**ACTIVITY 11.1 (complete in your notebook!)**

Use the Cell Signaling Projects to answer the following questions:

1. Describe how signal reception by G-protein receptor, tyrosine kinase and ion channel receptors can lead to the release of Ca2+ from the endoplasmic reticulum.
2. How are the three receptor systems similar? Consider both structural similarities and similarities in how the systems function.
3. How are the three systems different? Consider both structural differences and differences in how the systems function.
4. All of these receptor systems can generate elaborate multistep signal-transduction pathways. These pathways can greatly amplify the cell’s response to a signal: the more steps in the pathway, the greater the amplification of the signal. Explain how this amplification can occur. (Review Chapter 11 in textbook)

Humans have the ability to detect and recognize many different aromatic chemicals by smell. Many of these chemicals are present in concentrations less than 1 ppm (part per million) in the air. For example, the majority of humans can detect and recognize chlorine at a concentration of about 0.3 ppm.

1. What characteristics of olfactory (smell) receptors would you look for or propose to explain this ability?
2. Dogs are known to have a much better sense of smell than humans. Given this, what differences may exist in their olfactory system (as compared to humans)?

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