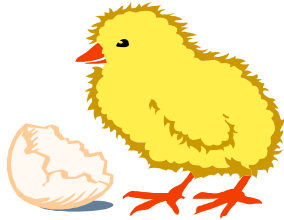


CHAPTER 8
CELL MEMBRANE
STRUCTURE AND
FUNCTION



CELL MEMBRANES

- . PROTEIN/PHOSPHOLIPIDS
- . REGULATES THINGS THRU CELL
- . SPECIAL FUNCTIONS
 - . ENDOCYTOSIS, EXOCYTOSIS
 - . PHAGOCYTOSIS/ WHITE BLOOD CELLS, BACTERIA, PROTISTA

STRUCTURE OF CELL
MEMBRANE

- . LIPID BILAYER
- . IMPERMEABLE TO IONS AND POLAR MOLECULES, EXCEPT H₂O
- . PHOSPHOLIPID, PROTEIN
- . FLUID MOSAIC MODEL
- . PHOSPHOLIPIDS, GLYCOPROTEINS, GLYCOLIPIDS AND CHOLESTEROL

Figure 8.2 Two generations of membrane models

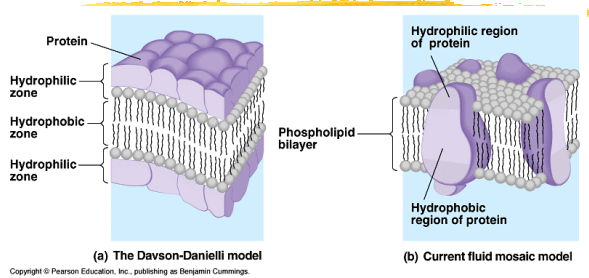
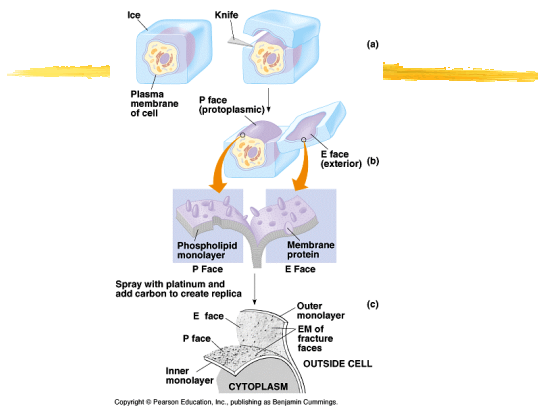


Figure 8.3 Freeze-fracture and freeze-etch



MEMBRANE STRUCTURE

- MEMBRANES ARE FLUID
- PHOSPHOLIPID AND PROTEIN MOVEMENT IN THE MEMBRANE.
- MEMBRANES ARE MOSAICS OF STRUCTURE AND FUNCTION; INTEGRAL AND PERIPHERAL PROTEINS.

Figure 8.4 The fluidity of membranes

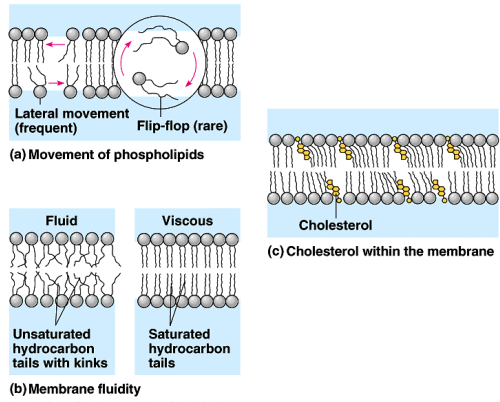


Figure 8.6 The detailed structure of an animal cell's plasma membrane, in cross section

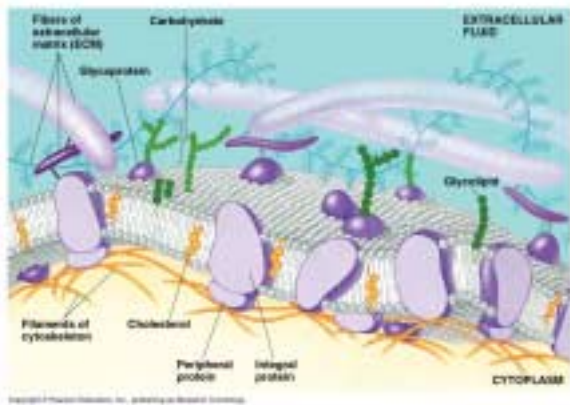
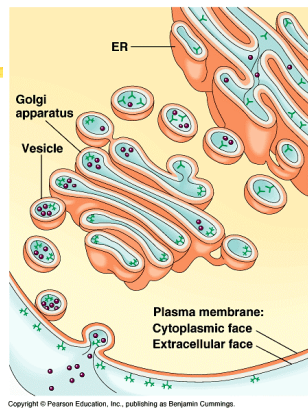


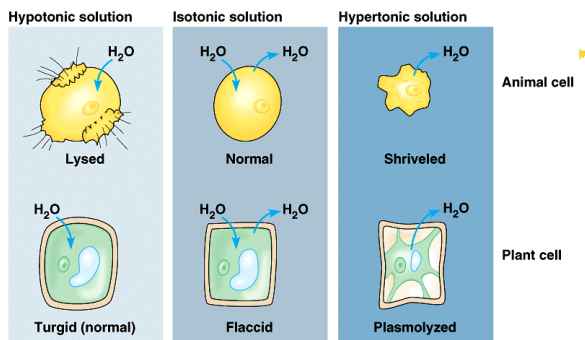
Figure 8.8 Sidedness of the plasma membrane



CELL EQUILIBRIUM

- . TONICITY:
- . HYPERTONIC SOLUTIONS
- . HIGH % SOLUTES/SHRIVEL
- . HYPOTONIC SOLUTIONS
- . LOW % SOLUTES/BURST
- . ISOTONIC SOLUTIONS
- . EQUAL % SOLUTE/SOLVENT

Figure 8.12 The water balance of living cells

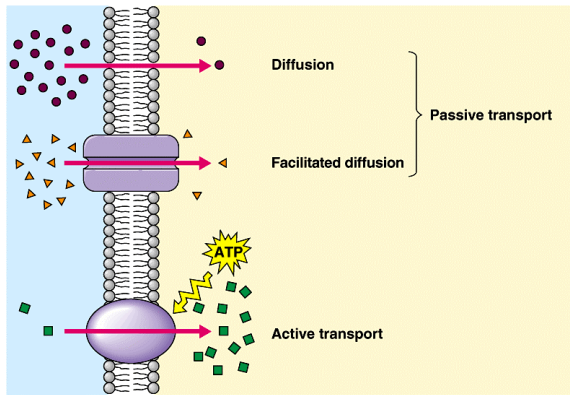


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APPLICATIONS OF OSMOSIS

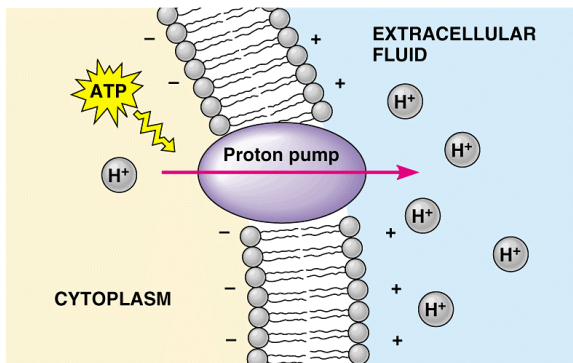
- . MAKING VEGETABLES CRISP
- . BODY WRAPS/EPSOM SALTS
- . THOSE PUFFY EYES/CUCUMBERS
- . KEEPING BODY CELLS FIRM
- . WHICH BODY LOTIONS WORK THE BEST/ WHAT ABOUT COLLAGENS?
- . SALTY SOUP/POTATOES

Figure 8.16 Review: passive and active transport compared



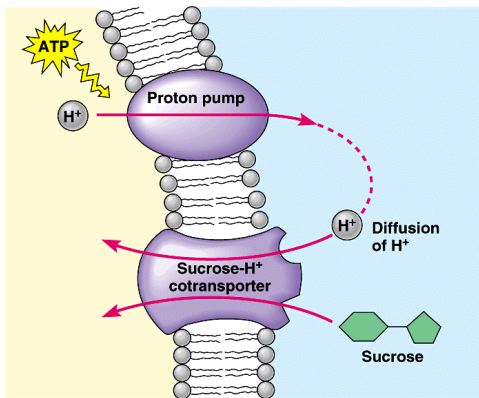
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Figure 8.17 An electrogenic pump



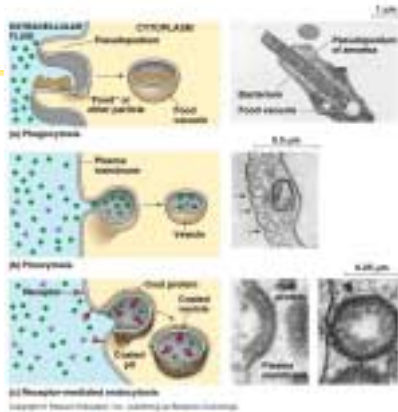
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Figure 8.18 Cotransport



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Figure 8.19 The three types of endocytosis in animal cells



FAULTY MEMBRANES

- Familial Hypercholesterolemia
- High Cholesterol/ faulty or deficient LDL receptors. LDL, HDL are proteins that carry cholesterol to liver to be dumped.
- Normal LDL's is 125, HDL's 45-50.
- Buildup of Cholesterol because LDL receptors may decrease with age.

