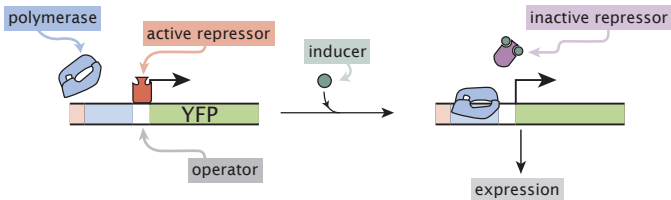


(A)

simple repression regulatory architecture



(B)

$$\text{fold-change} = \frac{\langle \text{DNA with active repressor} \rangle}{\langle \text{DNA with inactive repressor} \rangle}$$

The diagram shows two states of a cell (represented by an oval) containing a DNA molecule (represented by a wavy line). The top state shows the DNA with a polymerase (blue) bound to the promoter and an active repressor (red) bound to the operator, preventing transcription. The bottom state shows the DNA with a polymerase (blue) bound to the promoter and an inactive repressor (purple) bound to the operator, allowing transcription. The fold-change is calculated as the ratio of the average number of DNA molecules in the top state to the average number of DNA molecules in the bottom state.