Chapter 11: Group Exercise

Name:

1. What is a second messenger? How would you indentify a second messenger amongst other members of a given signal cascade?
2. List examples of popular second messengers and their general mechanism of action.
3. Which of the following pathways employ second messengers?
   1. G-proteins coupled reactions
   2. Ion gated channels
   3. Tyrosine kinase pathways
   4. A & C
   5. All of the above
4. Which molecule is responsible for the conversion of cAMP to AMP?
   1. Adenyly cyclase
   2. Phosphodiesterase
   3. Pyrophosphate
   4. Tyrosine kinase
   5. ATP
5. What is cAMP? What compound or molecule is it derived from? What is the chief converting peptide for the production of cAMP?
6. Trace the effects and pathway of Epinephrine, secreted by the adrenal medulla, on a target cell whose receptor is a G-protein linked receptor.
7. Differentiate between First messengers vs a Second messengers?
8. What would one expect to find in a certain chemical, DZX4, whose function is to increase the productivity of Adenyly cyclase but inhibits the phosphodiesterase function?
   1. Cellular signaling would last longer due to phosphodiesterase saturation in the cytoplasm.
   2. The would be net influx in the amount of cellular AMP
   3. The cAMP propagation would last longer than usual since none of the cAMP is being reconverted.
   4. The cAMP propagation would last longer than usual since none of the cAMP is being converted to ATP by phosphodiesterase.
   5. The membrane receptors will show a decrease affinity for Norepinephrine and hence a rise in celluar adenyly cyclase.
9. Using minimal written language/spoken language draw a representative phosphorylation cascade.