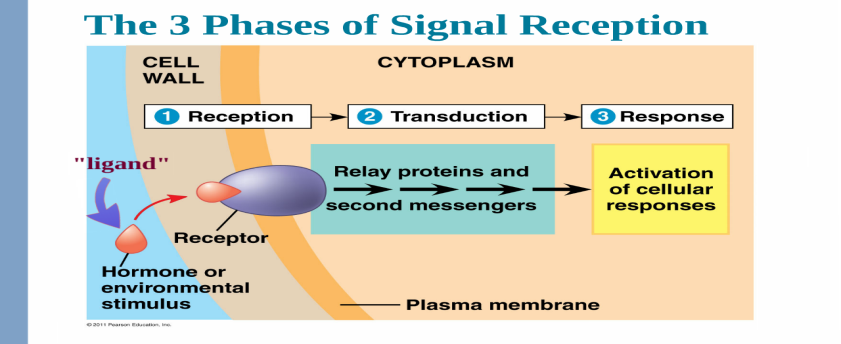
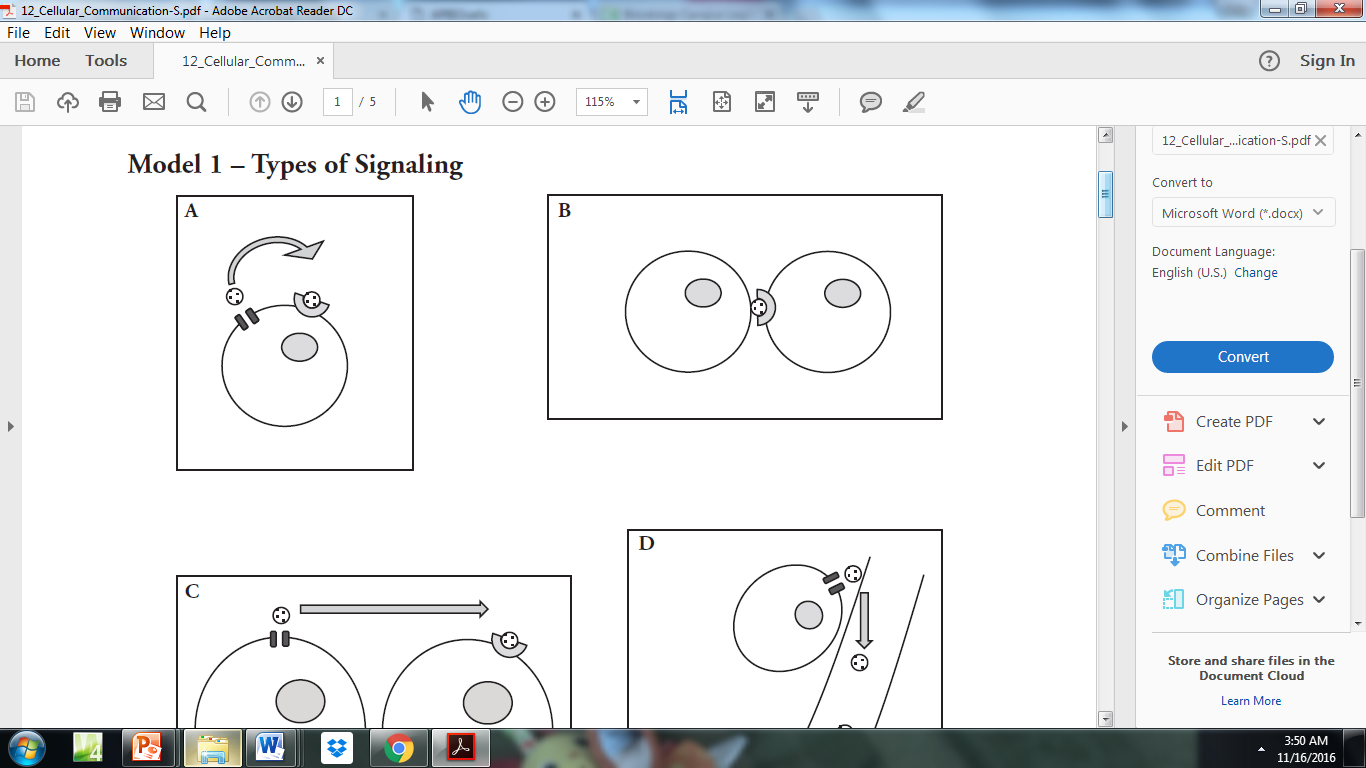
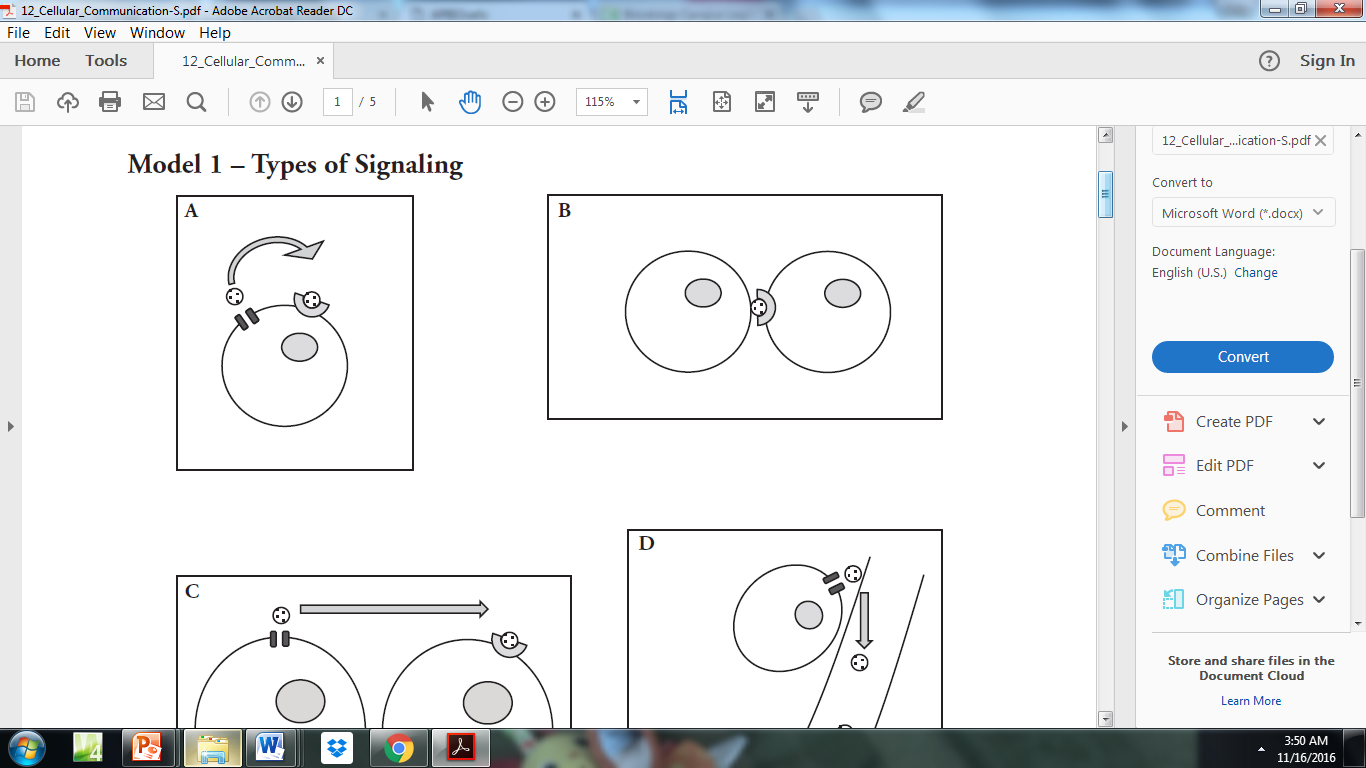
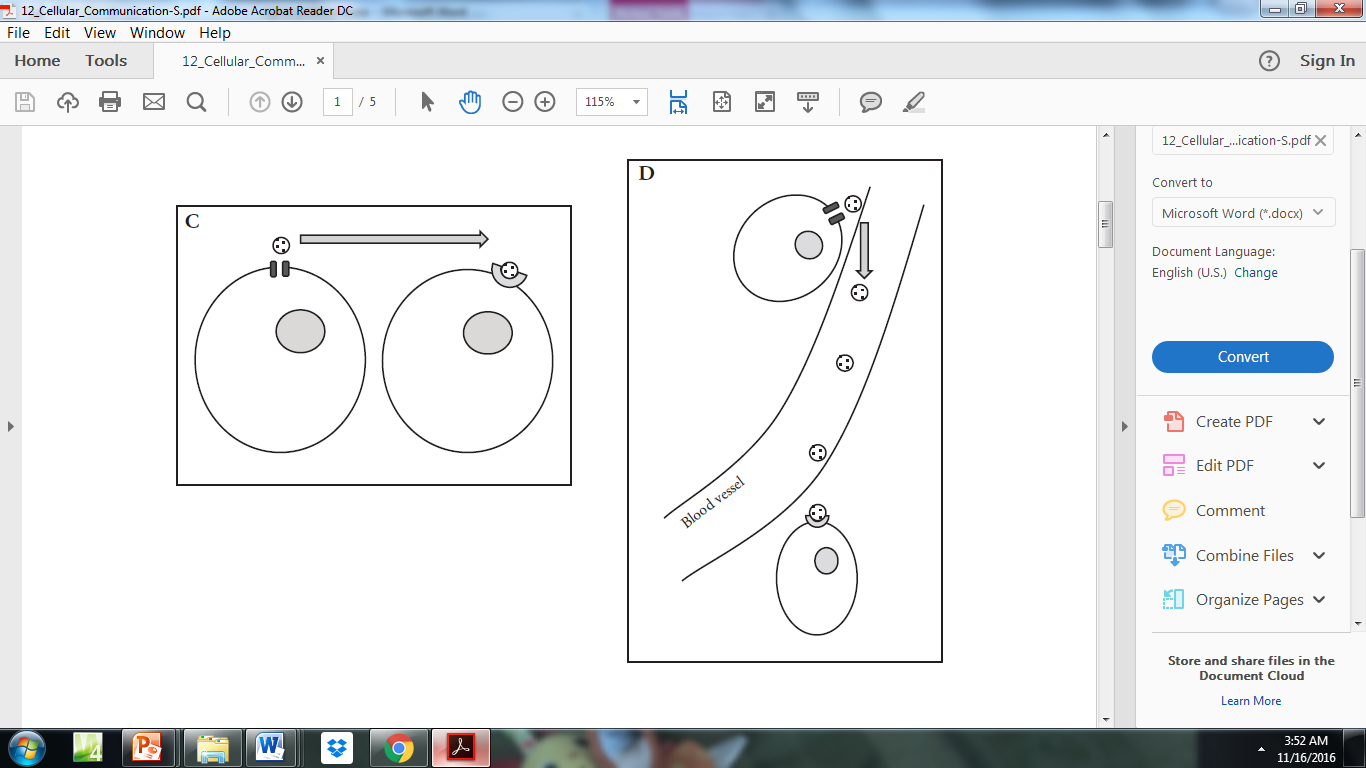
SIGNAL TRANSDUCTION PATHWAYS  
Widely CONSERVED across ALL DOMAINS

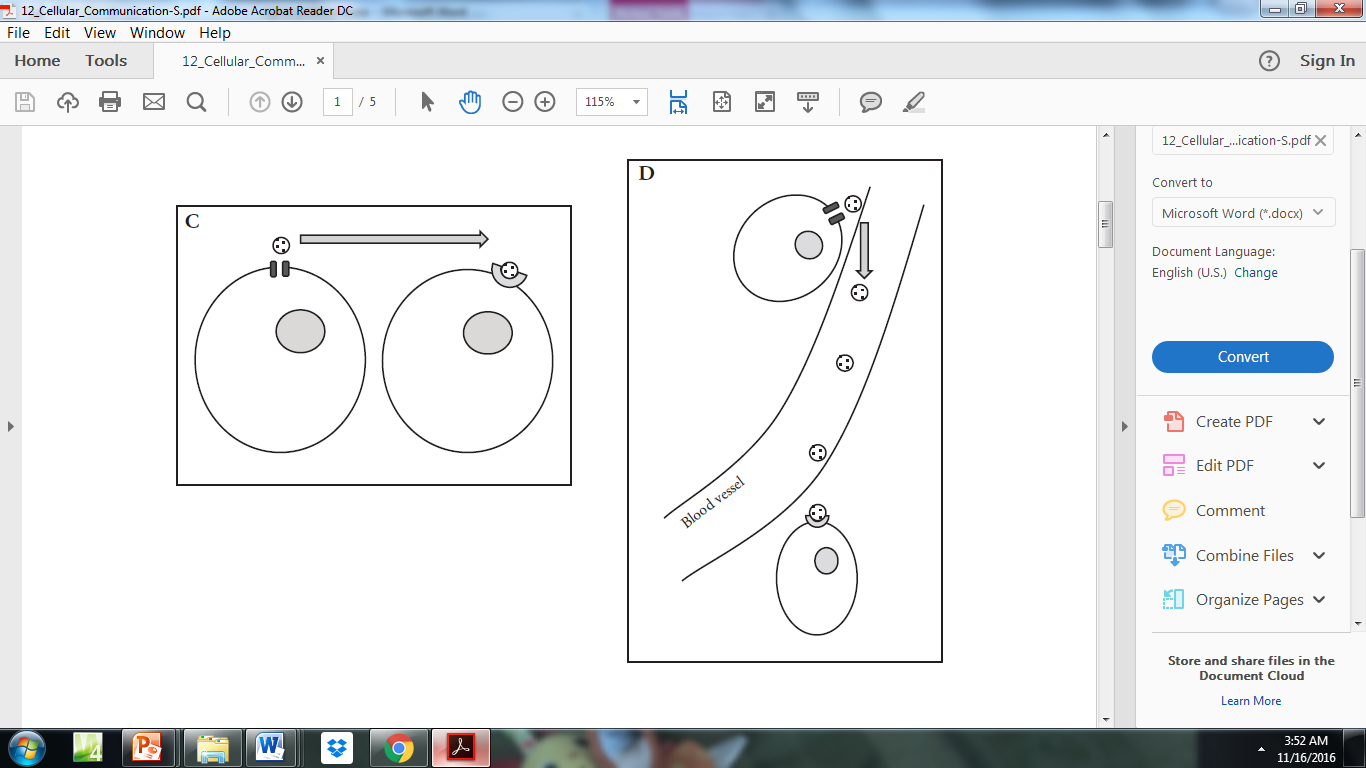


RECEPTION

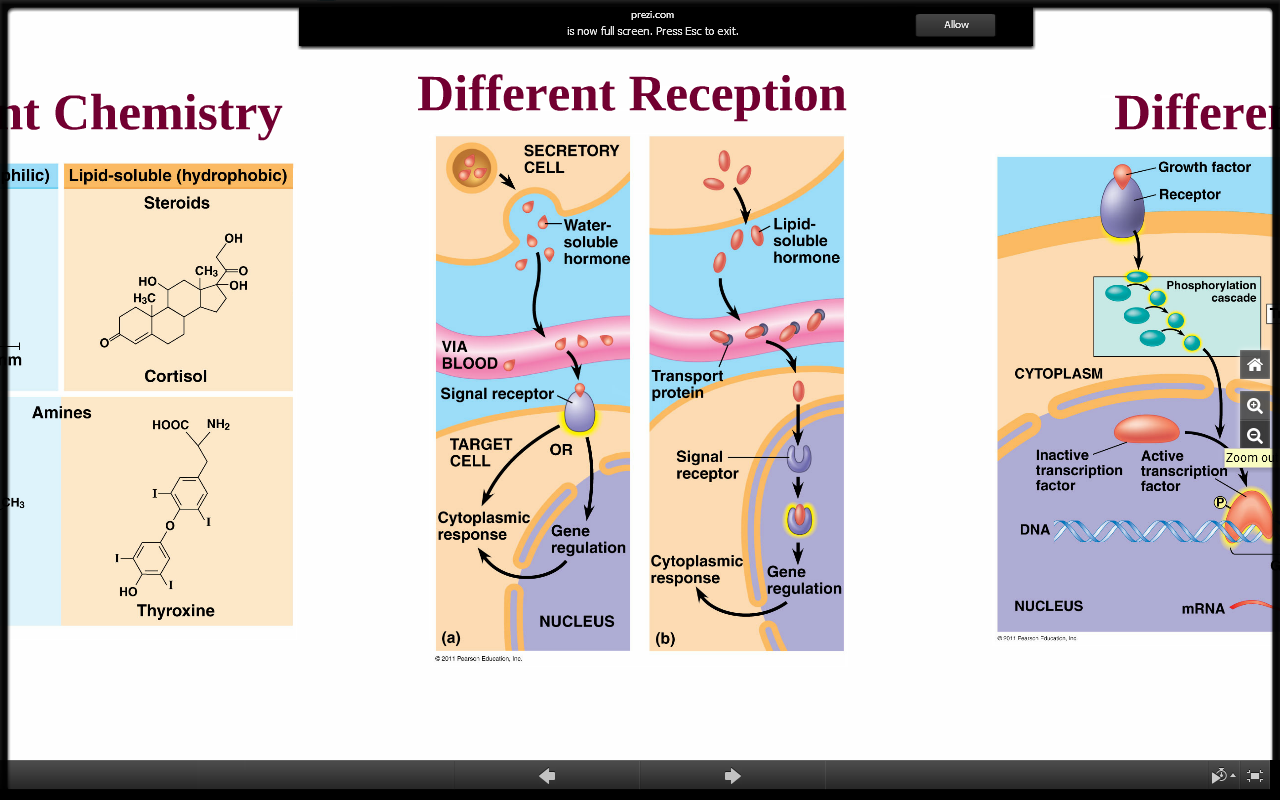




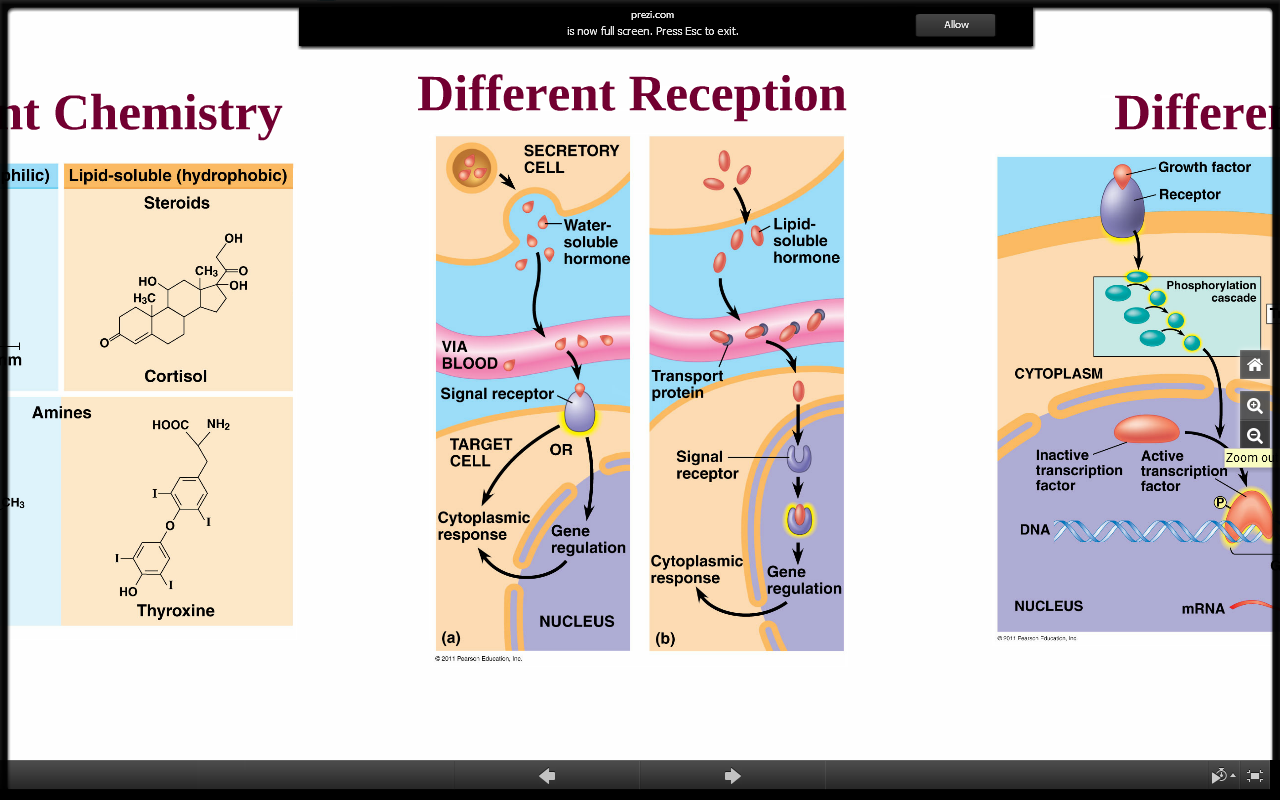




SIGNAL MOLECULES = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Shape of ligand matches \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

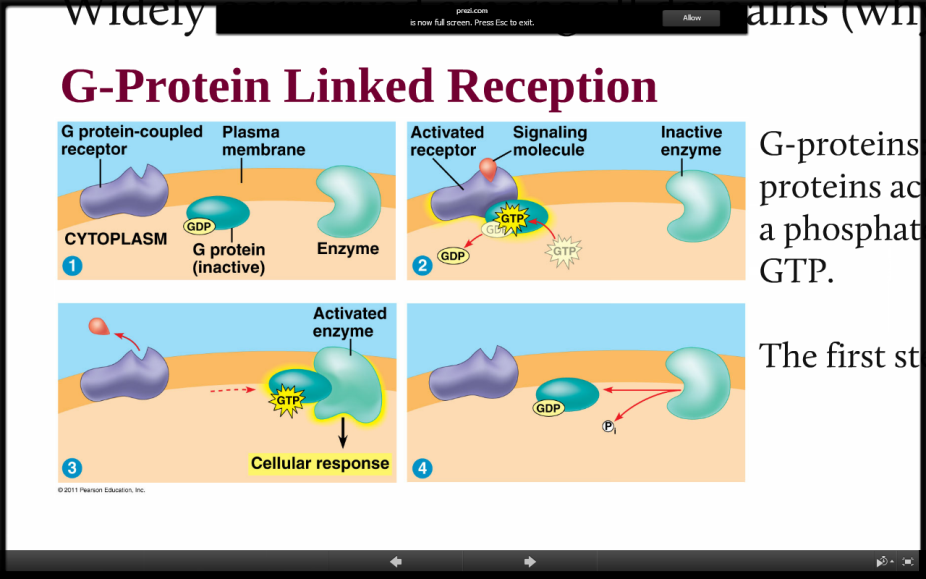


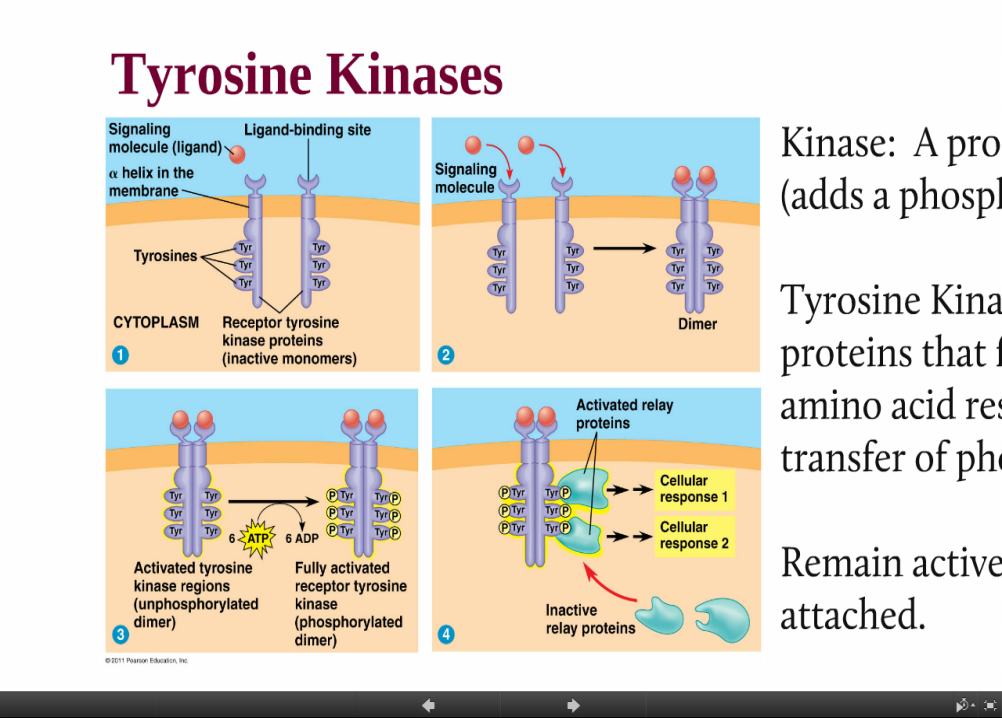
HYDROPHILIC LIGANDS

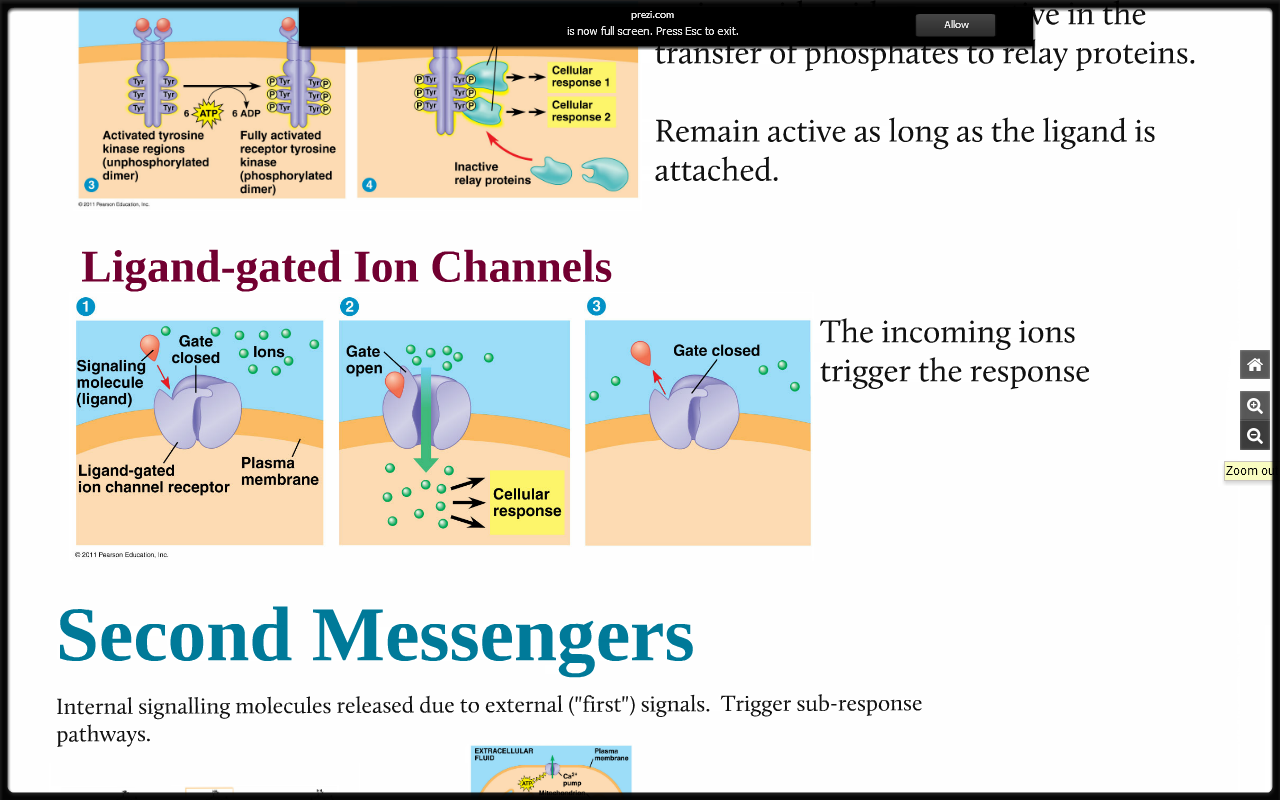


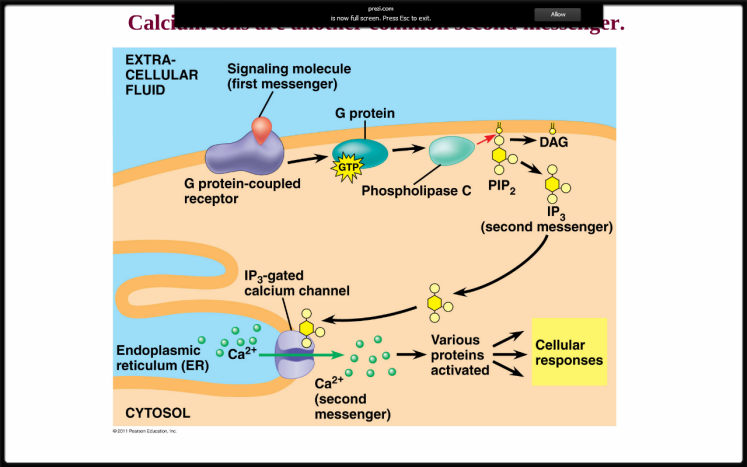
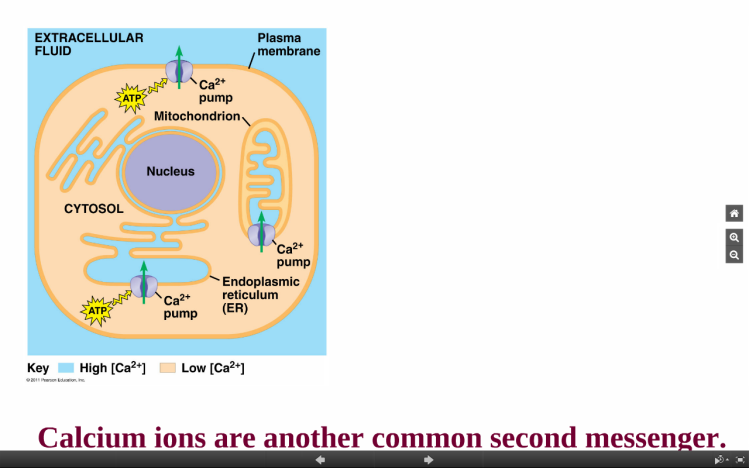
HYDROPHOBIC LIGANDS

TRANSDUCTION = intracellular cascade that transfers/amplifies signal from   
plasma membrane to nucleus or other cellular effectors

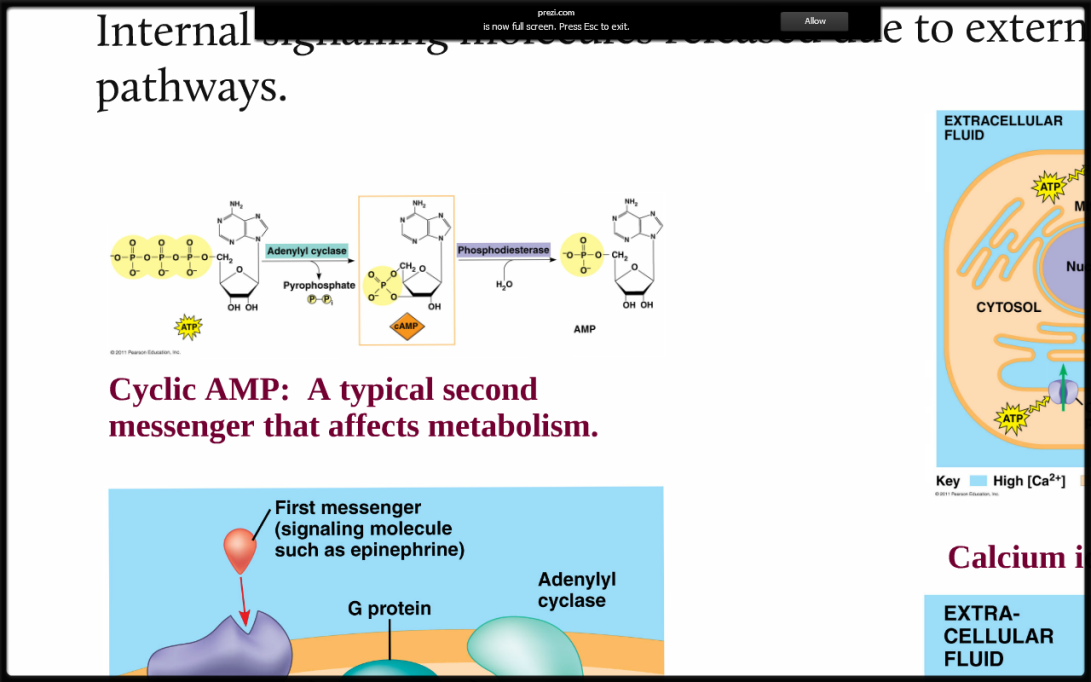


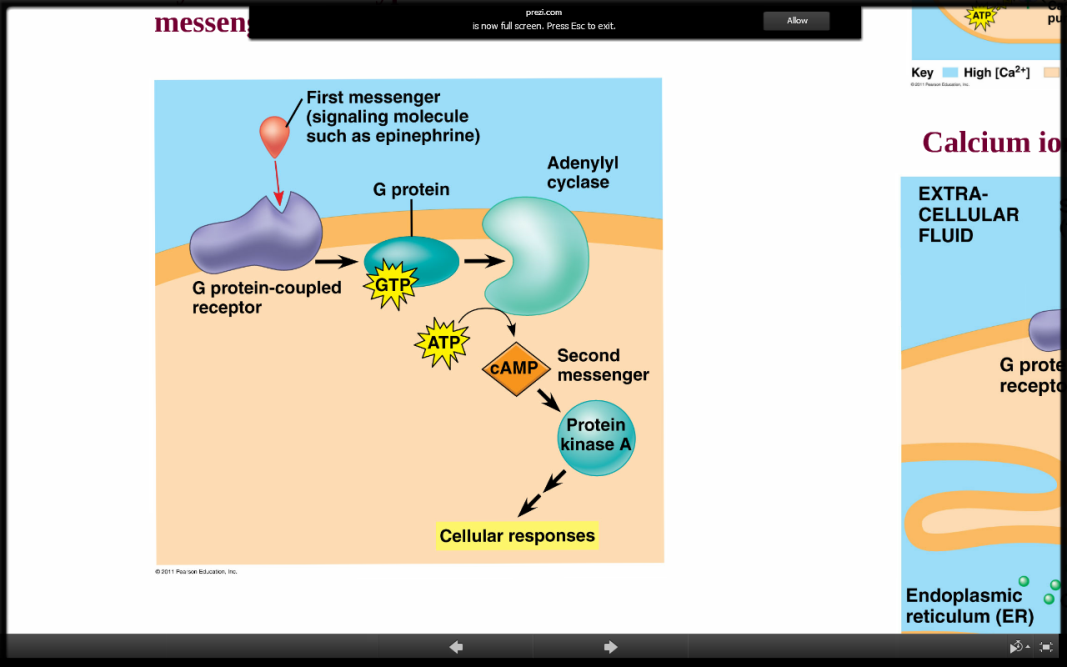
G-PROTEINS:  
- attached to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
- are activated by transfer of phosphate   
 from \_\_\_\_\_\_\_\_\_  
 - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ G-protein can then  
 activate another enzyme  
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

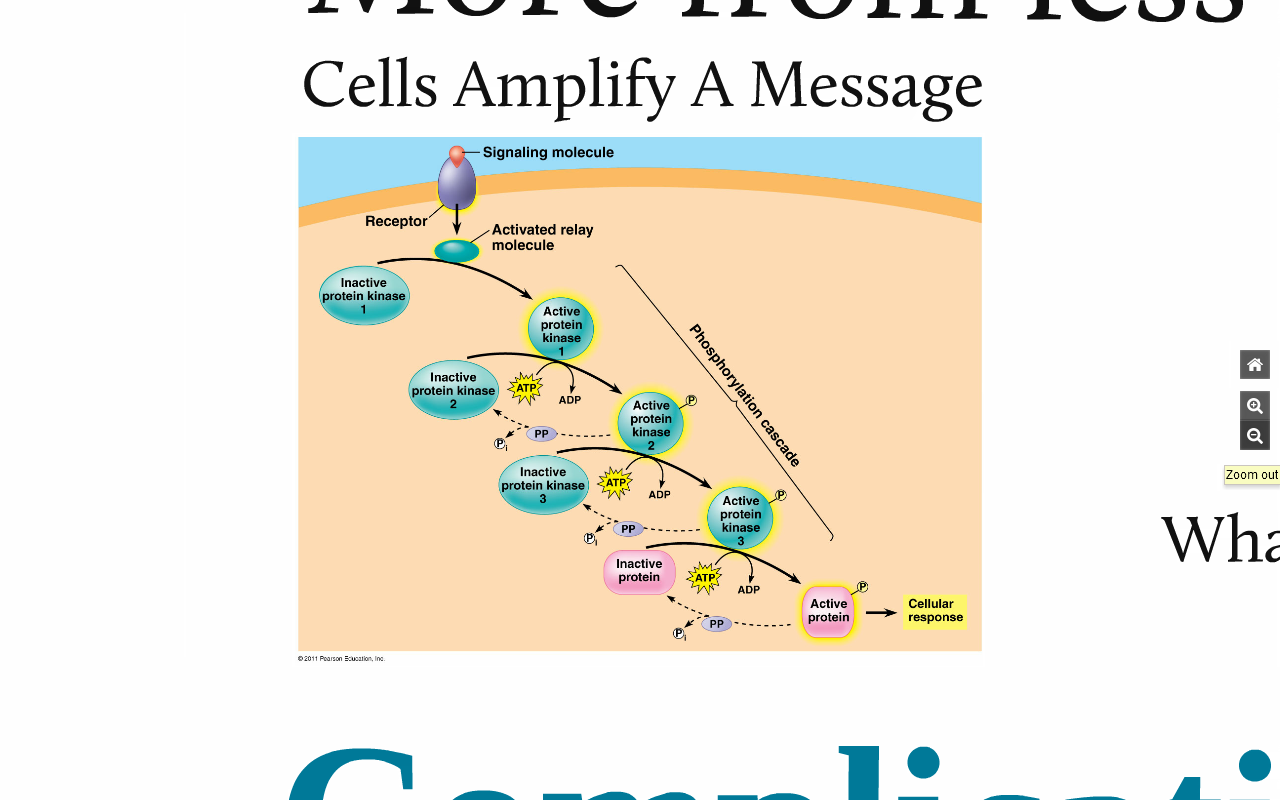
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= proteins that   
phosphorylate (add phosphate groups to)  
another molecule to “turn it on”  
  
TYROSINE KINASES:  
- proteins attached to   
 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
- join to form \_\_\_\_\_\_\_\_\_\_\_\_\_\_ when  
 ligand binds to receptor  
- are activated by transfer of   
 phosphate from \_\_\_\_\_\_\_\_\_  
- remain ACTIVE as long as ligand   
 is attached  
 - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dimers can then   
 activate another enzyme  
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
-Ligand binds to ligand-gated ion   
 channel and \_\_\_\_\_\_\_\_\_\_ “gate”  
-Incoming IONS act as   
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
 to trigger response  
-Gate stays open as long as ligand   
 is attached

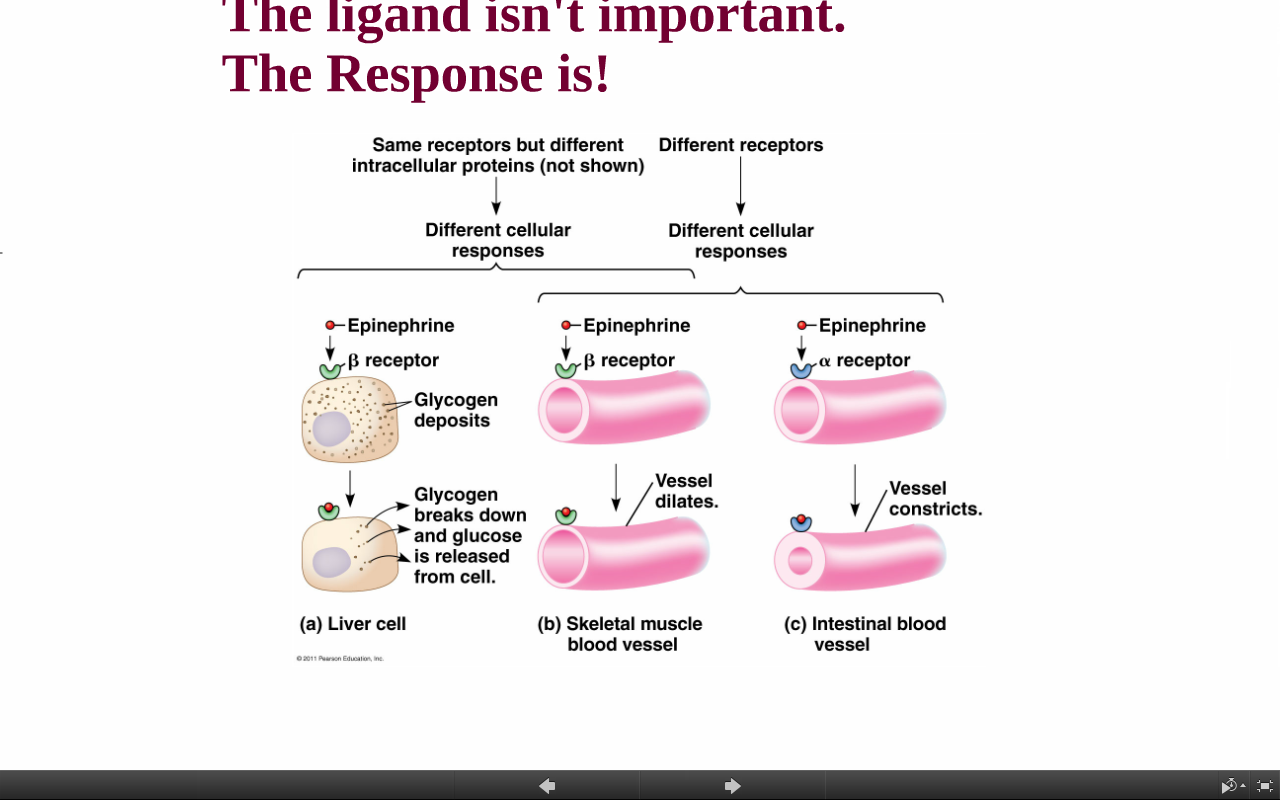
SECOND MESSENGERS  
Internal signaling molecules released due to external signal  
Trigger response pathway in cell  
  
CALCIUM IONS- Ca++

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of Ca++ ions into cell or  
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of Ca++ ions internally can trigger a response

  
CYCLIC AMP   
Typical SECOND MESSENGER that affects metabolism  
Production of c-AMP can activate other molecules



PHSOPHORYLAITON CASCADE  
Allows cell to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ original signal



RESPONSE  
Gene is turned on   
Message is made and translated into a protein that will do something