

Cell Signaling and Signaling Pathways

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March 4th, 2016

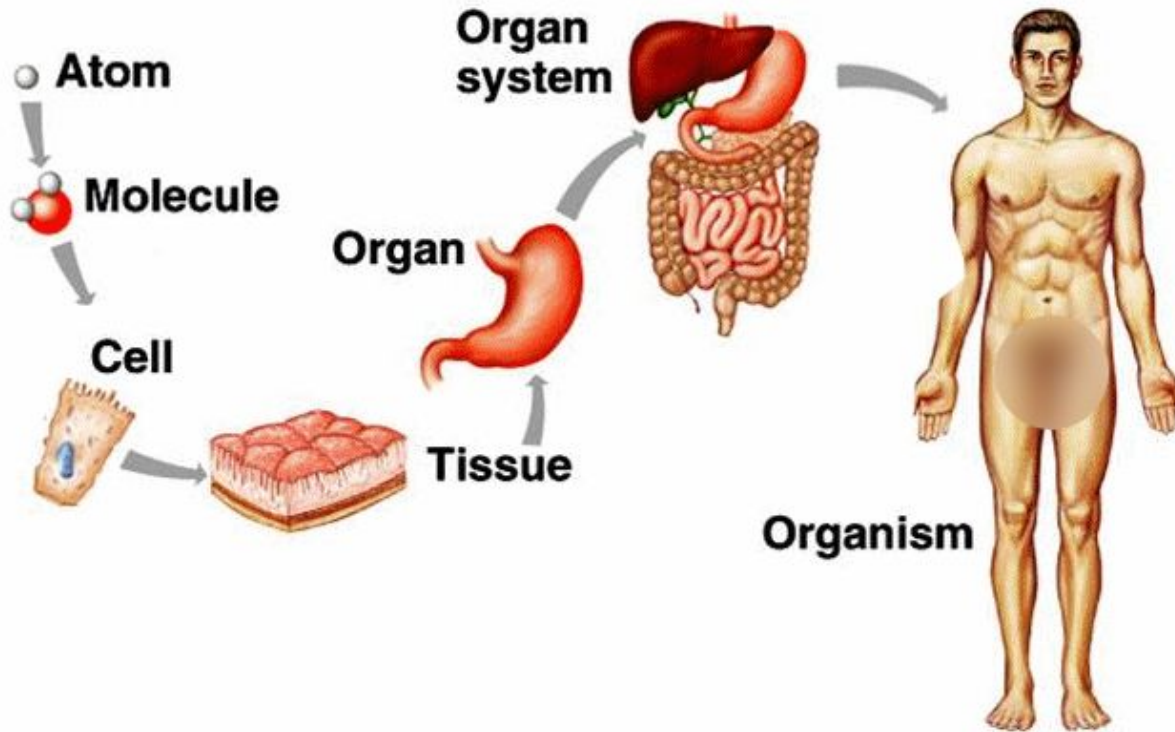


GDA
International Course on
Genomic Data Analysis

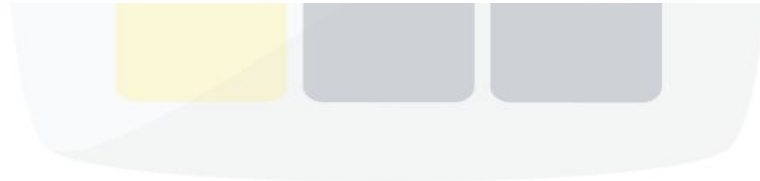
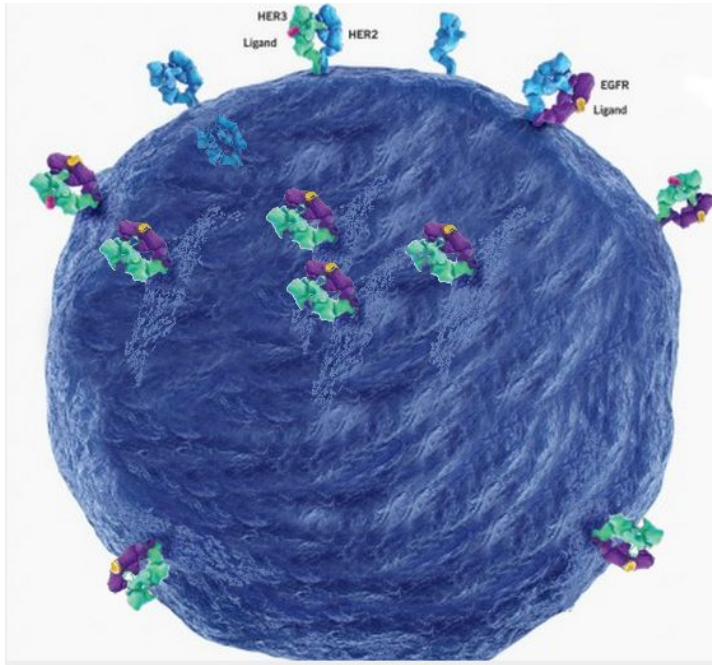


PRINCIPE FELIPE
CENTRO DE INVESTIGACION

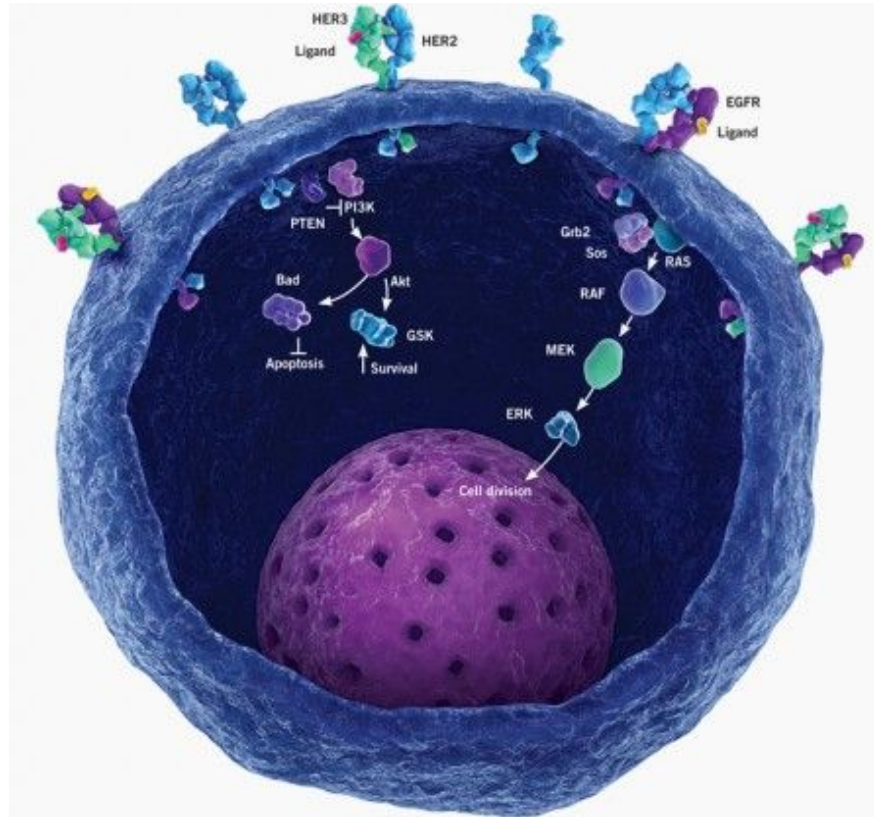
Level of Organization



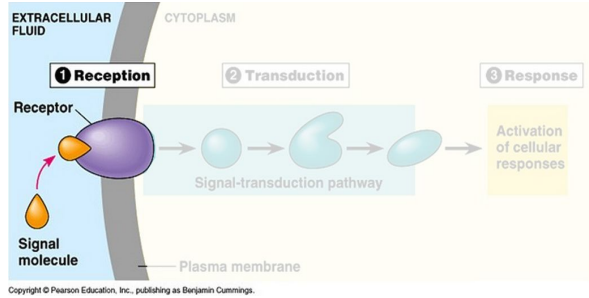
Cell Membrane



Intracellular Proteins



Cell Signaling



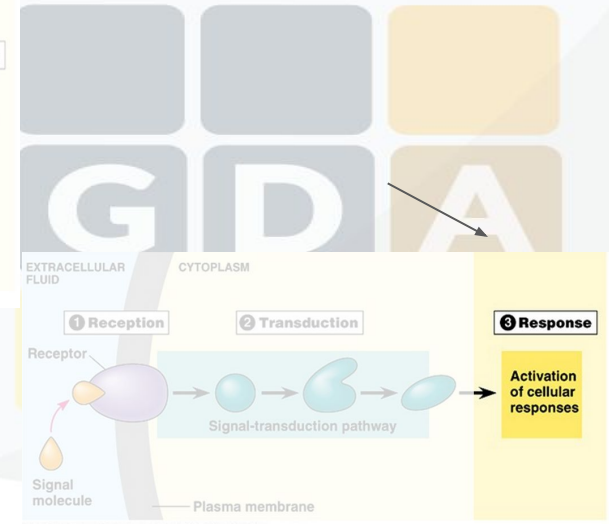
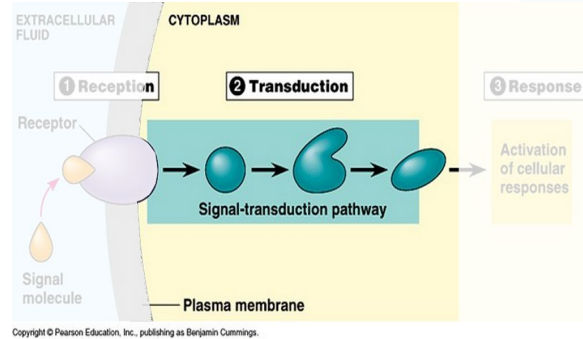
Post translational modifications of intracellular signaling proteins.

Activation & Inhibition

- Phosphorilation
- Dephosphorilation
- Glycosylation
- Ubiquitination
- Methylation.

Cellular Function

- Apoptosis
- Survival
- Growth
- Migration
- Proliferation
- Differentiation
- Cell Cycle
- Metabolism (Catabolism and Anabolism)



Signal Molecules

Physical signals

- Light
- electronic
- mechanic
- UV
- heat
- volume
- osmotic
- ...etc

Chemical signals

- Hormones
- Neurotransmitters
- Growth factors
- Cytokines
- Odor molecules
- Active oxygen
- Drugs
- Toxins
- ...etc.

Cell Signaling

Cell signaling (also known as signal transduction) is the transmission of molecular signals from a cell's exterior to its interior.

This step is initiated by cell-surface receptors and terminated by target protein.

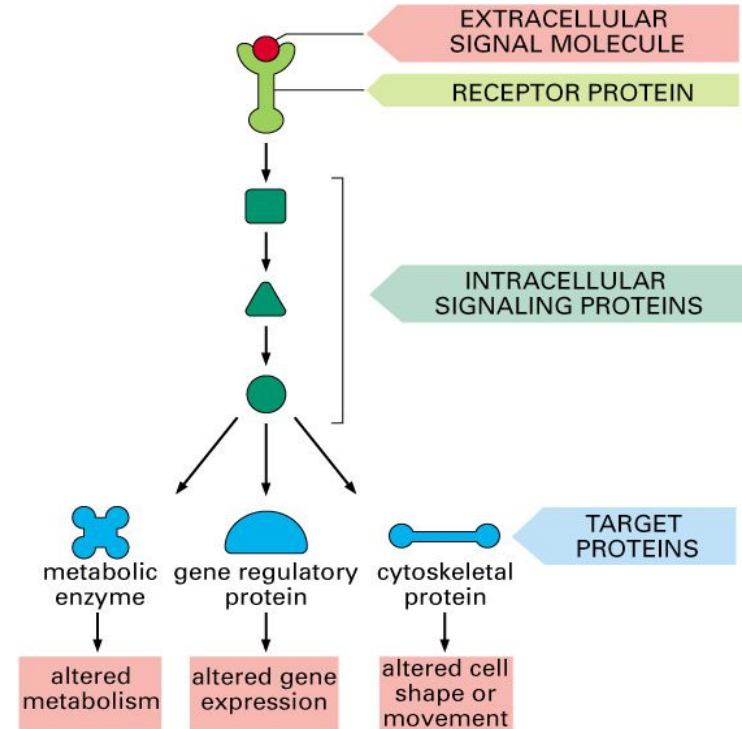


Figure 15-1. Molecular Biology of the Cell, 4th Edition.

Signaling Pathways

<https://youtu.be/IIY1or7gKW0>

