Exocytosis	Endocytosis
Process of **exporting** macromolecules from a cell by fusion of vesicles with the plasma membrane. Vesicle usually budded from the ER or Golgi and migrates to plasma membrane. Used by secretory cells to **export** products (e.g., insulin in pancreas, or neuro-transmitter from neuron).	Process of **importing** macromolecules into a cell by forming vesicles derived from the plasma membrane. Vesicle forms from a localized region of plasma membrane that sinks inward; pinches off into the cytoplasm. Used by cells to **incorporate** extracellular substances.

There are three types of endocytosis: (1) *phagocytosis*, (2) *pinocytosis* and (3) *receptor-mediated endocytosis*.

Phagocytosis = (cell eating) Endocytosis of solid particles.

- Cell engulfs particle with pseudopodia and pinches off a food vacuole.
- Cortical Gel with *actin network* used to extend pseudopodia: Microfilaments
- Vacuole fuses with a *lysosome* containing hydrolytic enzymes that will digest the particle.

Pinocytosis = (cell drinking) Endocytosis of fluid droplets.

- Droplets of extracellular fluid are taken into small vesicles.
- The process is not discriminating. The cell takes in all solutes dissolved in the droplet.

Receptor-mediated endocytosis = The process of importing specific macromolecules into the cell by the inward budding of vesicles formed from *coated pits*; occurs in response to the binding of specific *ligands* to receptors on the cell's surface.