Check E first

Year 11 Biology · fresh first

Check E · The boundary display

Complete first source E

The display represents a simplified typical animal plasma membrane. Water lies outside and in the cytoplasm. It includes phospholipids, a selective channel, a glycoprotein with a carbohydrate chain facing outside, and cholesterol among the lipid tails. This is a word model, not a micrograph; component spacing and complete composition are not supplied.

Neutral U is 6 mmol/L outside and 2 mmol/L inside. U cannot cross the bare bilayer but can use a suitable passive carrier. Neutral V is 3 mmol/L outside and 7 mmol/L inside. A specified ATP-coupled protein pump carries V inward. The values are invented model conditions.

A separate flexible pouch contains 0.40 mol/L of one neutral solute; the surrounding solution contains 0.15 mol/L of the same solute. Water can cross its membrane; this solute cannot. Initial temperature and hydrostatic pressure are equal on both sides. No final volume, duration or real-cell survival information is supplied.

Complete first task E

1. For U and V, name the transport mechanism, net direction, relevant concentration evidence and energy statement. Explain why a net arrow does not mean every molecule moves in that direction.

2. Describe how phospholipid heads and tails face the watery spaces. Explain one role each for the channel, glycoprotein and cholesterol in this animal model. Give one limit of the display.

3. Predict initial net water movement for the pouch. State the permeability, temperature and pressure conditions that make that prediction possible. Explain what moves by osmosis and one result you cannot infer.

Stop here. Preserve the first work before reading E's later page.

Check E first · continued

Year 11 Biology · fresh first

Your explanation · words, directed marks or a sketch

Part 1 · reasoning

Part 2 · reasoning

Part 3 · reasoning