

# BIOLOGICAL MEMBRANES

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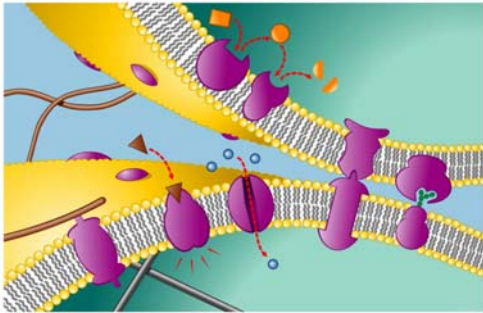
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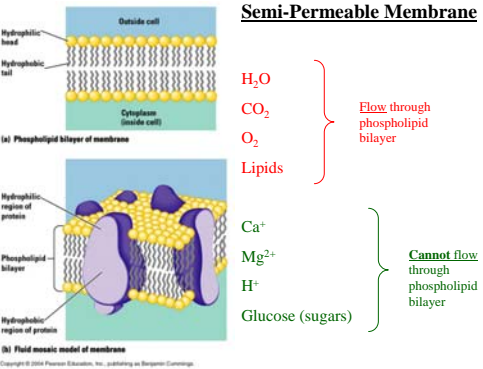
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**THREE WAYS FOR “STUFF” TO CROSS A SEMI-PERMEABLE MEMBRANE:**

- **DIFFUSION/OSMOSIS**
- **ACTIVE TRANSPORT**
- **ENDO/EXOCYTOSIS**

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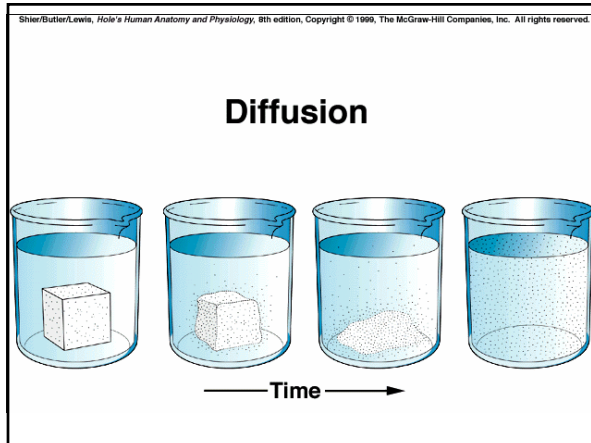
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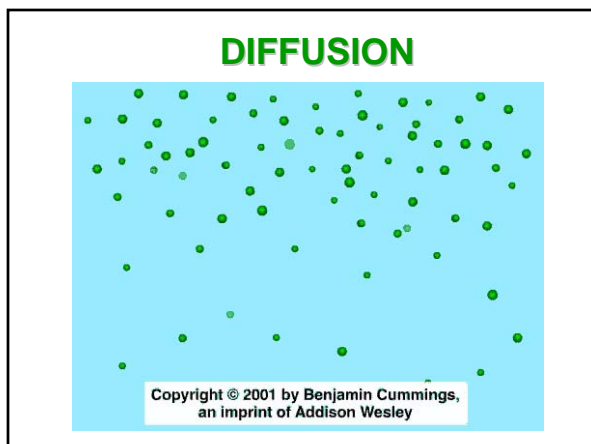
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## Osmosis - Rules

- Movement of water occurs towards:
  - greater the concentration of non-permeable particles in a solution
  - the lower water concentration
  - the area with greater osmotic pressure

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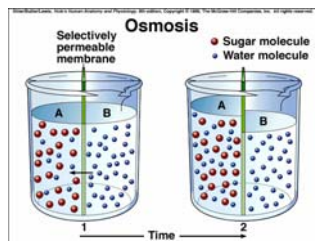
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## Osmosis

- diffusion of water molecules
  - higher water concentration to lower water concentration
  - across a selectively permeable membrane



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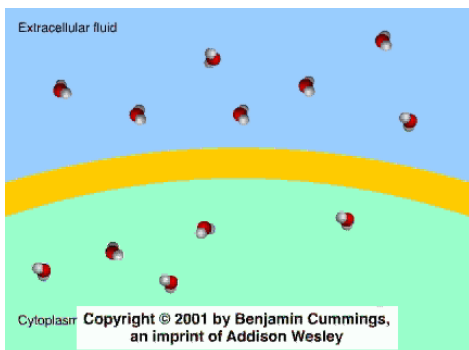
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## OSMOSIS



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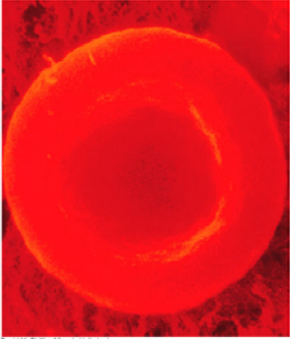
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**Cell in Isotonic Solution**



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Figure 3.25c

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**Cell in Hypertonic Solution**



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Figure 3.25a

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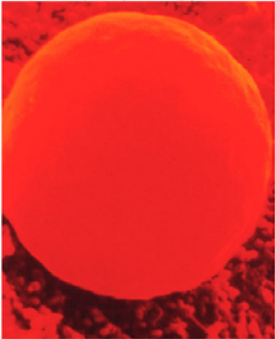
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**Cell in Hypotonic Solution**



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Figure 3.25b

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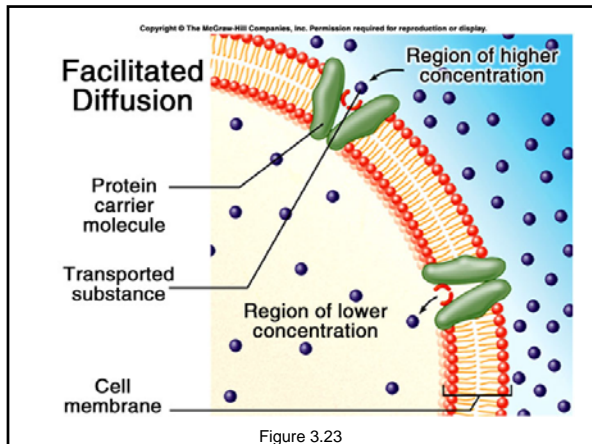
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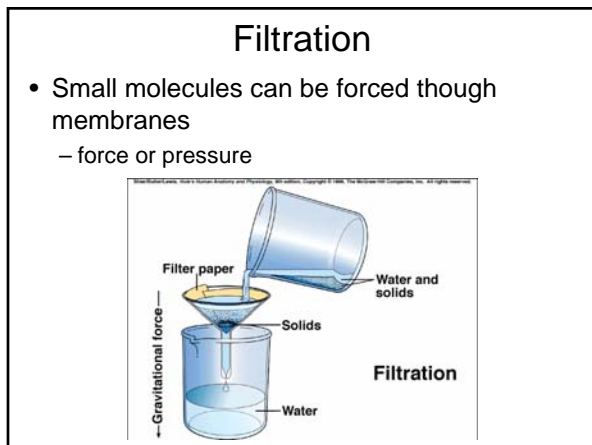
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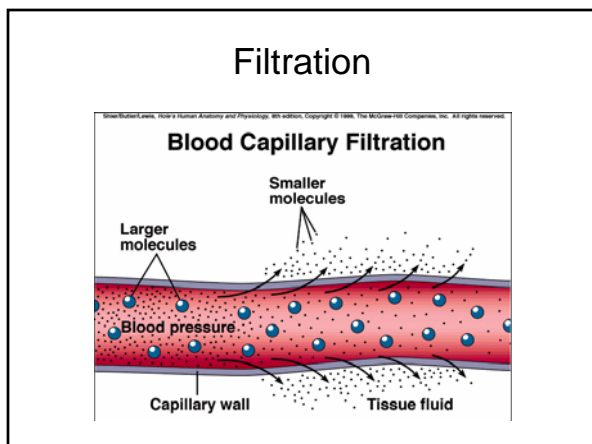
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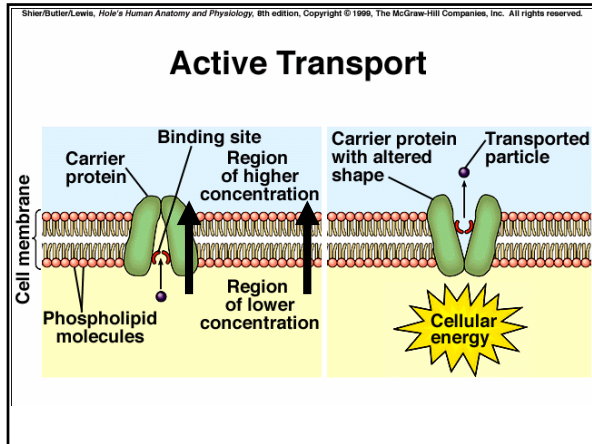
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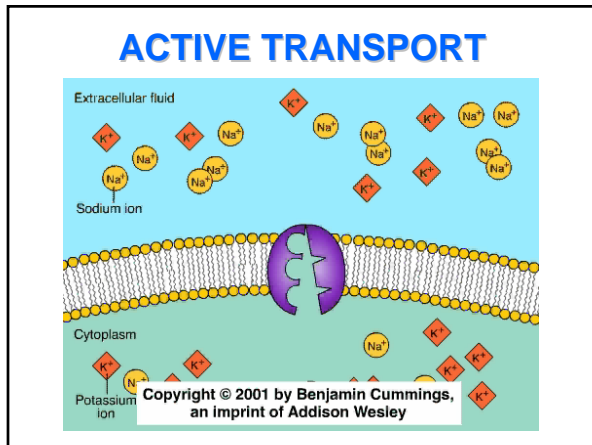
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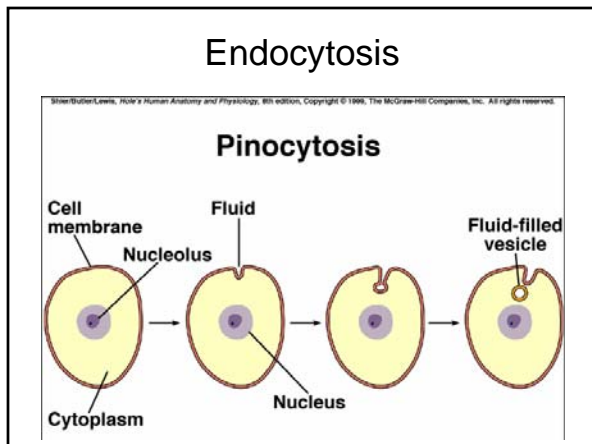
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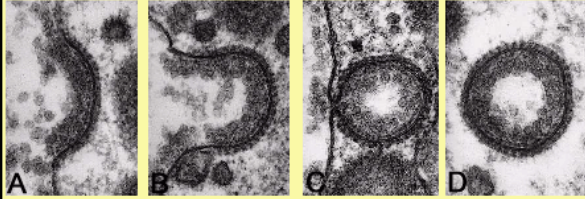
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## ENDOCYTOSIS



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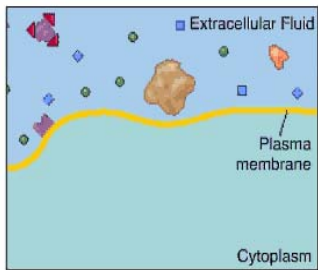
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## ENDOCYTOSIS



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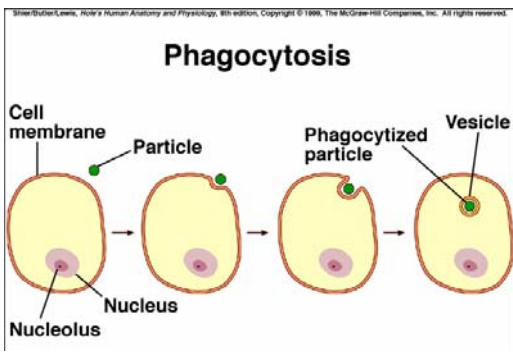
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## Endocytosis



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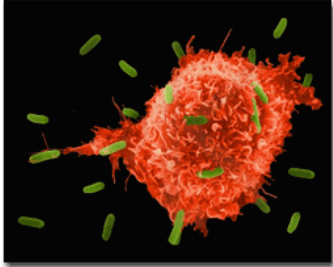
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# PHAGOCYTOSIS



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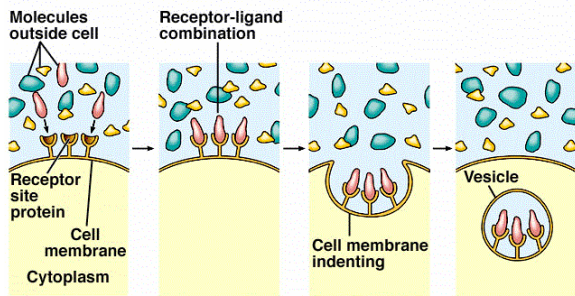
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# Receptor-Mediated Endocytosis



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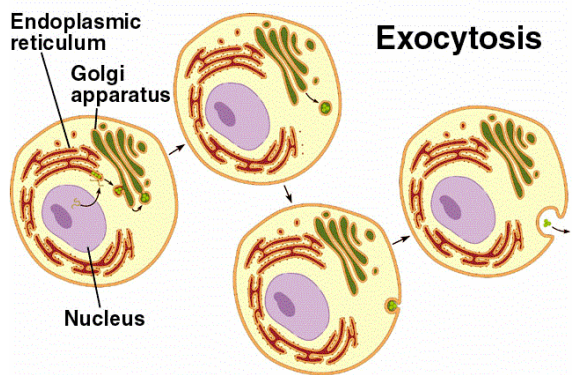
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# Exocytosis



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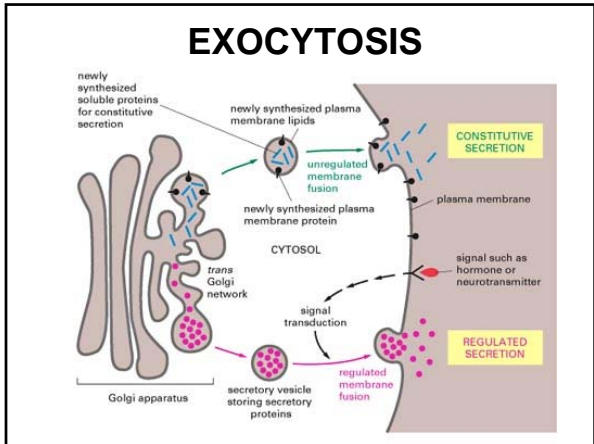
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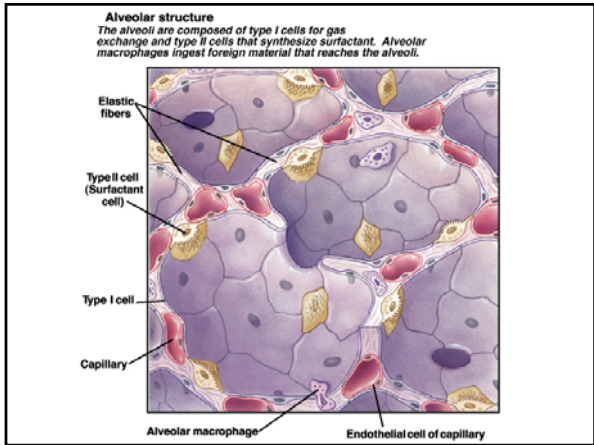
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