

Functions of membrane proteins

Immobilised enzymes with the active site on the outside. E.g the small intestine
Cell adhesion to form tight junctions between groups of cells in tissues and organs
Cell-to-cell communication. E.g receptors for neurotransmitters at synapses
Channels for passive transport to allow hydrophilic particles across by facilitated diffusion
Pumps for active transport which use ATP to move particles across the membrane

Cholesterol

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- It is a type of lipid that belongs to the group of steroids
- It is mostly hydrophobic so it's attached to hydrocarbon tails
- One molecule of cholesterol contains hydroxyl (OH) which is hydrophilic

Role of cholesterol in membranes

Cholesterol in mammalian membranes reduces membrane fluidity and permeability to some solutes.

- Disrupts regular packing of hydrocarbon tails preventing them from crystallizing and behaving as a solid
- Restricts molecular motion and therefore the fluidity of the membrane
- Reduces the permeability of hydrophilic particles such as sodium ions
- It can help membranes to curve into a concave shape which helps in the formation of vesicles