

Sept. 18 → Cell Transport Review

Why? → Because our cells need to transport materials in and out to maintain homeostasis!

① Passive Transport

↳ no energy required

↳ needs to be a concentration gradient

↳ high-to-low scale of concentration of any solute

Types

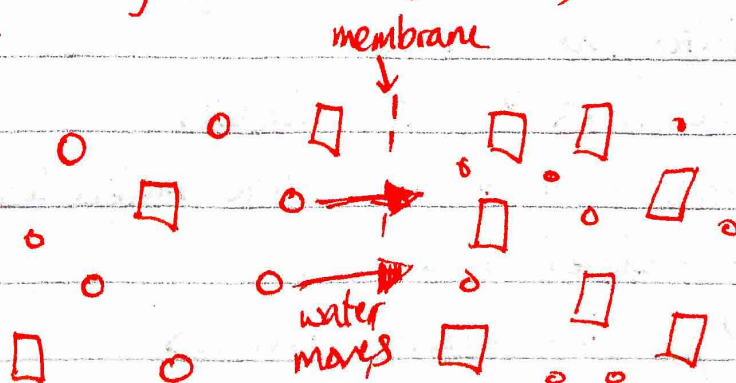
① Diffusion: going from high concentration to low

ex: axe body spreading throughout halls

② Osmosis: movement of water from an area of little solutes to an area of a lot of solutes (think of the water wanting to dilute the solutes)
*across a membrane (water doesn't need any carrier protein)

○ = water

□ = solute



Water will continue to move until concentrations are equal (equilibrium)

Types of \uparrow Transport Cont'd.

(3) Facilitated diffusion \rightarrow diffusion across a membrane using a carrier protein.

* still use no energy

* still need a concentration gradient.

(2) Active Transport

\rightarrow require energy!

\rightarrow concentration gradient not required.

- protein carrier needs the energy to move

- energy is in the form of ATP =
adenosine triphosphate

(3) Endocytosis / Exocytosis

* require energy

* whole cell membrane is working to engulf or expel

* no concentration gradient needed

(1) Endocytosis \rightarrow engulfing or bringing molecules into the cell

- Pinocytosis \rightarrow with liquids

- Phagocytosis \rightarrow with large molecules

(2) Exocytosis \rightarrow expel molecules

* usually with waste products

* Tonicity (when referring osmosis)

↳ comparing solute concentrations across a membrane.

* always an external environment (outside of cell) and an internal environment (inside the cell) separated by a membrane.

* isotonic, hypertonic, hypotonic always refer to the environment outside the cell

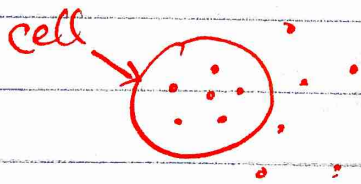
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① Isotonic

= equal amount of solutes in the environment outside the cell

↳ equilibrium is already reached

↳ stable water movement



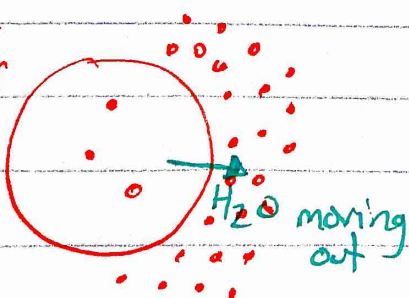
* tap water
example from
lab

② Hypertonic

= there is more solutes in the environment outside the cell

↳ water will move from inside the cell to outside the cell until equilibrium is reached

* salt
water



↳ results in cell shrinking/shriveling (plasmolysis)

② Hypotonic

= there is less solutes in the environment outside the cell

↳ water will move into the cell

↳ for animal cells with no cell wall, this could cause the cell to burst

*distilled water

