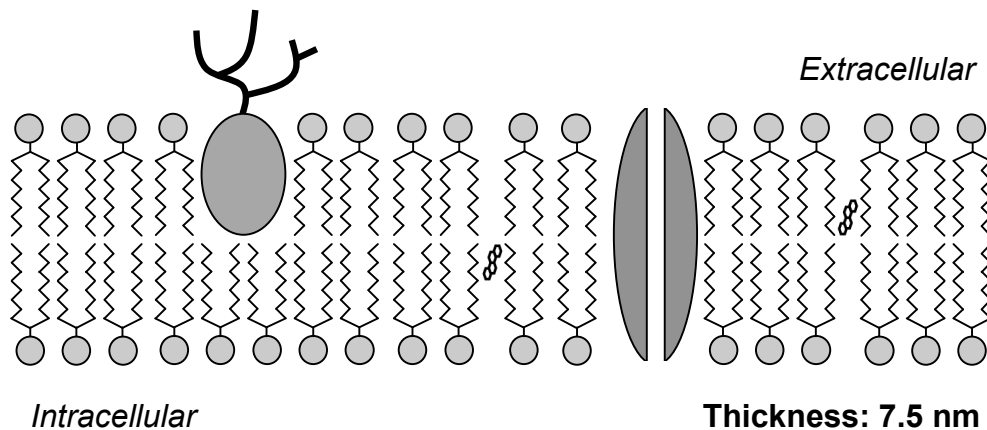


Membranes (2.4)

Draw and label a diagram of a membrane (2.4.1)



Explain how properties of phospholipids maintain membrane structure (2.4.2)

- **Structure of phospholipid** (*hydrophilic/polar head & hydrophobic/non-polar tails*)
- **Arrangement in bilayer** (*hydrophobic tails face inwards; hydrophilic heads face surrounding fluid*)
- **Properties of membrane** (*hydrophobic interactions, fluidity, saturated vs unsaturated fatty acids*)

Functions of membrane proteins (2.4.3)

Remember: TRACIE

- T**ransport (*active vs facilitated diffusion*)
- R**eceptors (*e.g. for hormones & neurotransmitters*)
- A**dhesion (*attachment sites for ECM*)
- C**ell Recognition (*MHC molecules; HLA antigens*)
- I**ntercellular Joining (*e.g. tight junctions*)
- E**nzymatic Activity (*e.g. ATP synthase*)

Define diffusion & osmosis (2.4.4)

Diffusion: Net movement of molecules from a region of **high to low** concentration, until equilibrium is reached

Osmosis: Net movement of **water** molecules across a **semi-permeable barrier** from a region of **low solute to high solute** concentration, until equilibrium is reached

Explain passive transport (2.4.5)

Remember: Along gradient, no ATP

Simple: Small or lipophilic molecules cross freely

Examples: O₂, CO₂, H₂O, steroids

Facilitated: Larger, polar substances cross via protein channels (interior linings are polar)

Examples: Ions, glucose, sucrose

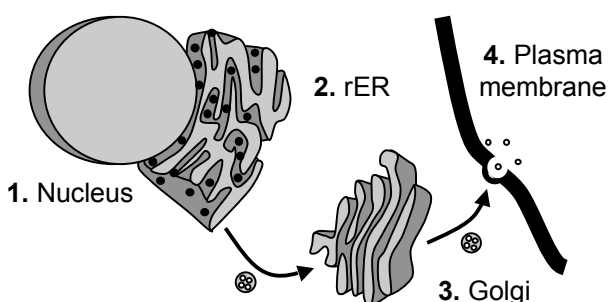
Explain active transport (2.4.6)

Remember: Against gradient, uses ATP

- Molecule binds to surface of protein pump
- Hydrolysis of ATP causes a *conformational change* in protein pump
- Molecule translocated to interior surface

Examples: Na⁺/K⁺ pump

Explain vesicle transport (2.4.7)



Describe membrane fluidity (2.4.8)

- **Change shape** (*membrane is amorphous*)
- **Break and reform** (*weak hydrophobic forces*)
- **Cytosis** (*endocytosis vs exocytosis*)

