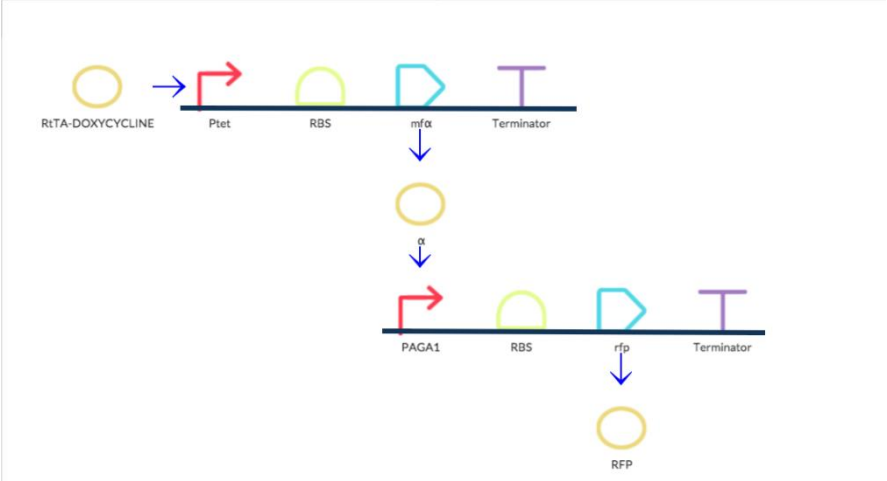
# Responsor-RtTA-DOXYCYCLINE




**Formulae for two certain parts**

$$[\text{mf }\alpha^F]=[\text{mf }\alpha]\frac{[\text{rtTA}-\text{Doxycycline}]^n}{K^n+[\text{rtTA}-\text{Doxycycline}]^n}$$

$$\frac{d[\alpha]}{dt}=\chi_{Ptet}\alpha_{\alpha}[\text{mf }\alpha]-\text{d}[\alpha]$$

$$\frac{d[\text{RFP}]}{dt}=\chi_{PAGA1}\alpha_{RFP}[\text{rfp}^F]-\text{d}[\text{RFP}]$$

$$[rfp^F]=[\text{rfp}]\frac{[\alpha]^n}{K^n+[\alpha]^n}$$

**Parameter Table**

| Symbols | Parameters | Values and Units |
|---|---|---|
| Alpha_RtTA | Translation rate of RtTA | 0.73 umol*min^-1 |
| Alpha_alpha | Translation rate of $\alpha$ | 1.12 umol*min^-1 |
| Alpha_RFP | Translation rate of RFP | 0.93 umol*min^-1 |
| K | Repression coefficient | 2.5 |
| n | Hill coefficient | 3 |
| d | Degradation rate of protein | 0.35 s^-1 |
| k | Production rate of RtTA-Doxycycline | 0.8 umol*min^-1 |

**Reference:** http://2014.igem.org/Team:UCSF_UCB