OPERONS: Controlling Gene Expression

• The *trp* Operon – a Repressible Operon

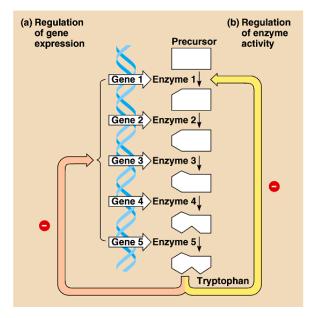
Operon -

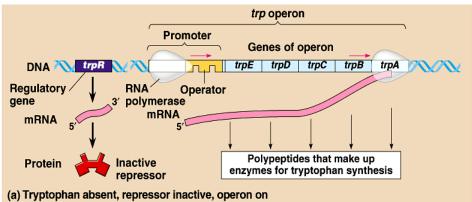
Operator -

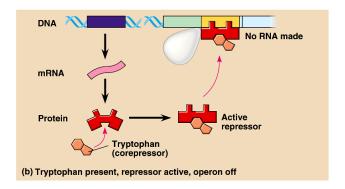
Regulatory Gene -

Repressor -

Corepressor -

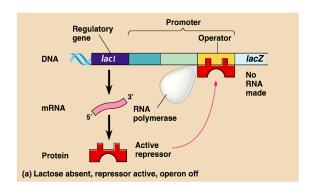






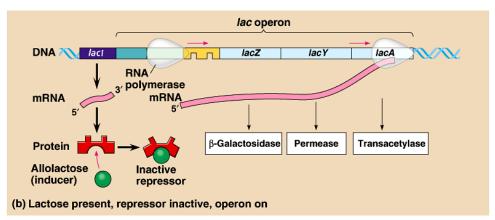
• The lac Operon - An Inducible Operon

Inducer -



When is transcription active?

When is it inactive?

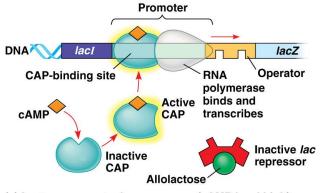


Positive Gene Regulation

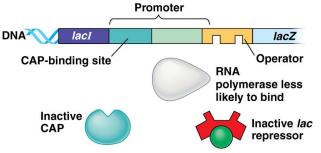
Cyclic AMP (cAMP) -

Activator -

How does this affect the lac Operon?



(a) Lactose present, glucose scarce (cAMP level high): abundant *lac* mRNA synthesized



(b) Lactose present, glucose present (cAMP level low): little *lac* mRNA synthesized

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