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*Shaping Lives...
Empowering Communities...*

TRANSPORTATION ACROSS CELL

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Molecule Movement & Cells

Passive Transport

Active Transport

Endocytosis

(phagocytosis & pinocytosis)

Exocytosis



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Passive Transport

No energy required

Move due to gradient

**differences in concentration, pressure,
charge**

Move to equalize gradient

High moves toward low



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Types of Passive Transport

- 1. Diffusion**
- 2. Osmosis**
- 3. Facilitated diffusion**

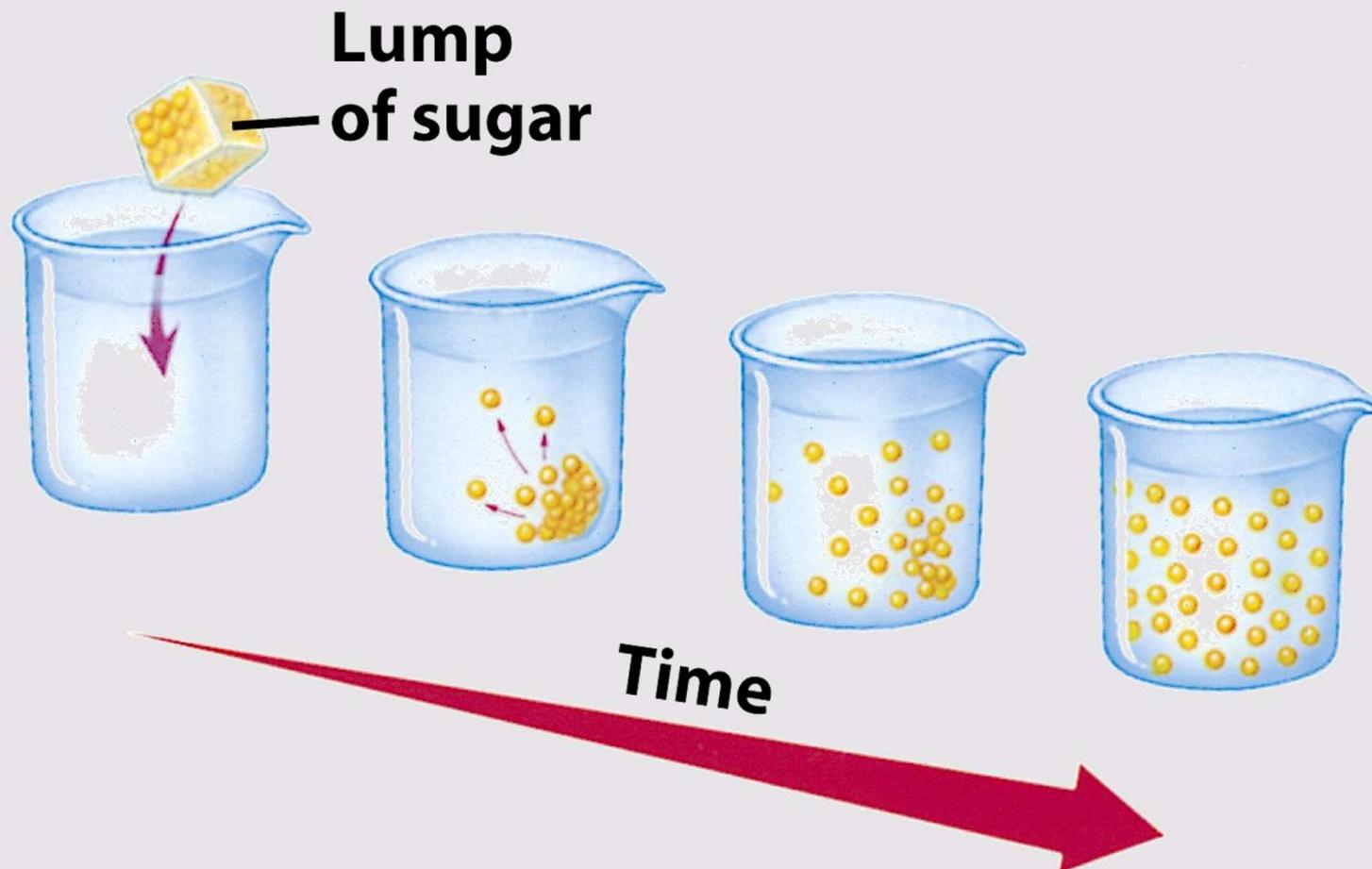


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Diffusion

Molecules move to equalize concentration





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Osmosis

Special form of diffusion

Fluid flows from lower solute concentration

Often involves movement of water

Into cell

Out of cell



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Solution Differences & Cells

solvent + solute = solution

Hypotonic

Solutes in cell more than outside

Outside solvent will flow into cell

Isotonic

Solutes equal inside & out of cell

Hypertonic

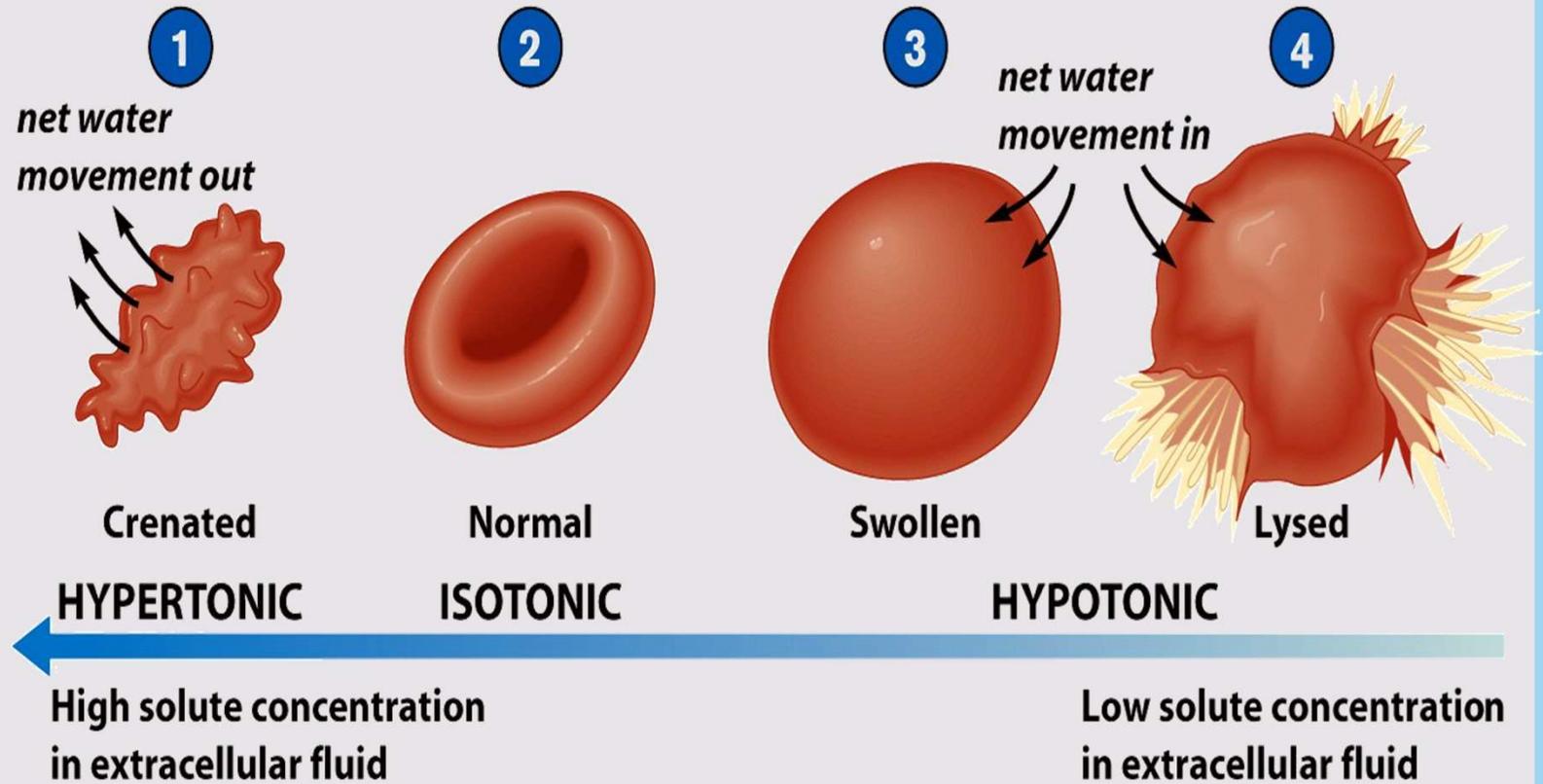
Solutes greater outside cell

Fluid will flow out of cell



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Facilitated Diffusion

Differentially permeable membrane

Channels (are specific) help molecule or ions enter or leave the cell

Channels usually are transport proteins
(aquaporins facilitate the movement of water)

No energy is used



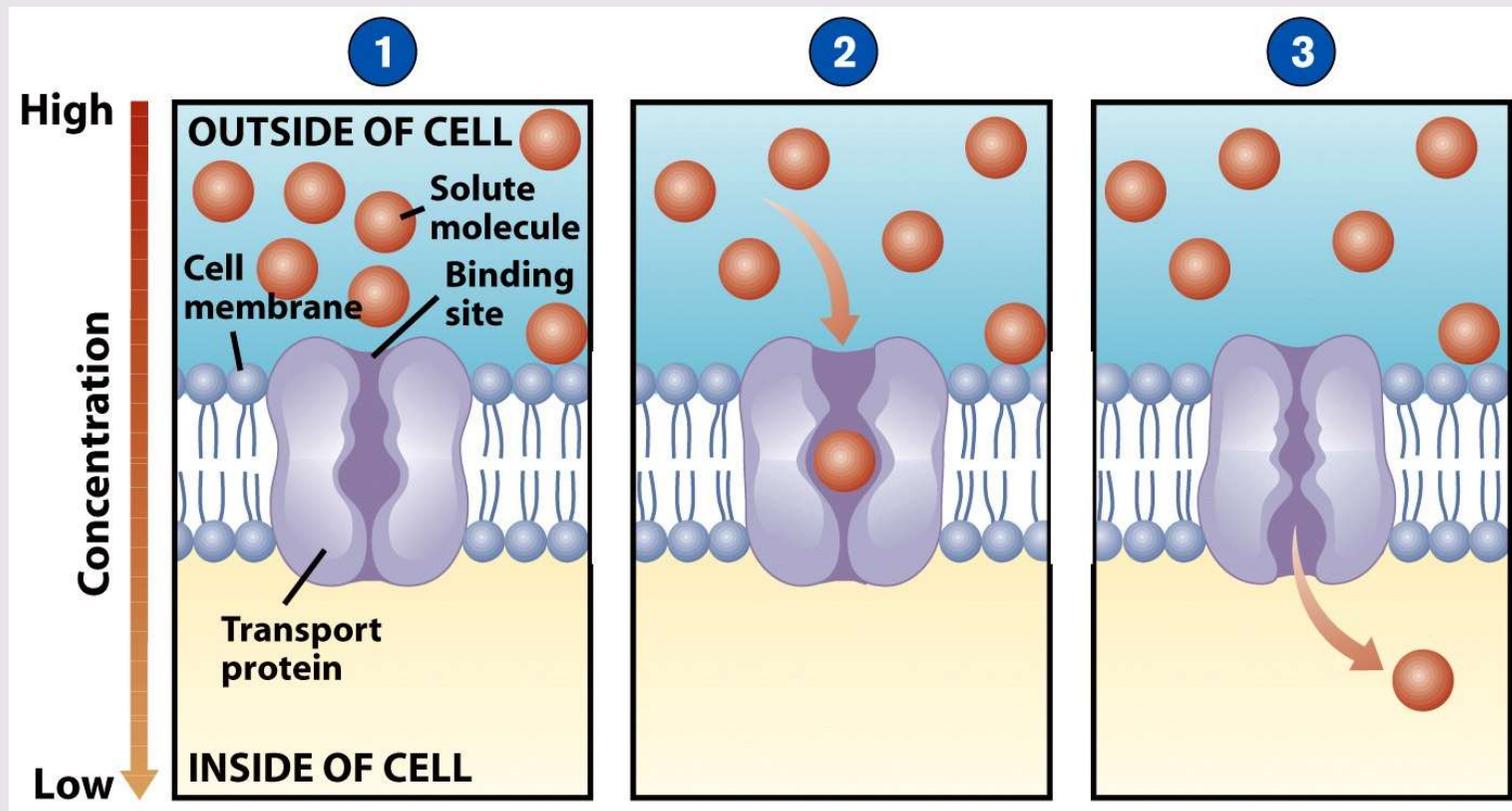
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Process of Facilitated Transport

Protein binds with molecule

Shape of protein changes

Molecule moves across membrane





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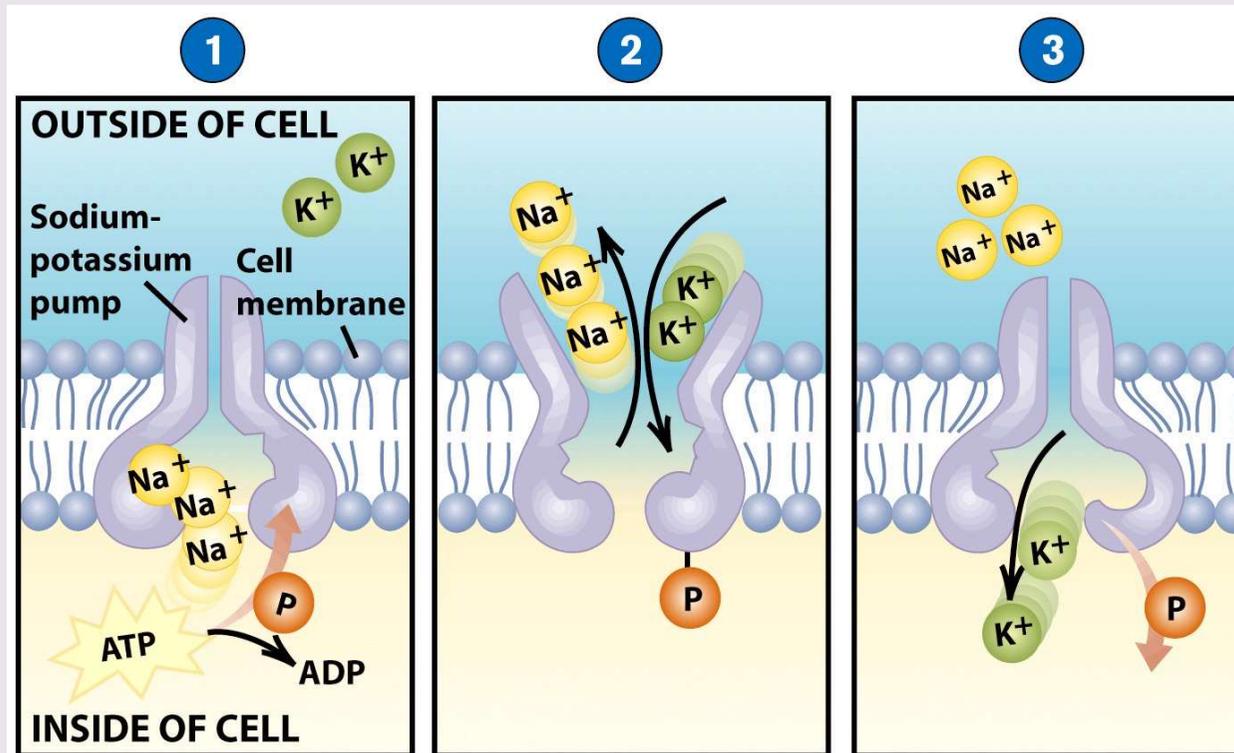
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Active Transport

Molecular movement

Requires energy (against gradient)

Example is sodium-potassium pump





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Endocytosis

Movement of large material

Particles

Organisms

Large molecules

Movement is into cells

Types of endocytosis

bulk-phase (nonspecific)

receptor-mediated (specific)



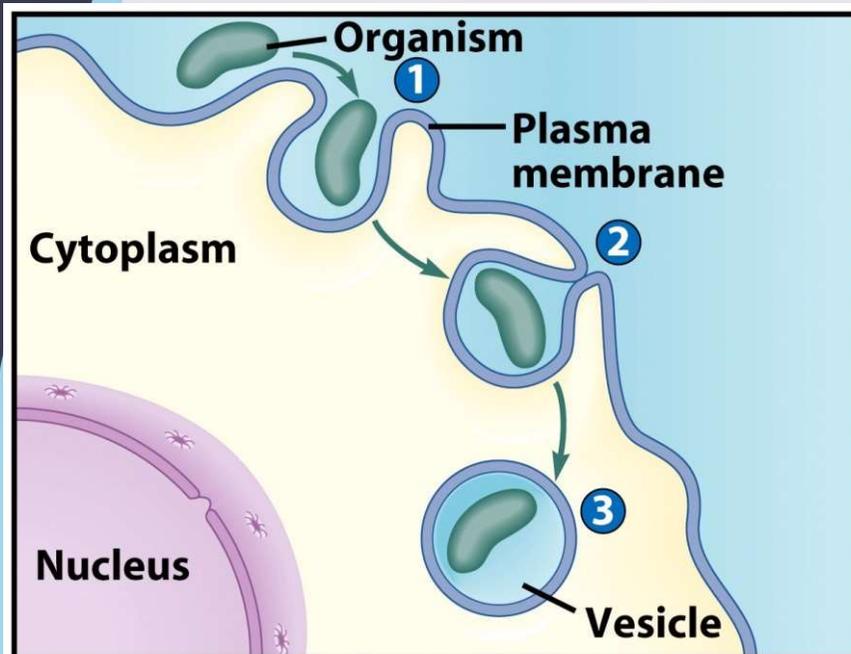
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Process of Endocytosis

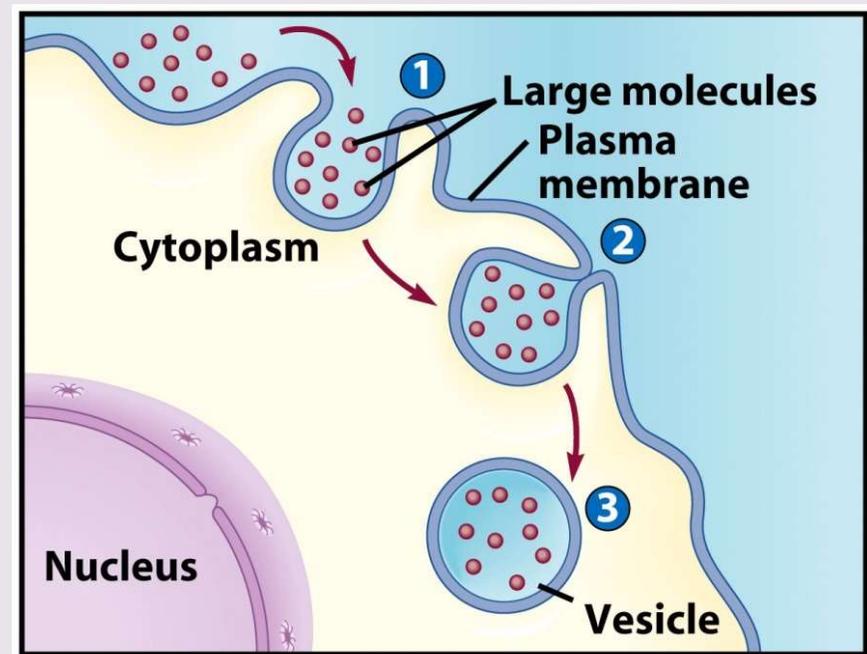
Plasma membrane surrounds material

Edges of membrane meet

Membranes fuse to form vesicle



PHAGOCYTOSIS



PINOCYTOSIS



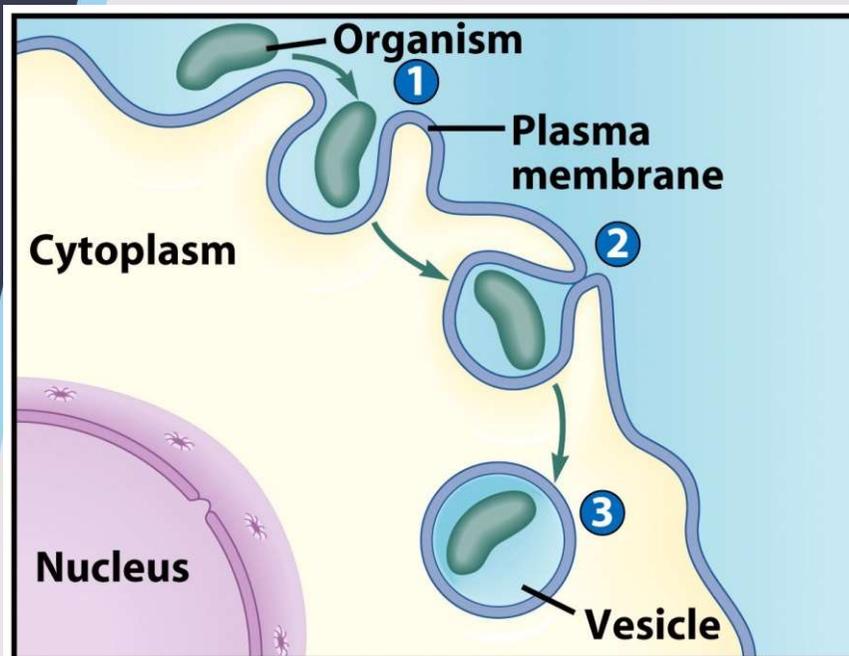
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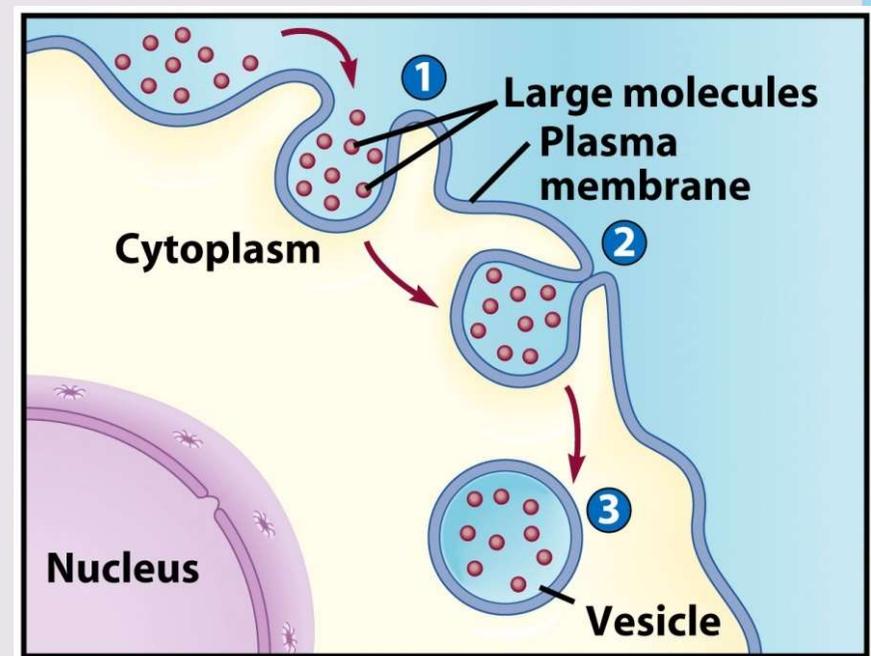
Forms of Endocytosis

Phagocytosis – cell eating

Pinocytosis – cell drinking



PHAGOCYTOSIS



PINOCYTOSIS

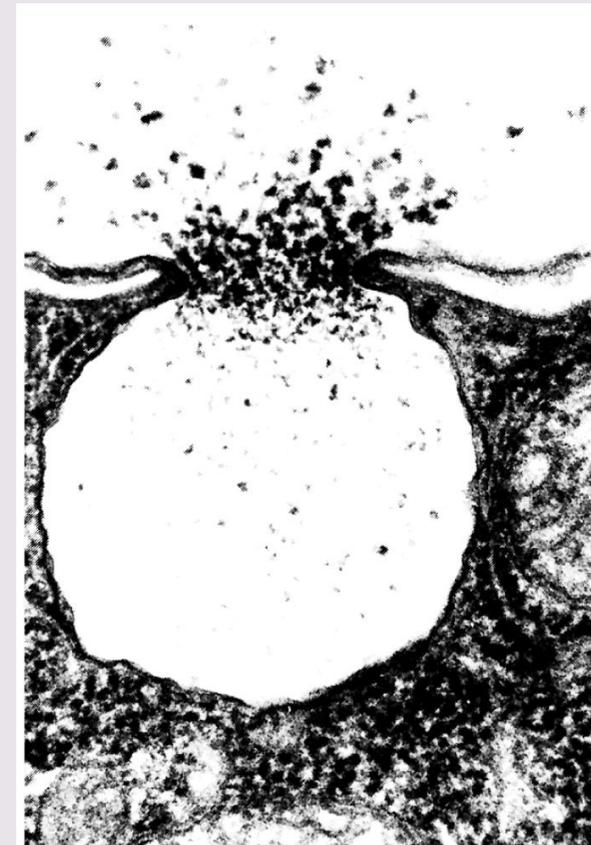
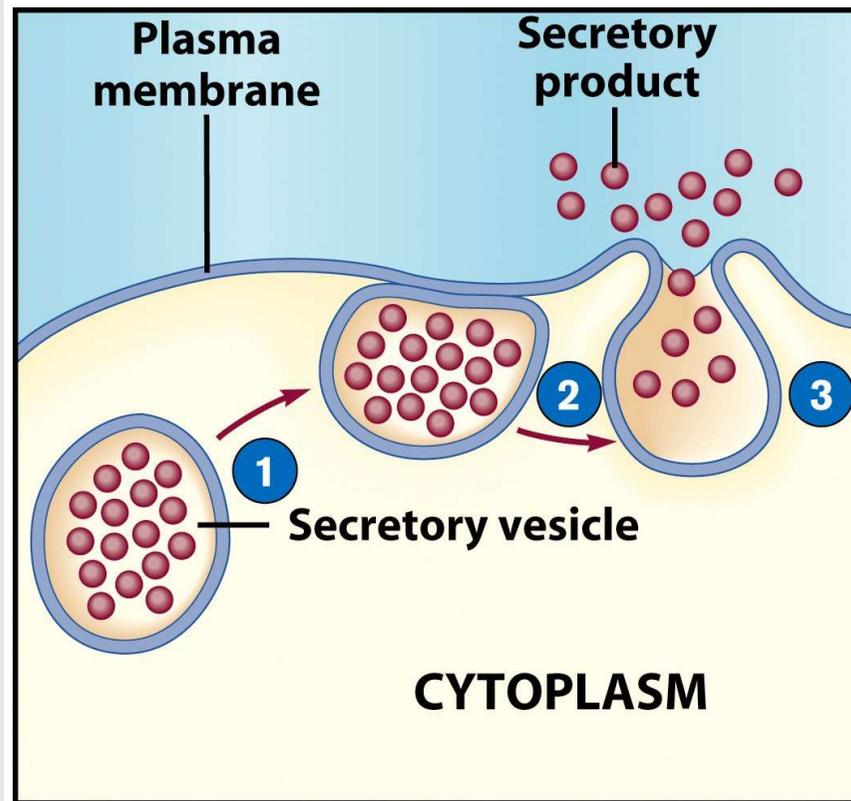


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Exocytosis

Reverse of endocytosis

Cell discharges material





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Exocytosis

Vesicle moves to cell surface

Membrane of vesicle fuses

Materials expelled

