

Quiz 1 Material

Lipids & Membranes; Permeability & Transport; Channels / Membrane Potential; Receptors as Channels; GPCRs; RTKs; Phosphoinositides (PIPs)

Generic G-Protein Signaling: Activation & Inactivation

1. G-protein w/ GTP- α separates from $\beta\gamma$.
2. Targets activated.
3. G α -GTP hydrolyzes its own GTP to GDP.
4. G α re-binds $\beta\gamma$, & G-protein returns to resting state.

G-Protein Signaling: Adrenalin Pathway

- signal/stimulus = adrenalin
- receptor = β -adrenergic receptor
- transducer = G_s (α_2 , β , γ) protein
- target = adenylyl cyclase
- 2nd messenger = increase in cAMP
- result = active Protein Kinase A (PKA)

Turning Off β -Adrenergic Signaling

1. Adrenalin released from receptor.
2. GAP stimulates GTPase by G_s .
3. G_s - α hydrolyzes GTP.
4. Phosphodiesterase cleaves cAMP.
5. PKA turns off as regulatory & catalytic subunits assemble.
6. Phosphoprotein phosphatase turns off PKA targets.
7. BARK phosphorylates receptor in active state.
8. β -arrestin binds phosphorylated receptor to STOP SIGNAL.