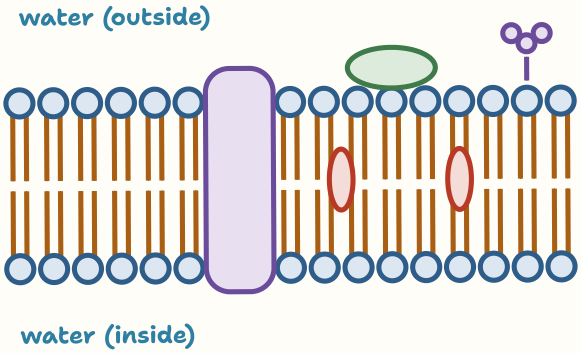
Fluid-Mosaic Model: Cell Membrane Structure

A phospholipid bilayer with scattered proteins: fluid because the molecules move, mosaic because of the proteins.

Fluid-mosaic model: phospholipid bilayer with scattered proteins



hydrophilic heads face water

hydrophobic tails face inwards

purple: intrinsic protein

green: extrinsic protein

red: cholesterol

Key terms

phospholipid bilayer	two layers: hydrophilic heads outwards, hydrophobic tails inwards.
intrinsic protein	embedded in the bilayer, often spanning it (channels and carriers).
extrinsic protein	on the surface of the bilayer.
glycoprotein / glycolipid	protein or lipid with a carbohydrate chain attached, on the outer surface.
fluid	phospholipids and proteins can move within the layer.
cholesterol	fits between the tails and restricts movement, making the membrane more stable.

I can...

- [ ] Basic structure of all cell membranes is the same
- [ ] Arrangement and movement of phospholipids, proteins, glycoproteins, glycolipids in the fluid-mosaic model
- [ ] Cholesterol may restrict movement of other molecules

EXAM TRAP

Heads face water, tails face inwards. The membrane is fluid because its molecules move, not because it "moves". Cholesterol makes it less fluid, never more.

4 marks: what earns them

1. Phospholipids form a bilayer, with hydrophilic (phosphate) heads facing outwards (towards water) and hydrophobic (fatty acid) tails facing inwards
   Not: a layer of lipids with no arrangement; heads and tails the wrong way round
2. Proteins are scattered / embedded in the bilayer (intrinsic span or are embedded, extrinsic on the surface), giving a mosaic
   Not: the bilayer is made of proteins; proteins form a layer on each side only
3. Phospholipids (and proteins) can move within the layer, so the membrane is fluid
   Not: the membrane is fixed or rigid; the membrane moves, with no reference to its molecules
4. Cholesterol restricts the movement of phospholipids / other molecules, so it makes the membrane more stable (less fluid)
   Not: cholesterol makes the membrane more fluid; waterproof with nothing further

Remember

Heads out to water, tails tucked in.

Fluid = molecules move; mosaic = proteins.

Cholesterol holds things steady.

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