CONCEPT: TYPES OF CELL SIGNALING

●Communication between cells of multi-cellular organisms is important for maintaining the organism's *homeostasis*.

□ Communication via cell signaling can occur _____ or _____.

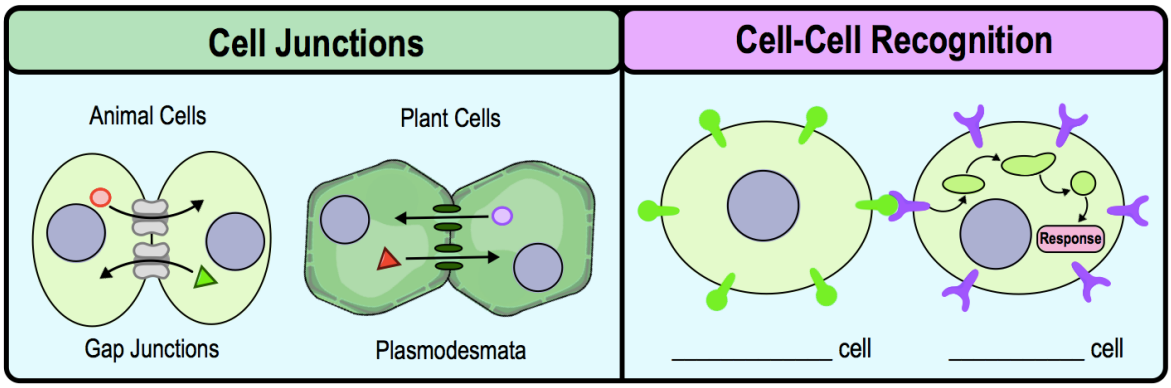
Direct Cell Signaling

●*Local* signaling between cells that are in _____ *contact with* each other.

□ Recall: *neighboring* cells can directly communicate via different types of *cell* _____.

●**Cell-Cell Recognition**: cells make direct contact via _____ proteins, causing a *cellular response*.

EXAMPLE: Direct Cell Signaling.



Indirect Cell Signaling: Paracrine vs Endocrine

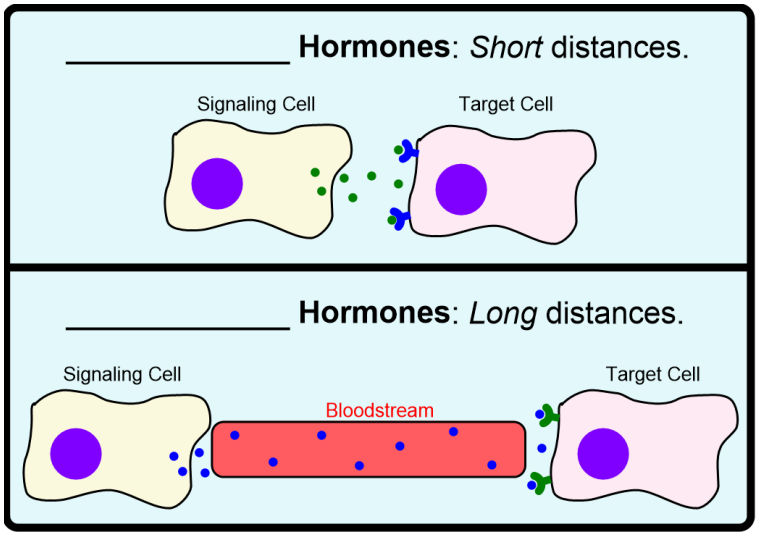
●*Distant* signaling between cells that are _____ in direct contact *with* each other that commonly use *hormones*.

●_____: signaling molecules released by a cell/gland that can travel & affect distant cells in other areas.

□ **Paracrine Hormones**: travel _____ distances & only act on nearby cells in the vicinity of its synthesis.

□ **Endocrine Hormones**: released into bloodstream & travel _____ distances to their target cell.

EXAMPLE: Indirect Cell Signaling.



CONCEPT: TYPES OF CELL SIGNALING

PRACTICE: Paracrine signaling is characterized by signaling molecules (ligands) that are _____:

a) Produced and secreted by the target cell.
b) Secreted by cells close to the target cell.
c) Secreted by nerve cells across a synapse.
d) Secreted by cells far from the target cell.

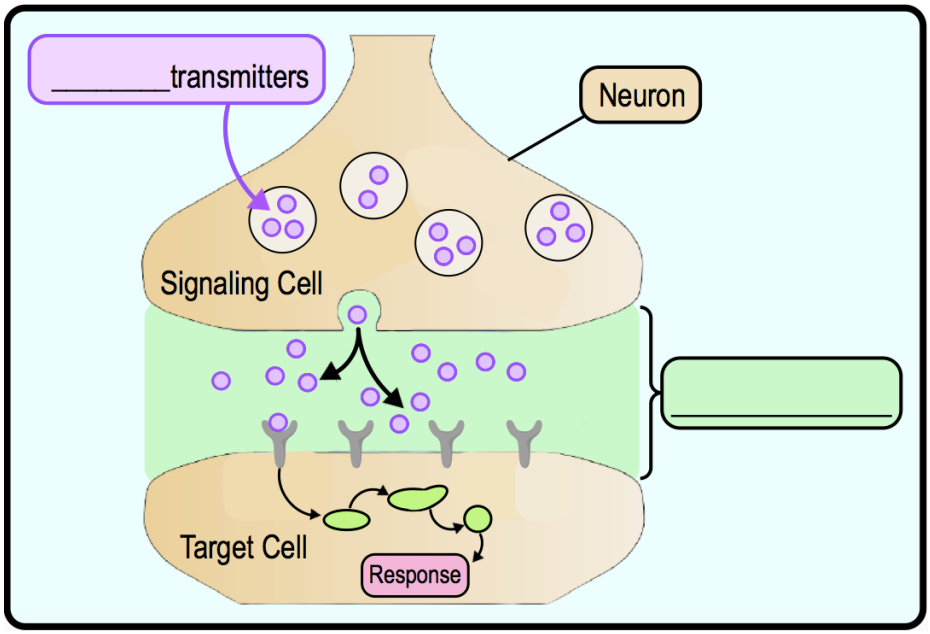
PRACTICE: Cortisol is a stress hormone created by the adrenal glands which can affect many tissues throughout the body. How is cortisol able to reach target cells that are far from the adrenal glands?

a) Cortisol diffuses through the body.
b) Cortisol travels through the blood stream.
c) Cortisol travels through the nervous system.
d) Cortisol is unable to affect cells far from the adrenal glands.

Synaptic Cell Signaling

- **Synaptic Cell Signaling:** specific cells release *neurotransmitters* across a _____ activating the target cell.
  - □ **Neurotransmitters**: chemical released by the end of a _____ (nerve cell) to _____ a signal.
  - □ **Synapse**: a small _____ or region between the end of a nerve cell and another cell.

EXAMPLE: Synaptic Signaling.



PRACTICE: Which of the following types of signaling is represented in the figure?

a) Cell-cell recognition.
b) Paracrine.
c) Hormonal.
d) Synaptic.