

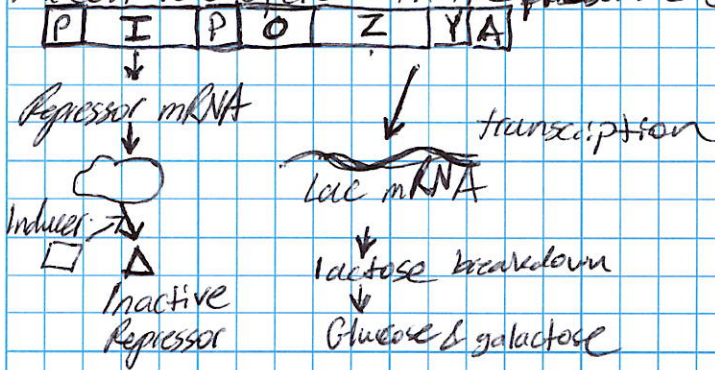
Subject <u>Genetics</u>			
Project No. <u>Lac Operon Assignment</u>		Sheet <u>1</u>	
Calculations By <u>Ryan Belcher</u>	Date <u>11/5/22</u>	Checked By	Date

1) *E. coli* lac operon in absence of lactose



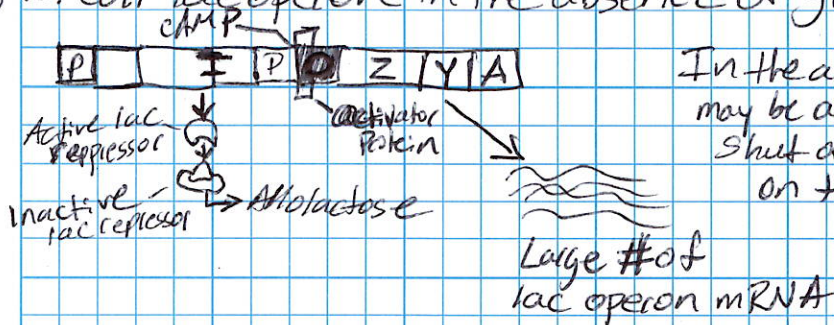
When lactose is absent, the lac ~~repressor~~ repressor attaches to the operator, thereby halting transcription from taking place. In turn, DNA is not able to form properly.

2) *E. coli* lac operon in the presence of lactose



When lactose is present, the repressor loses the ability to function and leaves the operator. Thereafter, RNA polymerase attaches and begins transcribing the information.

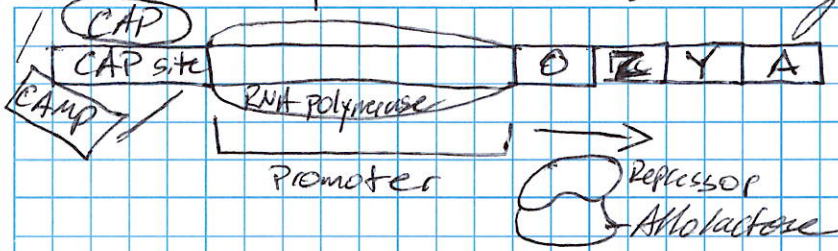
3) *E. coli* lac operon in the absence of glucose



In the absence of glucose, the lac operon may be activated if the lac repressor is shut off by lactose binding. Depending on the presence of a catabolic activator protein (CAP) the bacterium may switch between both glucose and lactose should ~~they~~ there be difficulty.

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4) E. coli lac operon in the absence of glucose and lactose



The lac operon repressor is lost due to the present Allolactose. cAMP is strong due to glucose absence, in turn it is attached to CAP. CAP assists RNA polymerase to bind to the promoter, causing exponential level of transcription to occur.

~~5) What the process of regulation is occurring, regulation,~~

5) The process of regulation occurs in transcription as the affected strands are being scribbled into RNA molecules, the molecules are also proofread at this time as post transcription and into translation only expresses the information past the proof-read transcription - origin molecules. Should something be wrong and pass the transcription process, the effects may be detrimental to the health of the organism.