

Signaling molecule binds to receptor and receptor autosephosphorylates.

Are we to spawn phosphates on the leg(s) of the receptor upon binding with the signaling molecule?

GTP and GDP are nucleotides with their only difference being 1 phosphate molecule (3 and 2 respectively).

So we will be generating GTP during game play. When does the hydrolyze (GTP loses phosphate and becomes GDP) process take place? During kinase activation?

G-protein, when activated by a GTP, activates kinase.

So my logic suggests that the GTP is hydrolyzed at the time of kinase activation, becoming GDP. The G-protein then travels back to a receptor and binds with a phosphate, releasing the GDP. At this point, is the GDP free to pick up another phosphate to become GTP once again or is it 'consumed'? Same question with the receptor phosphate. Does it tag along with the G-protein or is it 'consumed' in the process of releasing the GDP?

This is probably more than we can accomplish this semester. So my suggestion is to focus on the above tasks once we have confirmation from Dr. Cline.

- 1. Make GTP**
- 2. GTP binds with G-protein**
- 3. G-protein activates kinase converting GTP to GDP**
- 4. The G-protein travels to a receptor and binds with a phosphate, releasing the GDP**

Once kinase is activated it picks up phosphates from ATP and phosphorylates the T-reg which goes on to the nucleus.