

Membranes and membrane transport

What does amphipathic mean?

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Why do phospholipids form bilayers in water?

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Why is a lipid bilayer a barrier to ions and polar molecules?

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Name two molecules that cross membranes by simple diffusion between phospholipids.

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Define osmosis.

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What are aquaporins?

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How do channel proteins make membranes selectively permeable?

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What do pump proteins use to move particles against a concentration gradient?

Hydrophilic heads face the water on both sides and the hydrophobic tails point inwards, away from water, forming the core.

Having a hydrophilic part and a hydrophobic part, like a phospholipid with its phosphate head and hydrocarbon tails.

Oxygen and carbon dioxide (small, non-polar molecules).

Its hydrophobic hydrocarbon core has low permeability to hydrophilic particles and large molecules.

Integral channel proteins that let water molecules cross the membrane rapidly, in single file.

The net movement of water across a partially permeable membrane from a lower to a higher solute concentration.

Energy from ATP (active transport).

The size and charges of the pore let only specific ions through, and only when the channel is open.

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What does permeability by simple diffusion depend on?

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Distinguish integral and peripheral proteins.

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Where are the carbohydrate chains of glycoproteins and glycolipids?

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Give two roles of glycoproteins and glycolipids.

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What should a drawing of the fluid mosaic model include?

Integral proteins are embedded in one or both lipid layers. Peripheral proteins are attached to one surface of the bilayer.

Only the size of the particle and whether it is hydrophilic or hydrophobic. It is not selective.

Cell recognition and cell adhesion.

On the extracellular side of the plasma membrane.

Phospholipid bilayer, integral and peripheral proteins, glycoproteins, cholesterol, and labelled hydrophilic and hydrophobic regions.