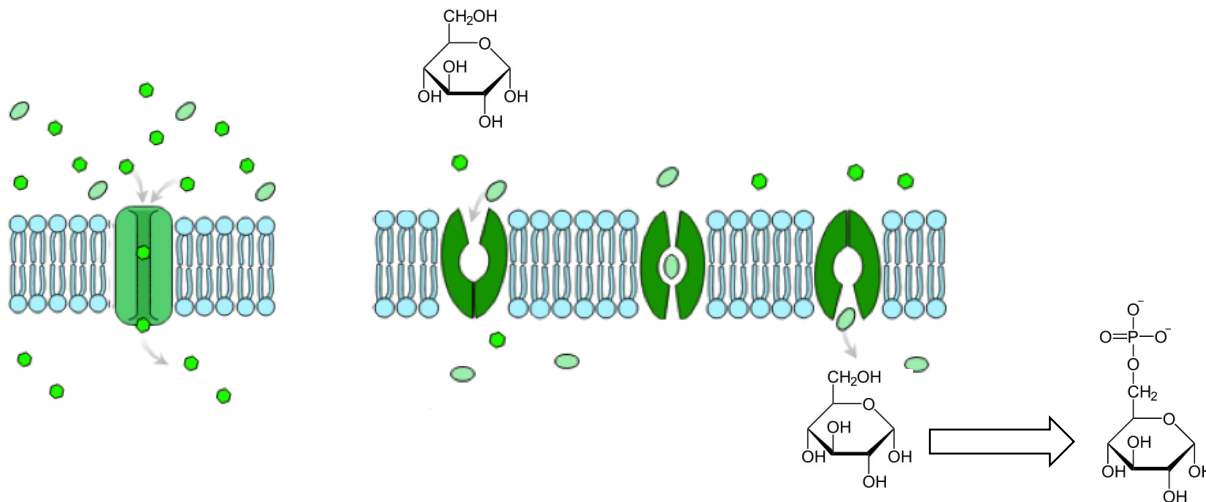


## CONCEPT: MEMBRANE TRANSPORT

- Simple diffusion only occurs with nonpolar compounds because they must enter the nonpolar within the membrane
- Facilitated diffusion uses channels and carriers that have specificity for a particular solute
  - Solutes only move down concentration gradient
  - Some glucose transporters use facilitated diffusion, and can actually transport in both directions
    - Insulin increases number of glucose transporters



- Primary active transport uses ATP to move solutes against their concentration gradients
- Pumps play a huge role in maintaining electrochemical gradients across the membrane
  - The  $\text{Na}^+/\text{K}^+$  pump uses ATP to move ions across the membrane
  - Proton pumps play a crucial role in ATP synthesis in the mitochondria

