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CELL MEMBRANE (PLASMA MEMBRANE)

(1). It was first time reported by Nageli and Cramer in 1885 the term plasma membrane or cell membrane. Later its existence is proved by Dr. OVERTON in 1899. and finally it is called plasmalemma by term J.G. Plowe in 1931.

DEFINITION → The plasma membrane or (CM) cell membrane is the outermost thin, semipermeable lipoproteinous, triple-layered boundary of the cell which controls the entrance and exit of molecules and ions as well as maintains the difference in ionic concentration of the cytoplasm and surrounding.

CHEMICAL COMPOSITION - (1) plasma membrane is composed of lipoproteins (lipids & proteins). it contains about protein (60-80%), lipids (20-40%) & carbohydrate - 5%.

(2). Proteins are present in structural, carrier and enzymatic forms.

- (3). Lipids are in the form of polar lipids which contain hydrophilic polar heads and hydrophobic non-polar tails.

STRUCTURE OF PLASMA MEMBRANE

Various models are given by scientists regarding structure of plasma membrane. These models are divided into three groups, which are as follows: —

(1) BILAMINAR MODELS

(2) TRILAMINAR MODELS (3) MICELLAR MODELS

MOLECULAR STRUCTURE: — To explain various physical & biological features of plasma membrane different scientists proposed several models for molecular structure of plasma membrane.

(1) LIPID MONOLAYERED MODEL: — First of all overton in 1902 suggested that plasma membrane is composed of a thin layer of lipid.

(2) LIPID BILAYERED MODEL: —

Gorter and Grendel performed study on the plasma membrane of erythrocytes. In 1925 they suggested that plasma membrane is composed of two layers of lipid molecules. Hydrophilic polar groups at each layer are located on external face of its layer.