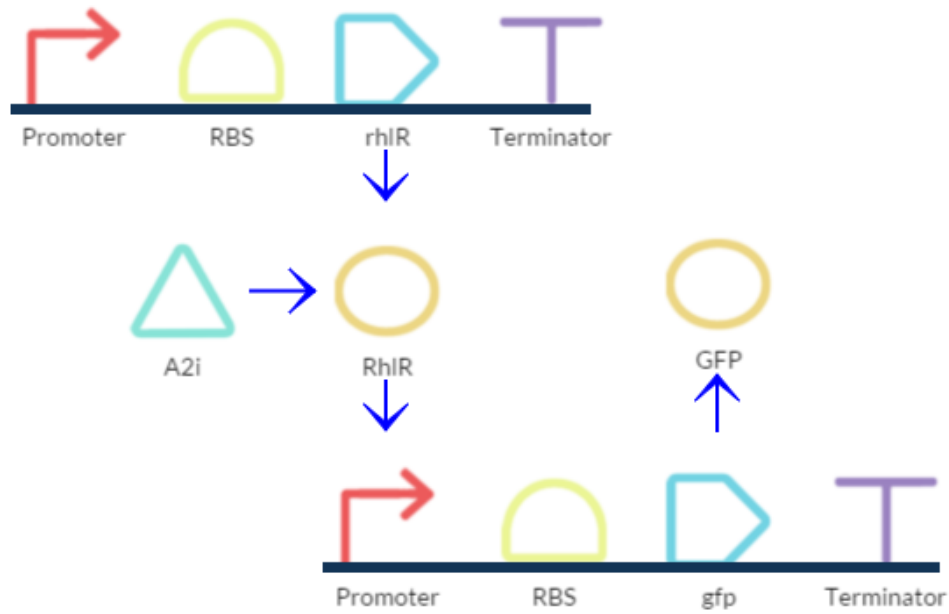


## Biosensor\_RhlR



### Formulae for two certain parts

RhlR and rhlR

$$\frac{d[\text{RhlR}]}{dt} = \chi_{\text{promoter}J23119_1} k_3 [\text{rhlR}] - d[\text{RhlR}]$$

RhlR and A2i

$$\frac{d[\text{RhlR}]}{dt} = \chi_{\text{promoter}J23119_1} k_3 [\text{A2i}] - d[\text{RhlR}]$$

GFP and gfp

$$\frac{d[\text{GFP}]}{dt} = \chi_{\text{promoter}R0071_1} k_2 [\text{gfp}^F] - d[\text{GFP}]$$

$$[\text{gfp}^F] = [\text{gfp}] \frac{[\text{RhlR}]^n}{Kd \chi_{\text{promoter}R0071_1} + [\text{RhlR}]^n}$$

### Formulae for numerical simulation

$$\frac{d[\text{RhlR}]}{dt} = \chi_{\text{promoter}J23119_1} k_3 [\text{rhlR}] [\text{A2i}] - d[\text{RhlR}]$$

$$\frac{d[\text{GFP}]}{dt} = \chi_{\text{promoter}R0071_1} k_2 [\text{gfp}^F] - d[\text{GFP}]$$

$$[gfp^F] = [gfp] \frac{[RhIR]^n}{Kd \chi_{promoterR0071_1} + [RhIR]^n}$$

Parameter Table

Symbols	Parameters	Values and Units
k_1	Production rate of LasR	6.84umol*min^-1
k_2	Production rate of GFP	7.22umol*min^-1
k_3	Production rate of RhIR	6.24umol*min^-1
n	Hill coefficient	3
Kd	Repression coefficient	4.8
d	Degradation rate	4.3 s^-1