
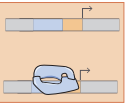

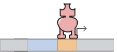
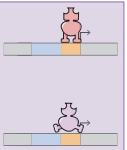



(A)

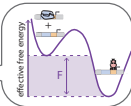
DETAILED OCCUPANCY STATES		SIMPLIFIED OCCUPANCY STATES	
state	statistical weight	state	statistical weight
	1		$-r$
	$\frac{P}{N_{NS}} e^{-\beta \Delta \epsilon_P}$		
	$\frac{R_A}{N_{NS}} e^{-\beta \Delta \epsilon_{RA}}$		r
	$\frac{R_I}{N_{NS}} e^{-\beta \Delta \epsilon_{RI}}$		

(B)

SCALING FUNCTION

$$\text{fold-change} = \frac{1}{1 + e^{-\beta F}}$$

effective free energy



SCALING VARIABLE

$$F = k_B T \left[-\log p_{\text{active}}(\text{inducer concentration}) - \log \frac{\text{repressor copy number}}{N_{NS}} + \frac{\Delta \epsilon_{RA}}{k_B T} \right]$$