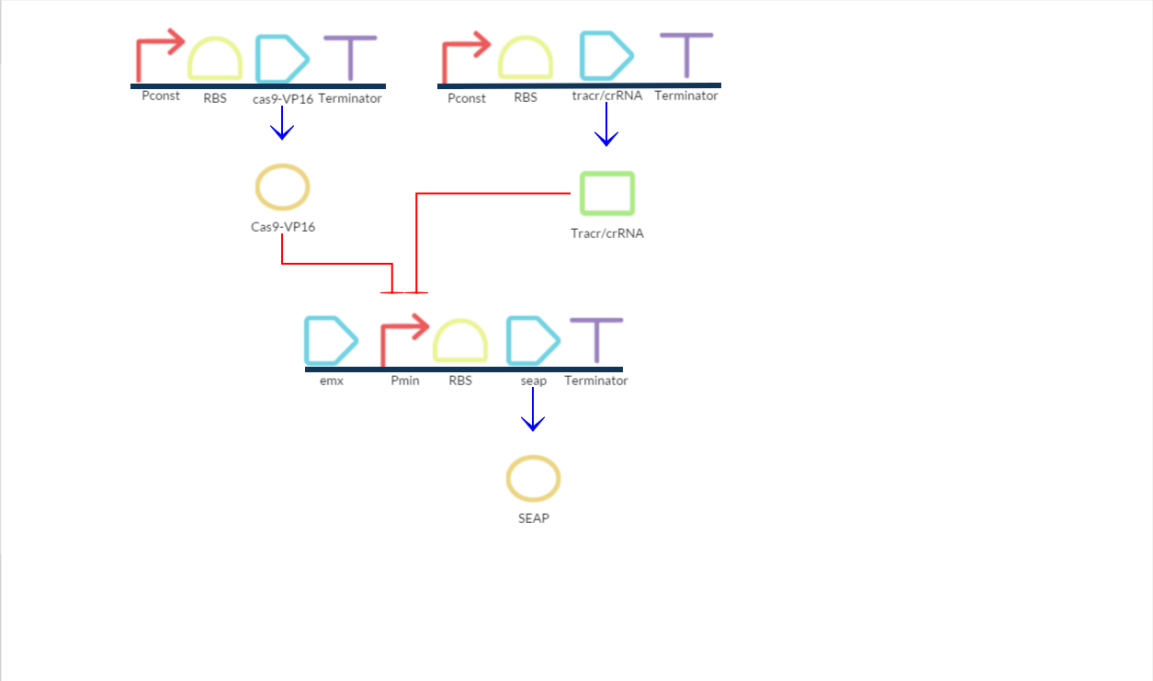
Cas-VP16



Formulae for two certain parts

Cas9-VP16 and cas9-VP16

$$\frac{d[\mathrm{Cas\,9-VP16}]}{dt}=\chi_{Pconst_1}k_1[\mathrm{cas\,9-VP16}]-D_{Cas9-VP16}[\mathrm{Cas\,9-VP16}]$$

$$D_{Cas9-VP16}=k_2+k_5$$

Tracr/crRNA and tracr/crRNA

$$\frac{d[\mathrm{Tracr/\ crRNA}]}{dt}=\chi_{Pconst_2}k_3[\mathrm{tracr/\ crRNA}]-D_{Tracr/crRNA}[\mathrm{Tracr/\ crRNA}]$$

$$D_{Tracr/crRNA}=k_4+k_5$$

SEAP and seap

$$\frac{d[\mathrm{SEAP}]}{dt}=\chi_{P\min_1}k_7[\mathrm{seap}^F]-D_{\deg}[\mathrm{SEAP}]$$

$$[\mathrm{seap}^F]=[\mathrm{seap}]\frac{k_8}{k_9+[\mathrm{Tracr/\ crRNA}]}$$

Parameter Table

Symbols	Parameters	Values and Units
K_1	Linear production rate of Cas9	8.78E+02[M/h]
K_2	Cas9 degradation rate	0.54[1/h]
K_3	tracr/crRNA production rate	0.73
K_4	tracr/crRNA degradation rate	1.21E+0.8
K_5	Gene recognition complex building rate	1.61[1/M]
K_6	Cr/trRNA/Cas9 degradation rate	8.59E-26
K_7	SEAPs leaky production rate	4.05E-05[M/h]
K_8	Complex dependent SEAP production rate	1.86E+08[M/h]
K_9	Cas9-VP16 specific constant	1.06

Reference: http://2013.igem.org/Team:Freiburg