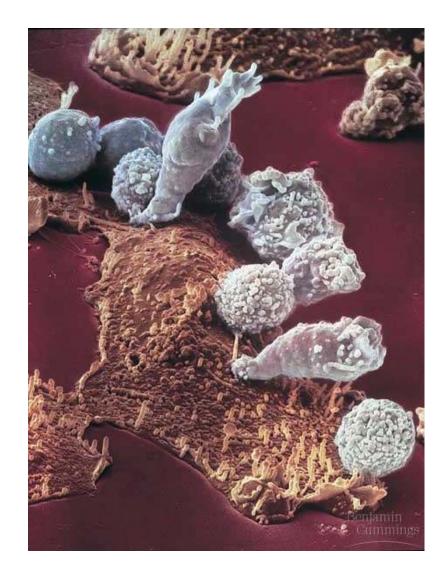
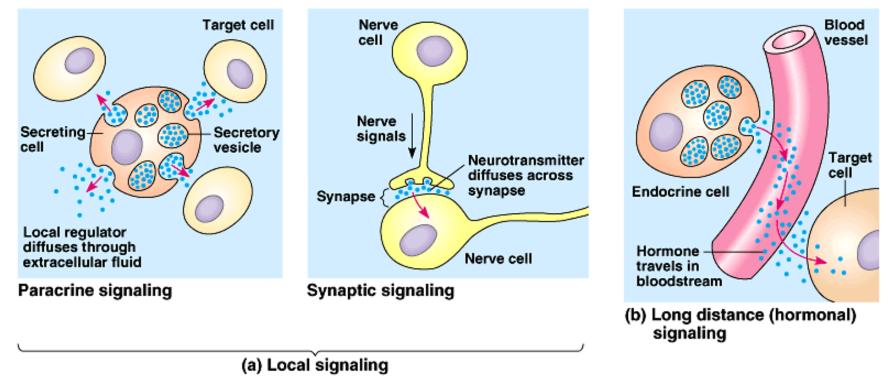
Pre – AP Biology

Cell Communication (1.4) – Part 1

Direct Contact



Local and Long distance communication



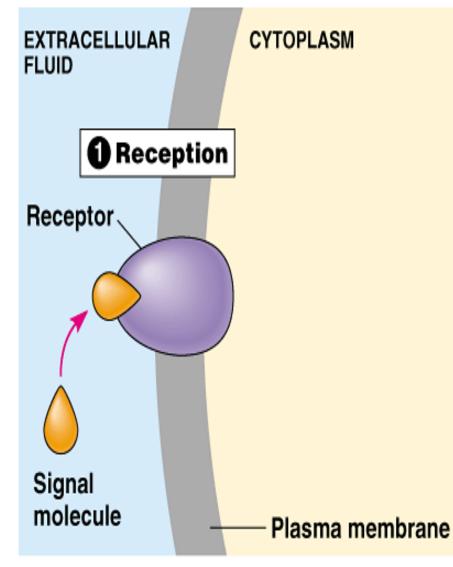
Pheromones Dog marking its presence



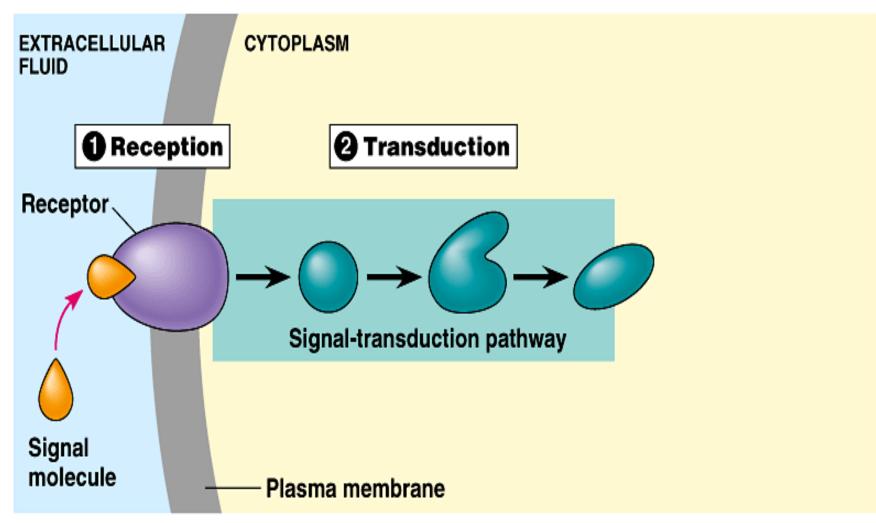
Earl Sutherland



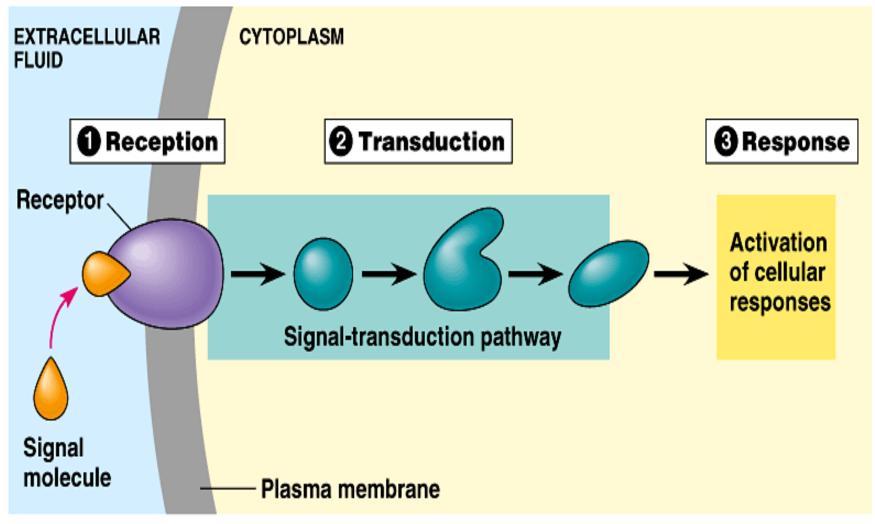
Reception



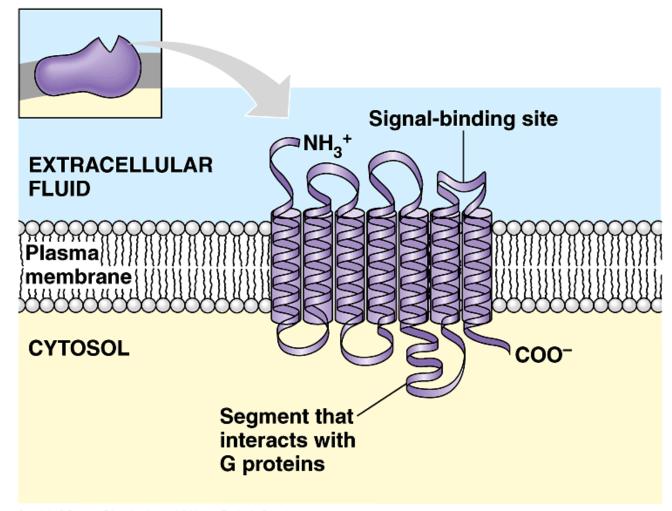
Transduction



Response



Receptor protein and conformational shape change If a ligand sits in the binding site, the bottom segment that interacts with a G protein drops down

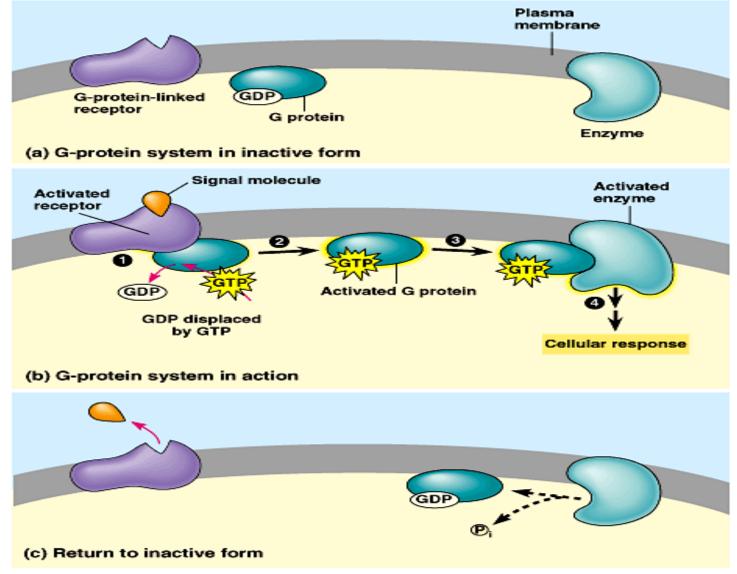


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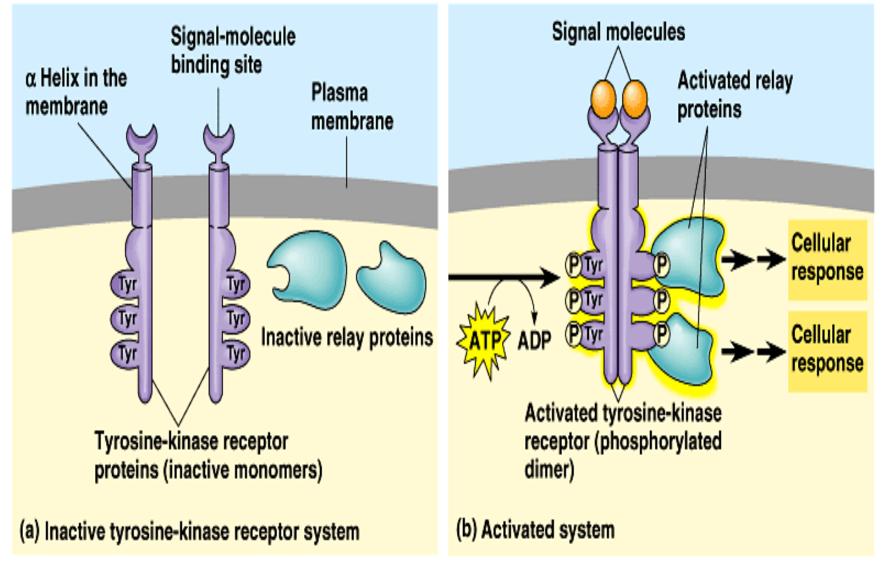
Pre – AP Biology

Cell Communication (1.4) – Part 2

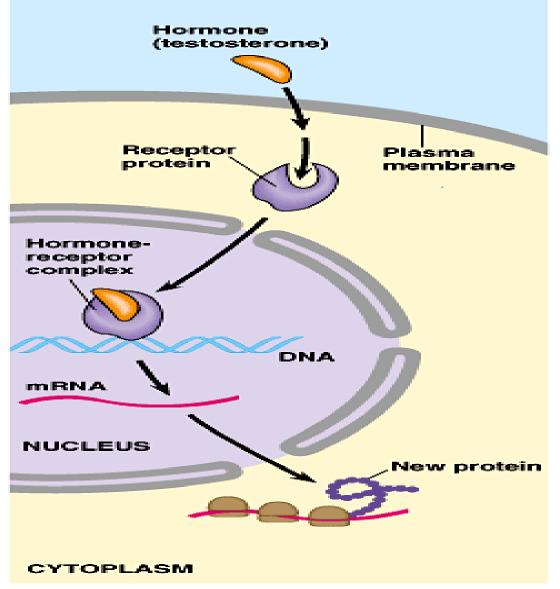
G protein communication Please look again at the previous slide



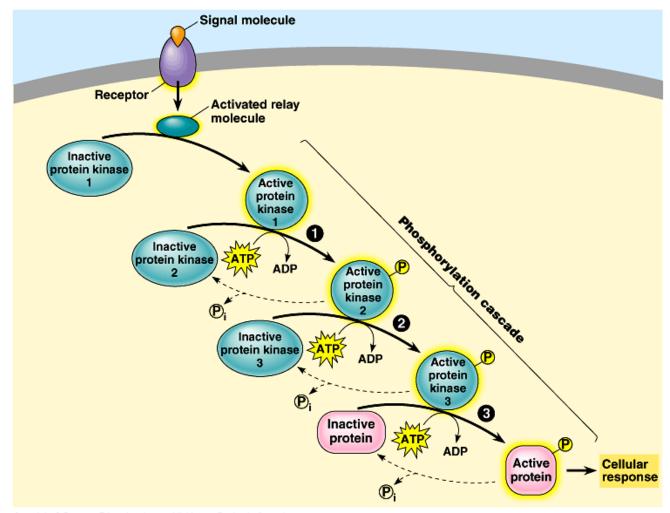
Tyrosine – Kinase Receptor



Intracellular receptor protein



Cascades



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Cascades and amplification of signals

| (a) Signaling pathway | (b) Number of molecules activated |
|--|---|
| RECEPTION Binding of epinephrine to G-protein-linked receptor | 1 molecule |
| TRANSDUCTION | |
| Inactive G protein Active G protein | 10 ² molecules |
| | |
| Inactive adenylyl cyclase Active adenylyl cyclase | 10 ² molecules |
| | 10 ⁴ molecules |
| Inactive protein kinase A Active protein kinase A | 10 ⁴ molecules |
| Inactive phosphorylase kinase | |
| Active phosphorylase kinase | 10 ⁵ molecules |
| Inactive glycogen phosphorylase Active glycogen phosphorylase | 10 ⁶ molecules |
| RESPONSE Glycogen Glucose-1-phosphate | 10 ⁸ molecules |