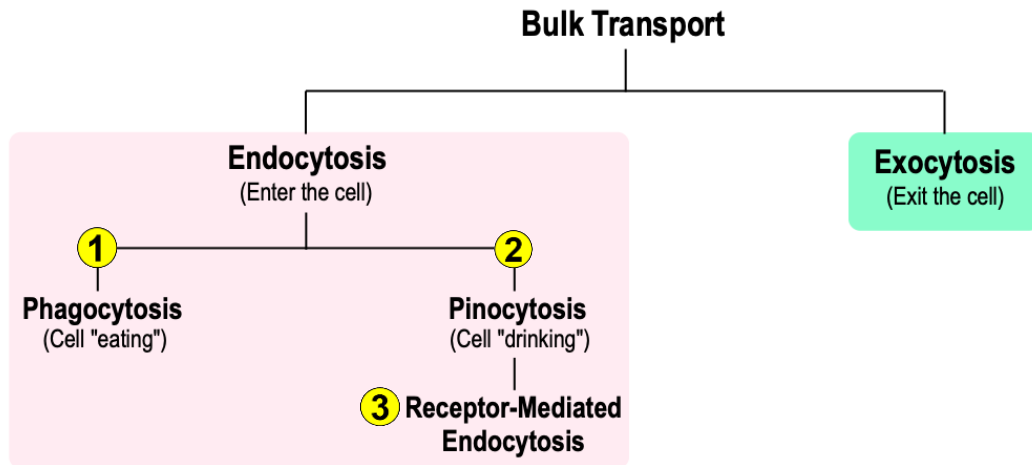


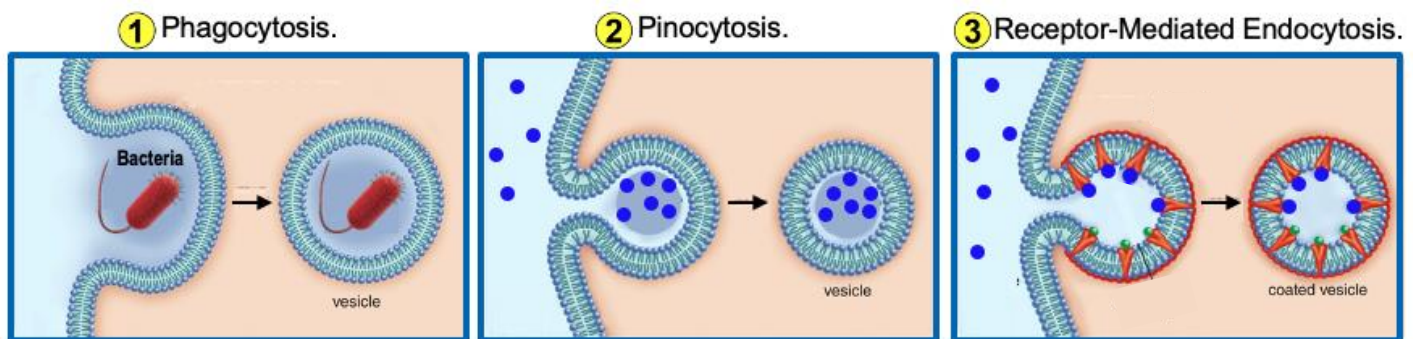
CONCEPT: ENDOCYTOSIS & EXOCYTOSIS

- Large biomolecules (ex. proteins, carbohydrates, DNA) are too _____ to *diffuse* through membranes or channels.
 - Instead, macromolecules are transported across cell membranes via *endocytosis* and/or *exocytosis*.



Endocytosis Allows Entry to the Cell

- **endocytosis**: macromolecule _____ by the cell membrane, allowing _____ into the cell via a lipid vesicle.
- _____ main types of *endocytosis*:
 - 1 _____: large, solid material is taken in by endocytosis (cell “_____”).
 - 2 _____: small, liquid material taken in by endocytosis (cell “_____”).
 - 3 *Receptor-Mediated-Endocytosis*: specific form of *pinocytosis* using _____ proteins.



EXAMPLE: White blood cells of our immune systems engulf bacteria using which type of endocytosis?

- a) Phagocytosis.
- b) Pinocytosis.
- c) Osmosis.
- d) Receptor-mediated exocytosis.

CONCEPT: ENDOCYTOSIS & EXOCYTOSIS

PRACTICE: The difference between pinocytosis and receptor-mediated endocytosis is that _____.

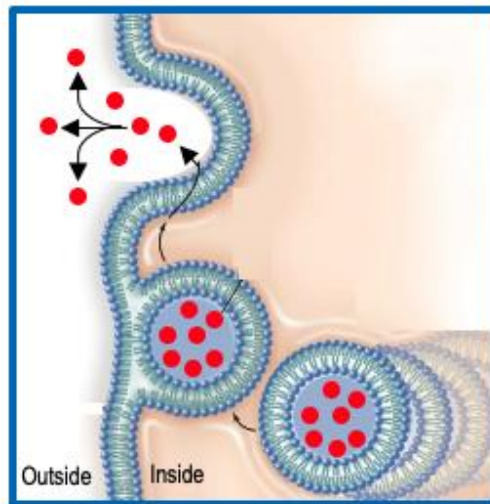
- a) Pinocytosis brings only water molecules into the cell, receptor-mediated endocytosis brings in other molecules also.
- b) Pinocytosis increases the surface area of the plasma membrane, receptor-mediated endocytosis decreases it.
- c) Pinocytosis is nonselective, receptor-mediated endocytosis offers more selectivity.
- d) Pinocytosis can concentrate substances from the extracellular fluid, receptor-mediated endocytosis cannot.

Exocytosis Allows Exiting from the Cell

• **exocytosis:** vesicle fusion with a cell membrane, allowing its contents to _____ the cell to the **extracellular** space.

□ *Hormones, neurotransmitters, & digestive enzymes* are all examples of molecules that undergo *exocytosis*.

EXAMPLE: Exocytosis of Hormone Signaling Molecules.



PRACTICE: Which of the following is NOT a true statement regarding exocytosis?

- a) It forms intracellular vesicles from inward folding of the plasma membrane.
- b) It requires fusion of vesicles with the plasma membrane.
- c) It secretes large molecules out of the cell.
- d) It is responsible for removing large waste particles that cannot be recycled by the cell.

PRACTICE: Which means of particle transport is shown in the figure below?

- a) Exocytosis.
- b) Endocytosis.
- c) Facilitated diffusion.
- d) Simple diffusion.

