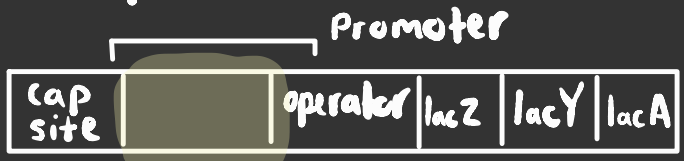
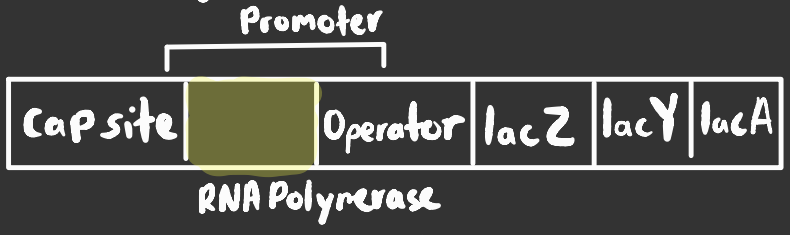
Lac Operon Assignment

Lac Operon (Lactose absent)



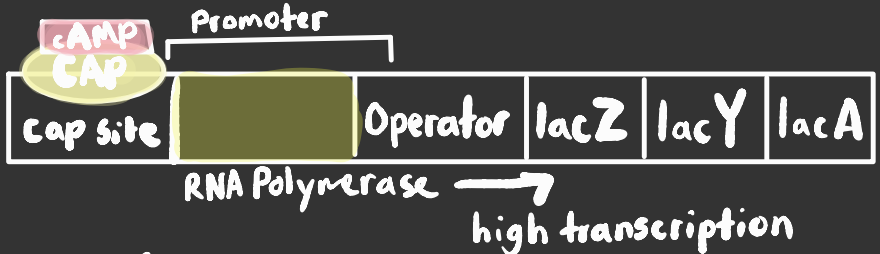
- Absence of lactose causes lac repressor to bind tightly to operator. This prevents transcription by RNA polymerase.

Lac Operon (lactose present)



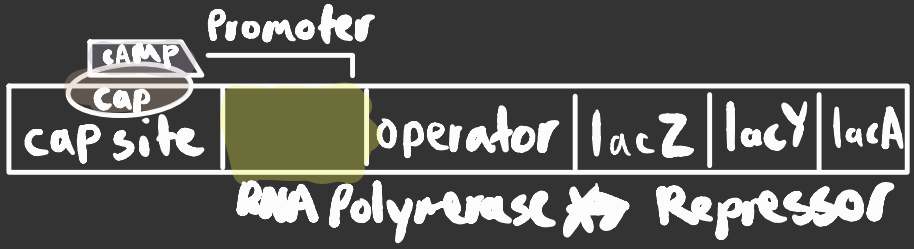
- Presence of lactose causes the lac repressor to lose it's ability to bind DNA since allolactose binds to the lac oppressor which causes it to change shape.

Lac Operon (Glucose absent)



- When there's no glucose, cAMP binds to CAP which makes CAP able to bind DNA thus helping RNA polymerase attach to the lac operon promoter.

Lac Operon (Glucose and lactose absent)



- No transcription occurs at all due to the lac repressor being bound to operator despite high cAMP levels due to no glucose.

This gene expression takes place during transcription due to it being what regulates transcription within the lac operon.