuxI	0.621 min^-1
d_LuxI	Degradation rate of LuxI	0.018 min^-1
n	Hill coefficient	2

Reference: http://2014.igem.org/Team:ETH_Zurich/