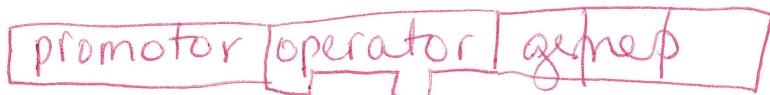


Key

Ch. 18: Gene Expression and Chapter 19: Virus Study Guide

1. Draw and label the 3 parts of an operon.



2. Contrast inducible vs. repressible operons.

inducible - starts off + is turned on / catabolic / Ex lac operon

repressible - starts on + is turned off / anabolic / Ex

3. What is the epigenome and why is it considered "flexible?"

- factors not in DNA that control gene expression tryp operon

- trop allow ~~at to~~ some genes to be expressed + operon

4. How does DNA methylation and histone acetylation affect gene expression?

inhibits transcription

↳ promotes transcription

5. What is the role of activators vs. repressors? Where do they bind to?

↳ increase transcription bind to control region  
↳ decrease transcription enhancer region

6. Compare oncogenes, proto-oncogenes, and tumor suppressor genes.

mutation cancer causing gene stimulates normal cell growth inhibits cell division

7. What are the roles of the ras gene and the p53 gene?

↳ stimulates cell cycle tumor suppressor gene

8. What are HOX genes? Why are they evolutionarily significant?

- genes that control pattern development  
- have been highly conserved

9. What is the purpose of a PCR? When would it be used?

- to make lots of copies of a segment of DNA  
- crime scenes, genetic studies etc.

10. Compare and contrast lysogenic and lytic viral cycles. Give an example of each.

lysogenic - stay in host + become part of DNA

lytic - virulent, hijack cell, make viral parts,

11. What is a retrovirus? How does it infect its host?

- RNA genetic material

lyse cell (host)

- reverse transcriptase needed to convert RNA to DNA to incorporate into host DNA