Our model equations

$$\frac{d[fepA\ L8T]}{dt} = trans_{fepA} * [fepA\ \ mRNA] - deg_{fepA} * [fepA]$$

$$\frac{d[fepA\ mRNA]}{dt} = N * P_{cons.} - \alpha_{mrna} * [fepA\ mRNA]$$

$$\frac{d[IqsS]}{dt} = trans_{IqsS} * [IqsS\ \ mRNA] - deg_{IqsS} * [IqsS]$$

$$\frac{d[IqsS\ mRNA]}{dt} = N * P_{cons.} - \alpha_{mrna} * [IqsS\ mRNA]$$

$$\frac{d[IqsR]}{dt} = trans_{IqsR} * [IqsR\ \ mRNA] - deg_{IqsR} * [IqsR]$$

$$\frac{d[IqsR\ mRNA]}{dt} = N * P_{cons.} - \alpha_{mrna} * [IqsR\ mRNA]$$

$$\frac{d[antileg\ mRNA]}{dt} = N * (\frac{P_{(max,IqsR-P)}}{[IqsR-P]^{n_{IqsR-P}} + {K_{IqsR-P}}^{n_{IqsR-P}}} + P_{(min,pIqsR)}) - \alpha_{mRNA} * [antileg\ mRNA]$$

$$\frac{d[antileg]}{dt} = trans_{antileg} * [antileg\ \ mRNA] - D * (antileg_i - antileg) - deg_{antileg} * [antileg]$$

$$\frac{d[IqsR-P]}{dt} = k * [Pi] * [IqsR] * [IqsA\&IqsS\ complex]$$

$$\frac{d[IqsA\&IqsS\ complex]}{dt} = k' * [IqsA] * [IqsS]$$

Parameter	Description
N	Plasmid copy number

P_x	Promoter Strength
α_x	Degradation Rate (transcription)
K_x	Disassociation (Equilibrium) Constant
$trans_x$	Translation Rate
k_x	Binding on rate
k_{-x}	Binding off rate
D_x	Diffusion rate
deg_x	Degredation rate