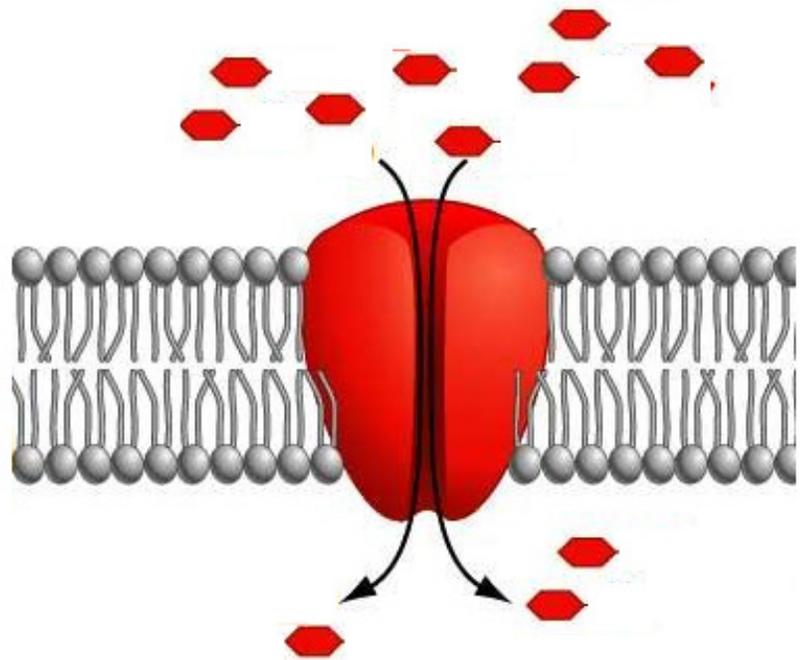
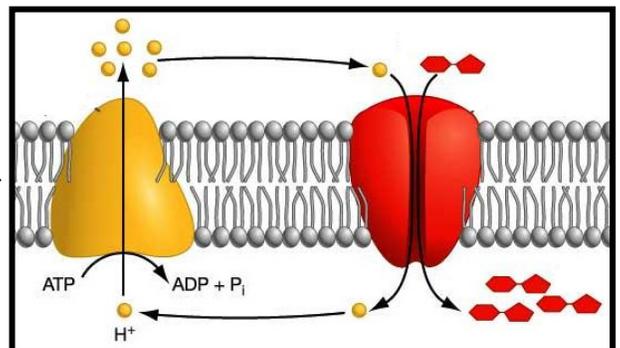
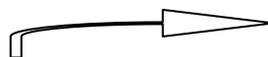


1. Label the picture of glucose molecules entering a cell through integral proteins.
 - a. integral protein
 - b. phospholipid
 - c. glucose
 - d. cytoplasm
 - e. extracellular fluid
2. Why does the glucose need an integral protein in order to enter the cell?



3. What will happen to the movement of glucose when the concentration of glucose molecules becomes equal on both sides.
4. Explain why this does not require energy.
5. Why is this called facilitated transport?
6. This integral protein is called glucose-transporter 4 (Glut4). Diabetics often have problems with Glut4. Explain what this would cause.

Note: on the upcoming quiz (_____), this will be the visual the questions will focus on. Do some prep. work to think through how it transports material.



It's April 14, 1912 and your journey on the unsinkable ship the Titanic is coming to an end. Luckily, you were one of the few souls to gain a seat in a life boat. Soon, you are hit with a feeling of being thirsty. In the rush to get to safety no one thought to pack provisions into the lifeboat. Day after day your little party floats along in the frigid arctic air and your thirst begins to feel unquenchable. People are starting panic and experimenting with drinking seawater to quench their thirst. You're not sure this is a good idea so you decide to solve a couple of water potential problems, while waiting for rescue, to determine if drinking sea water is a good idea or not.

a. The majority dissolved ions in seawater is NaCl, roughly a 0.5 M NaCl concentration. Calculate the solute potential for seawater with if you know that the water is -5°C .

b. Your own cells have a 0.15 M NaCl concentration. Calculate the solute potential for your own cells, knowing that body temperature is 37°C .

c. Using the formula for calculating water potential in what direction will water flow if a person drinks the very cold seawater? Explain.

d. Connect this to the concept of hypertonic, hypotonic and/or isotonic. Create a visual to show how the water will move if someone drinks salt water.

e. Conclusion: Is drinking seawater a good idea for survival? What effect will drinking seawater have on you and your chances of surviving until you are rescued?