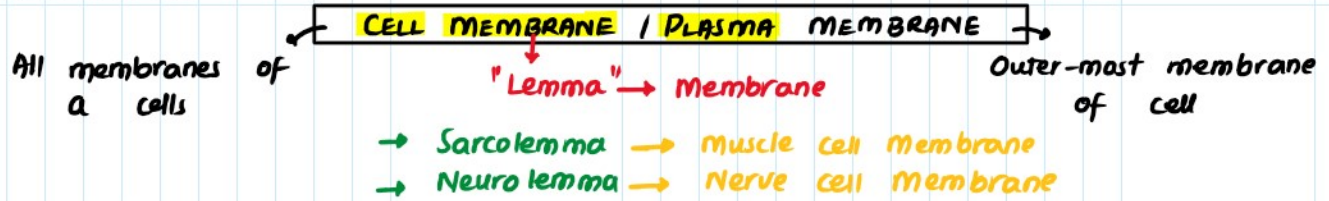


## 12.3 Plasma membrane



• MCP's

- A) Proteins → 60-80% (molecular weight ↑↑)
- B) N. Acids → Can never be part of P. Membrane
- C) Lipids → 20-40% (Area ↑↑, m. weight ↓↓)
- D) Carbohydrates → Rarely, Can never be in pure form

**PROTEINS** → Globular Shape / T<sup>+</sup>-structure (Functional Proteins)

Plasma membrane → Asymmetrical because of Proteins

- Intrinsic
  - Integral
  - Extrinsic Proteins
  - Peripheral Proteins
- Not Embedded

Completely or Partially embedded in membrane.

- CHANNEL PROTEINS
  - CARRIER PROTEINS
  - GATES
  - ENZYMES (Adenylate cyclase)
- Diagram showing proteins embedded in a lipid bilayer. A protein is shown spanning the membrane, labeled as an intrinsic protein. A protein is shown on the surface, labeled as an extrinsic protein. A protein is shown on the surface, labeled as a peripheral protein.

• Movement of proteins will always be horizontal.

ATP → cAMP

S<sup>+</sup> messenger

- RECEPTOR MOLECULES → HRM (Hormone Receptor molecule)
- ANTIGEN (Glycoproteins) → RBC (A, B, AB)

**LIPIDS**

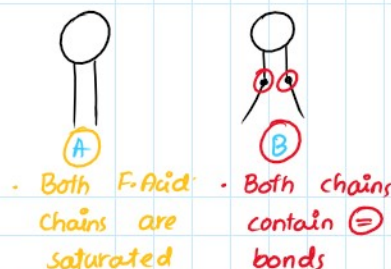
→ 20-40%

• Amphipathic molecules

Half Polar

Half Non-polar

Phospholipids (Most abundant lipids in membranes)

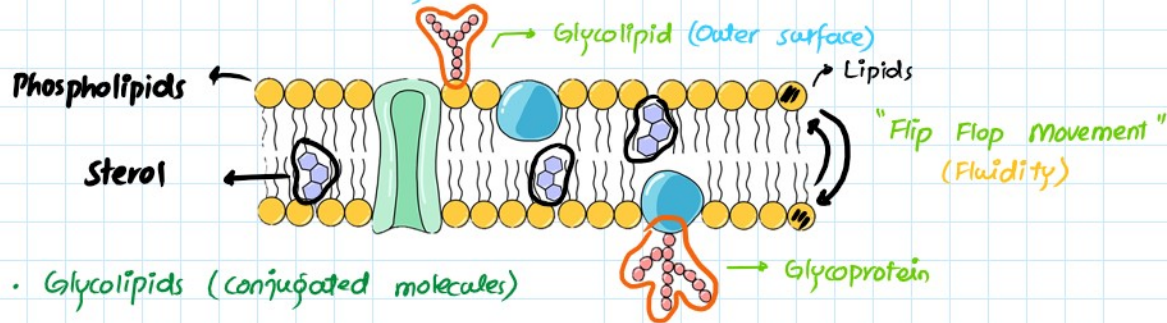


• Sterols (Ringed Structures)

↓ Always found in between phospholipids

"Cholesterol" → maintains fluidity

↓ Always found in between phospholipids  
 "Cholesterol" → maintains fluidity

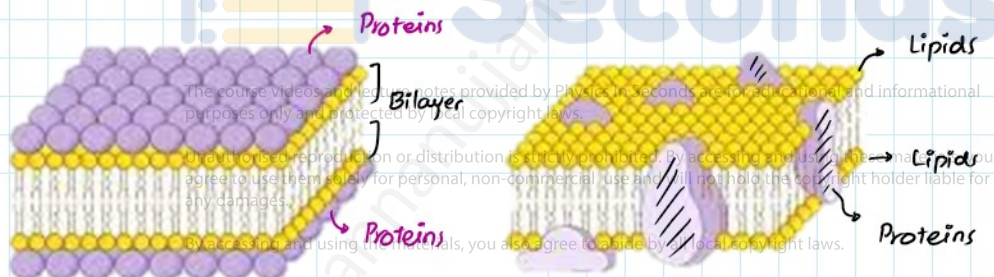
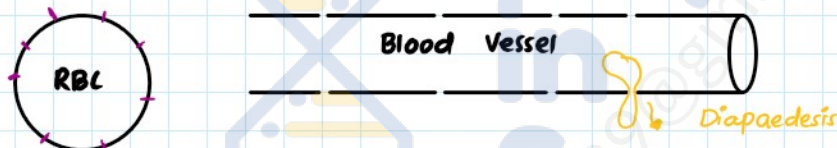


- Glycolipids (conjugated molecules)
- Sphingolipids (Present in Neurolemma) → Neuron cell membrane

**CARBOHYDRATES** → Always be in oligosaccharide form

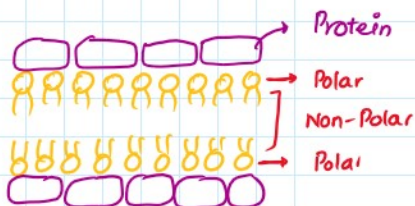
Proteins → "Glycoproteins"  
 Lipids → "Glycolipids"  
 Glyco-calyx

- Able cells to squeeze (Diapedesis)
- APC
- Cell markers
- Carbohydrates ↑↑ ∝ Flexibility of cell ↑↑



### UNIT MEMB. MODEL

J. David Robertson 1959  
 Sandwiched model



- Unable to explain transportation

### FLUID MOSAIC MODEL

Singer, Nicholson → 1972

- Ocean/sea of lipids w proteins are icebergs in it.

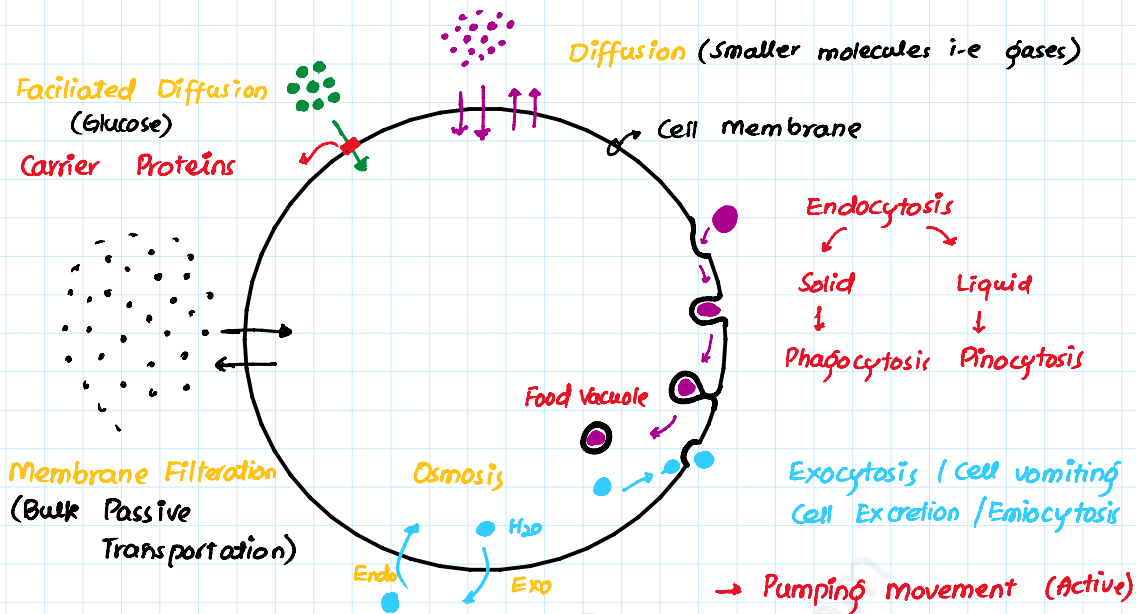
### DIFFERENTIAL MEMBRANE

- Lipid soluble molecules are easily crossed.
- Non-lipid molecules will be hindered.

### FUNCTIONS OF PLASMA MEMBRANE

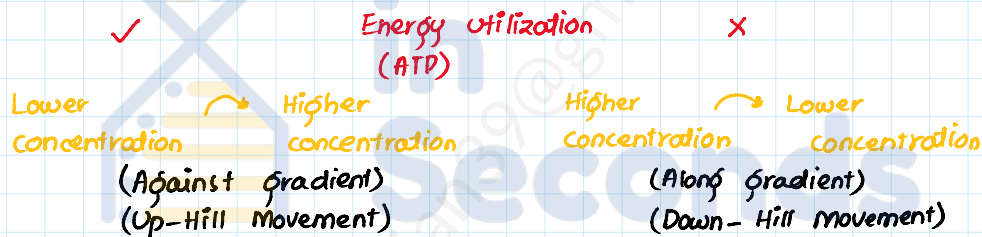


## TRANSPORTATION → movement of molecules across membrane.



### ACTIVE TRANSP.

### PASSIVE TRANSP.



- **Endocytosis, Exocytosis** → **Diffusion, F. Diffusion**
- **Pumping movement** → **Osmosis**

- **SECRETORY FUNCTIONS**
- **EXCRETION**
- **pH - Stabilization**
- **Neuron** → **Nerve Impulse conduction**
- **Homeostatic control centre of cell.**