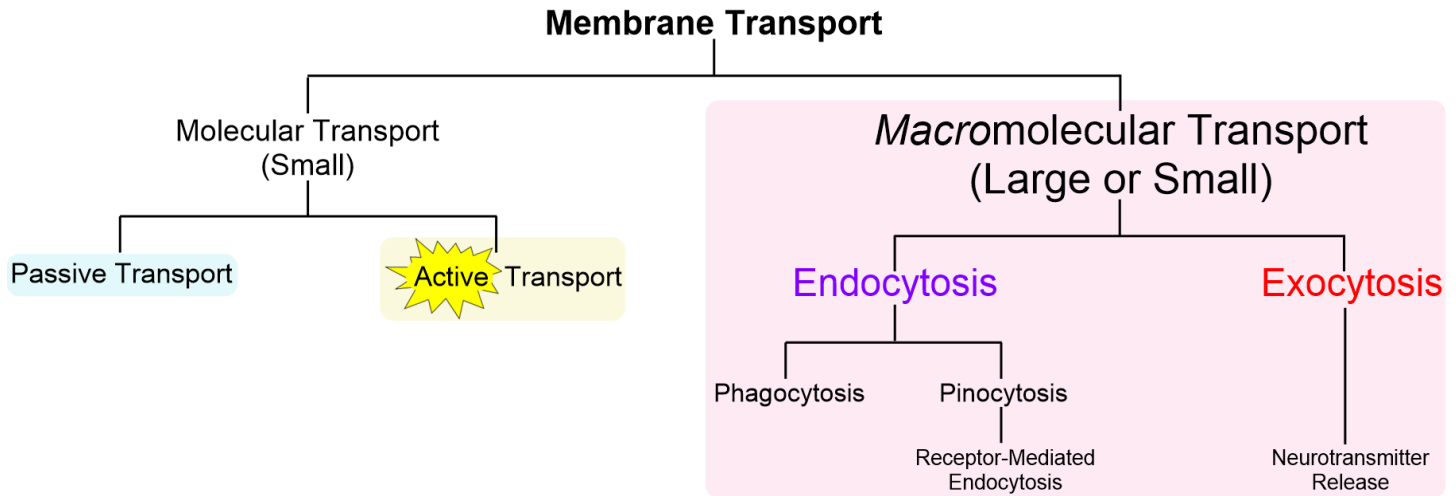


CONCEPT: ENDOCYTOSIS & EXOCYTOSIS

- *Macromolecules* (ex. proteins, polysaccharides, DNA) are too _____ to diffuse through membranes or channels.
 - Instead, macromolecules are transported across cell membranes via *endocytosis* &/or *exocytosis*.
 - _____ *Proteins*: integral membrane proteins that help *fuse* membranes in both endocytosis & exocytosis.

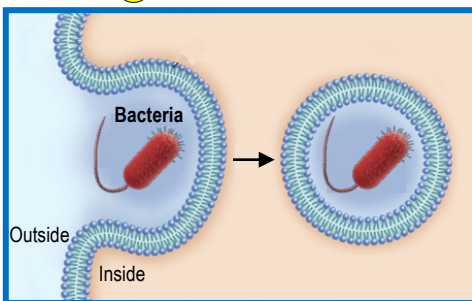


Endocytosis Allows Entry to the Cell

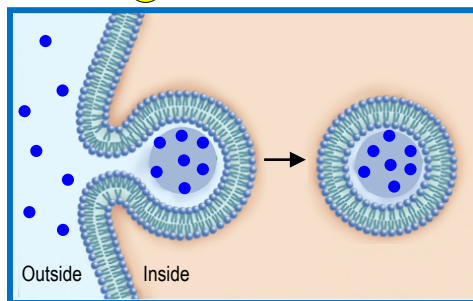
- _____ *endocytosis*: macromolecule engulfment by the cell-membrane, allowing _____ to the cell inside a lipid vesicle.
 - _____ main types of *endocytosis*:
 - ① _____: *large, solid* material is taken in by endocytosis (cell “_____”).
 - ② _____: *small, liquid* material taken in by endocytosis (cell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

EXAMPLE: Endocytosis.

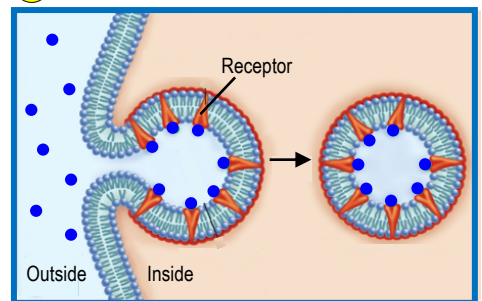
① Phagocytosis.



② Pinocytosis.



③ Receptor-Mediated Endocytosis.



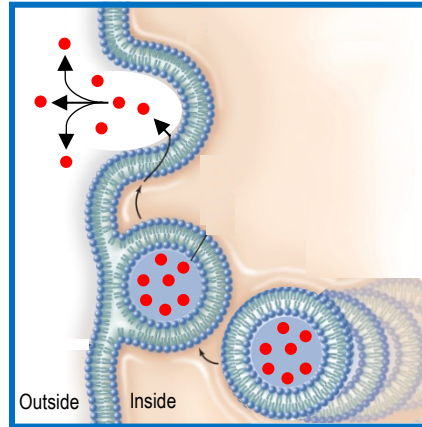
PRACTICE: Which of the following is FALSE about endocytotic movements?

- Phagocytosis could be used against invading microorganisms.
- Ingestion of plasma membrane along with extracellular fluid is a kind of pinocytosis.
- Phagocytosis is a means of feeding in some eukaryotes and is important in animal nutrition.
- The materials engulfed will be enclosed by a small portion of the ER membrane.

CONCEPT: ENDOCYTOSIS & EXOCYTOSIS

Exocytosis Allows Exiting from the Cell

- Exocytosis: vesicle fusion with cell membrane, allowing vesicle contents to exit cell into the **extracellular** space.
 - Neurotransmitters & zymogens of digestive enzymes are released by exocytosis.



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

- It forms intracellular vesicles from inward folding of the plasma membrane.
- It requires fusion of vesicles with the plasma membrane.
- It secretes large molecules out of the cell.
- It is responsible for neurotransmitter release of acetylcholine to stimulate muscle contractions.

PRACTICE: Label the following phrases based on if they apply to A) Only Endocytosis, B) Only Exocytosis, or C) Both:

- Decreases the surface area of the plasma membrane: _____.
- Increases the surface area of the plasma membrane: _____.
- Secretes large molecules out of the cell: _____.
- Brings molecules into the cell: _____.
- Requires cellular energy: _____.

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

- Exocytosis.
- Endocytosis.
- Facilitated diffusion.
- Simple diffusion.

