

Cell Specialization and Control of Gene Expression Web Quest

Topic: Cell Specialization

A. Go to: <http://learn.genetics.utah.edu/units/stemcells/>

Click on "What is a stem cell?" Follow the animation through to the end.

1. What is a stem cell?
2. What causes a stem cell to become different kinds of cells?
3. What is the relationship between signals, genes, cell types, and proteins?
4. List all of the different cells that are described and also give their functions.

Topic: Control of Gene Expression

B. Go to:

http://www-class.unl.edu/biochem/gp2/m_biology/animation/m_animations/gene2.swf

Click the right hand arrow to move through the animation. Answer the following questions.

1. Where does protein synthesis begin?
2. What information do chromosomes contain?
3. How is this information encoded?
4. What is the function of mRNA?
5. What does the promoter do?
6. What are the three regions of a gene?
7. What does RNA polymerase do?
8. Describe the transcription process in terms of the three regions of the gene.
9. What would happen if there was a molecule that blocked the promoter?
10. What would happen if there was a molecule that unblocked the promoter?
11. Would there ever be an advantage to blocking a promoter?
12. Describe how cell that is not in the digestive system (for example, a brain cell) might avoid producing unnecessary digestive enzymes.

