

## CHAPTER 16: Regulation of Gene Expression

1. Most bacteria are not pathogenic. Identify several important roles they play in the ecosystem and human culture.

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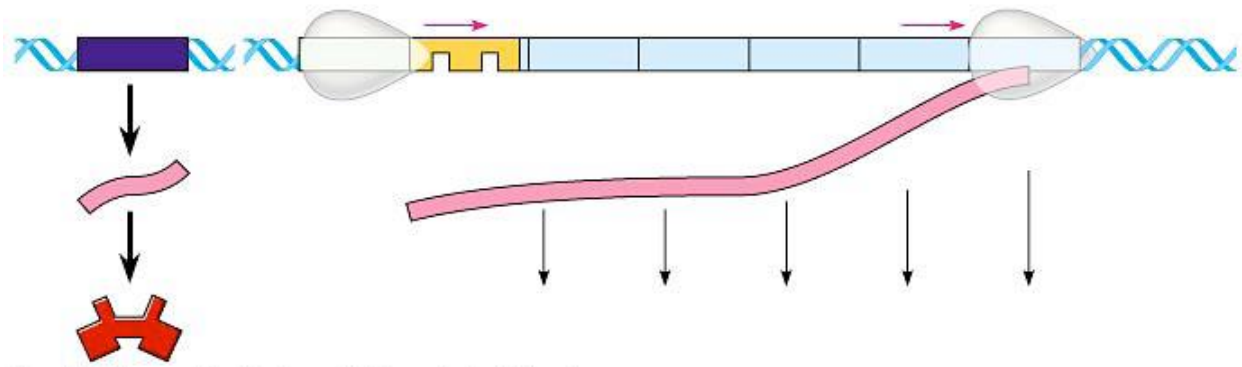
2. E. coli use a regulatory system called an operon. Identify the components with their functions of the operon.

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3. Use the diagram (from the class notes) of the Tryp operon to outline how it regulated tryptophan levels.



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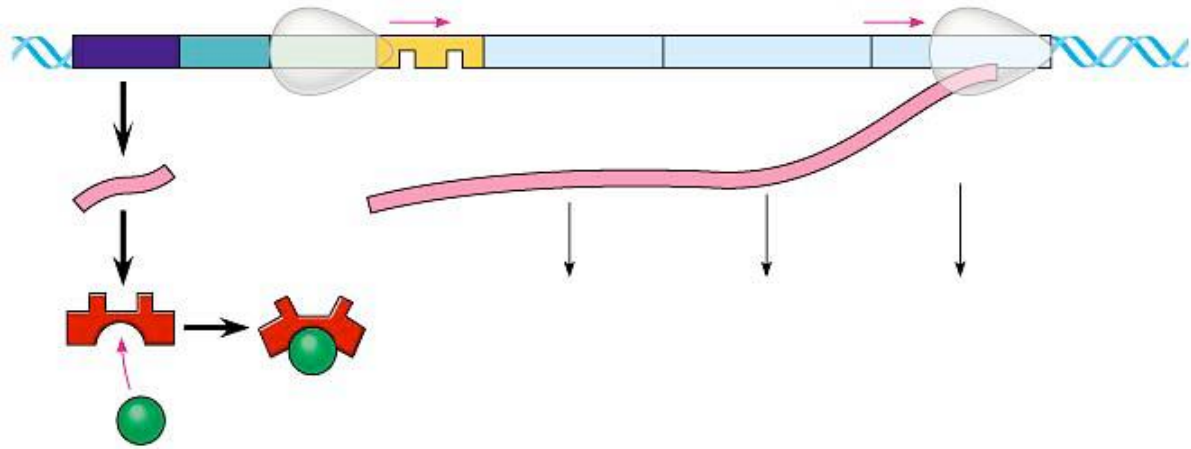
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4. Describe how the trp operon is a repressible operon.

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5. Use the diagram (from the class notes) of the lac operon to outline how it regulates glucose levels.



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6. Does the diagram above represent the condition for the absence or presence of lactose?

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7. Describe what happens when lactose is absent.

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8. How is the lac operon an inducible system?

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9. Describe the effect of each of the following control mechanisms.

- a. DNA methylation \_\_\_\_\_
- b. Histone acetylation \_\_\_\_\_
- c. Transcription factors \_\_\_\_\_
- d. Control elements \_\_\_\_\_
- e. Enhancers \_\_\_\_\_
- f. Activators \_\_\_\_\_

10. List several characteristics of viruses.

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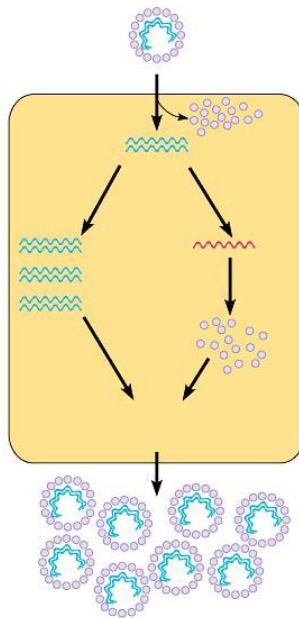
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11. What are the two basic components of viruses?

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12. Use the diagram to help explain typical viral reproduction.



Name: \_\_\_\_\_

Question Set 35

13. What is reverse transcriptase?

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14. How does RNA degradation affect gene expression?

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15. How does protein processing and degradation affect gene expression?

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