CONCEPT: CLASSES OF SIGNALING RECEPTORS

●*Recall:* receptors are biomolecules (typically proteins) that change *conformation* when bound to a specific _____.

□ Receptors are categorized into 2 classes: 1) *Cell-Surface Receptors* & 2) *Intracellular Receptors*.

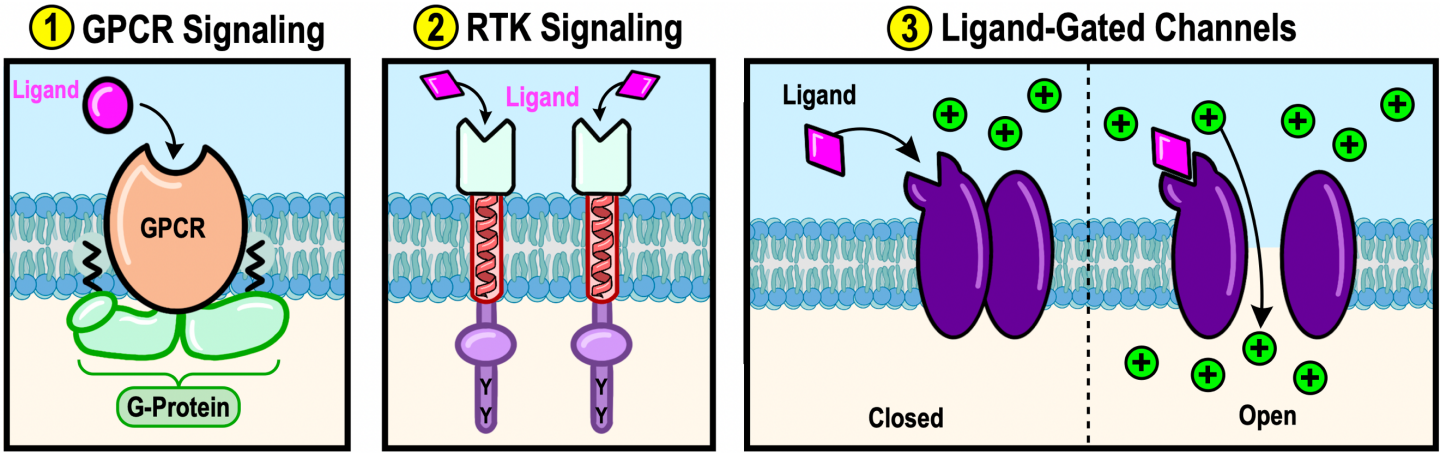
Cell-Surface Receptors

●Receptor proteins found embedded in the *cell* _____ (surface) of *target* cells.

□ _____ major types of cell-surface receptors involved in most signal transduction pathways:

1 **G** Protein-**C**oupled **R**eceptors (_____) 2 **R**eceptor **T**yrosine **K**inases (_____) 3 **Ligand-Gated Ion Channels**

EXAMPLE: Cell-Surface Receptors.

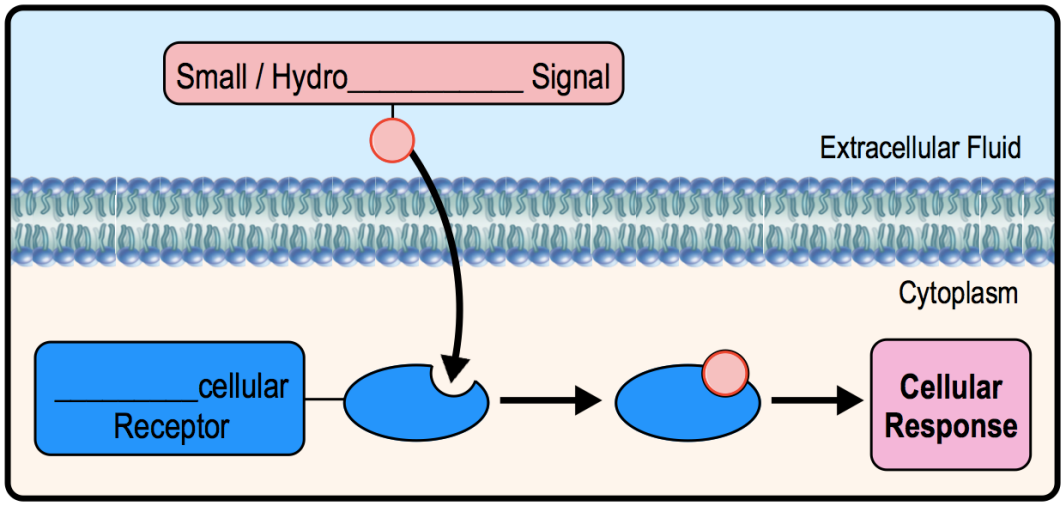


Intracellular Receptors

●Receptor proteins found on the _____ of *target* cells.

□ Recall: *small*, _____ signaling molecules freely *diffuse* across the membrane into the cell.

EXAMPLE: Intracellular Signaling Pathway.



CONCEPT: CLASSES OF SIGNALING RECEPTORS

PRACTICE: The molecules that convert extracellular signals into intracellular signals are:

a) Neurotransmitters.
b) Hormones.
c) Cell surface receptors.
d) Intracellular receptors.

PRACTICE: Which type of receptor leads directly to a change in the distribution of ions on opposite sides of the membrane?

a) Receptor tyrosine kinase.
b) G protein-coupled receptor.
c) Ligand-gated ion channel.
d) Steroid receptor.
e) Intracellular receptor.

PRACTICE: Why does testosterone, a lipid-soluble / hydrophobic signaling molecule, not affect all cells in the body but only specific cells?

a) Only target cells have the cell surface receptor able to bind with testosterone.
b) Only target cells contain the genes regulated by testosterone.
c) Only target cells possess the phosphorylation cascade uniquely activated by testosterone.
d) Only target cells possess the intracellular receptor able to bind with testosterone.