CELL MEMBRANE

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- THE DETAILED STRUCTURE OF CELL MEMBRANE WAS STUDIED IN 1950
- CHEMICAL STUDIES OF CELL MEMBRANE IN HUMAN RBC ENABLE THE SCIENTIST TO MAKE A POSSIBLE STURCTURE OF PLASMA MEMBRANE.
- CELL MEMBRANE IS MAINLY COMPOSED OF LIPIDS AND PROTEINS
- THE MAJOR LIPIDS ARE PHOSPHOLIPIDS, WHICH IS ARRANGED IN A BILAYER
- PHOSPHOLIPIDS MEMBRANE CONTAINS CHOLESTROL

ARRANGEMENT OF LIPIDS IN CELL MEMBRANE

- THE POLAR HEAD OF LIPIDS ARE FACING TOWARDS THE OUTER SIDE WHEREAS THE HYDROPHOBIC TAIL FACES TOWARDS THE INNER PART
- THIS ENSURES THAT NON POLAR TAILS IOF HYDROCARBONS IS PROTECTED FROM THE AQUESOUS SOLUTION

- THE CELL MEMRANE CONTAINS PROTEINS AND CARBOHYDRATES
- THE RATIO OF PROTEIN AND LIPID VARIES IN DIFFERENT CELL TYPE
- THE CELL MEMBRANE OF ERYTHROCYTE IN HUMAN CONTAIN 52% OF PROTEIN AND 40% OF LIPIDS

- MEMBRANE PROTIEN CAN BE CLASSIFIED AS INTEGRAL AND PERIPHERAL ON THE BASIS OF THE EASE OF EXTRACTION

INTEGRAL PROTIEN	PERIPHERAL PROTEIN
IT IS PARTIALLY OR TOTTALY BURIED IN THE MEMBRANE	IT LIES ON THE SURFACE OF MEMBRANE

- SINGER AND NICHOLSON (1972) PRPOSED FLUID MOSAIC MODEL
- ACCORDING TO THIS ,THE QUASI FLUID NATURE OF LIPID ENABLES LATERAL MOVEMENT OF PROTEIN WITHIN THE BILAYER OF LIPIDS
- THIS ABLITY TO MOVE WITHIN THE MEMBRANE IS MEASURED AS ITS FLUDITY
- THE FLUID NATURE OF MEMBRANE IS ALSO IMPORTANT FOR FUNCTIONS LIKE
  - CELL GROWTH
  - FORMATION OF INTERCELLULAR JUNCTIONS
  - SECREATION
  - ENDOCYTOSIS
  - CELL DIVISION

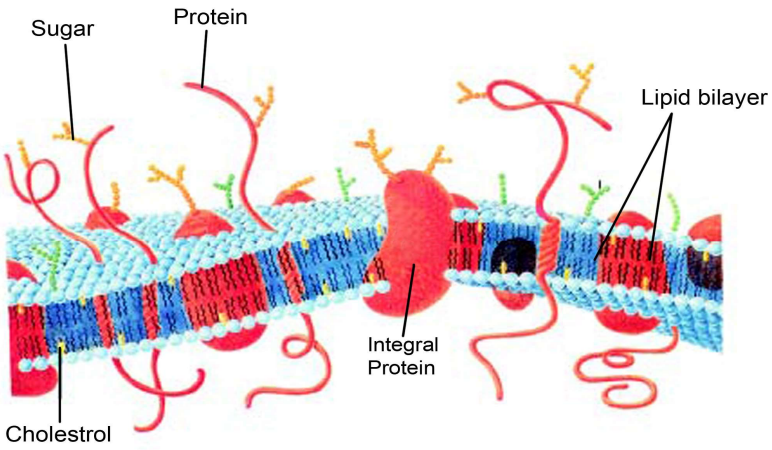

Fig. 8.4 Fluid mosaic model of plasma membrane

- THE MAIN FUNCTION OF PLASMA MEMBRANE IS THE TRANSAPORT OF MOLECULES ACROSS IT
- THE MEMBRANE IS SELECTIVELY PERMEABLE TO SOME MOLECULES PRESENT ON THE EITHER SIDE OF IT
- THERE IS NEED OF TRANSPORT SYSTEM TO TRANSPORT THE CHEMICALS,NUTRIENTS AND OTHER SUBSTANCES TO OTHER CELLS OF THE BODY
- THERE ARE OF 2 TYPES
- ACTIVE AND PASSIVE TRANSPORT

ACTIVE TRANSPORT	PASSIVE TRANSPORT
▶ THE CELL SPENDS ENERGY IN ACTIVE TRANSPORT ▶ IT OCCURS AGAINST THE CONCENTRATION GRADIENT IE FROM LOWER CONCENTRATION TO HIGHER ONES ▶ IT IS A RAPID PROCESS	▶ THE CELL DOES NOT SPEND ENERGY IN PASSIVE TRANSPORT ▶ THE TRANSPORT IS ALWAYS ALONG THE CONCENTRATION GRADIENT IE FROM HIGHER CONCENTRATION TO LOWER CONCENTRATION ▶ IT IS COMPARITIVELY SLOW PROCESS

OSMOSIS

IT THE MOVEMENT OF WATER BY DIFFUSION


thank
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