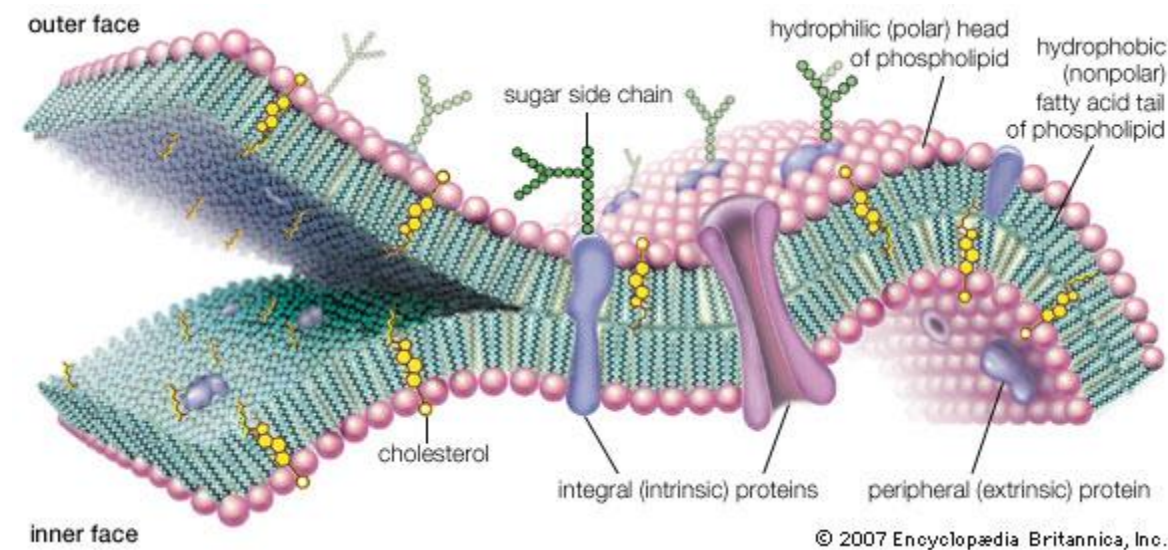
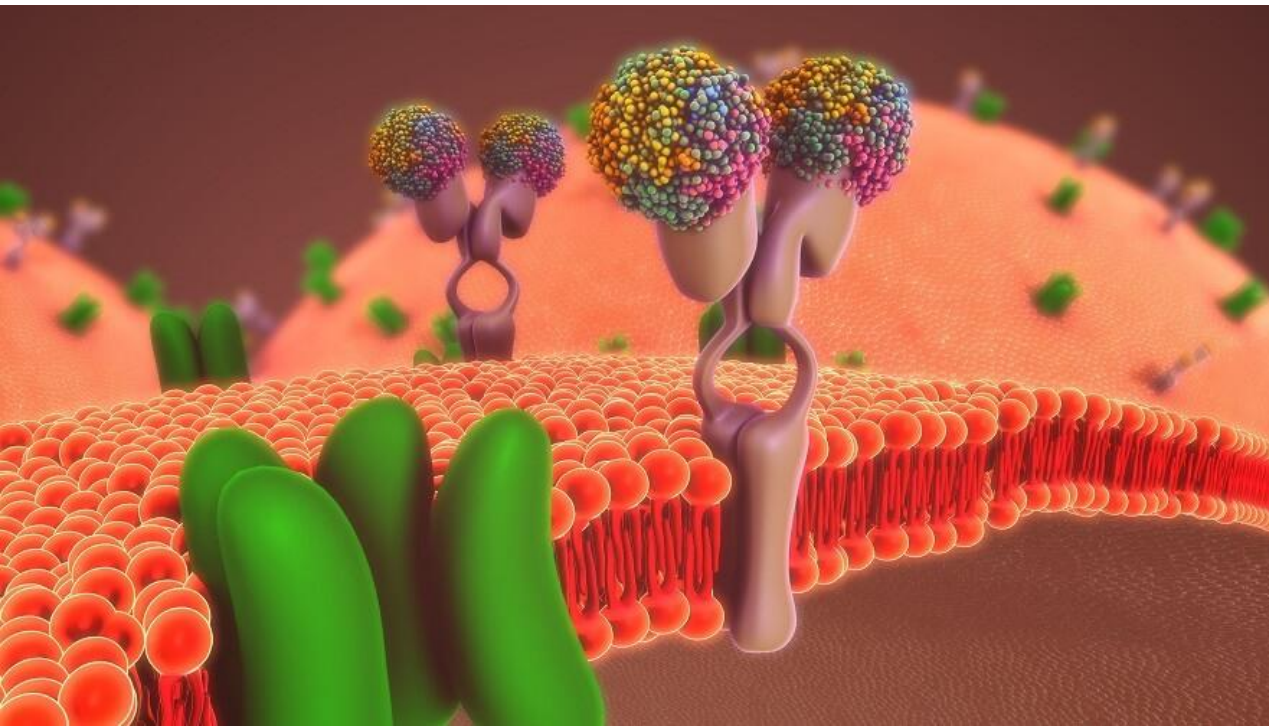


# Plasma Membrane

(Fluid Mosaic Model)



**Dr. Rupesh B. Yadav**

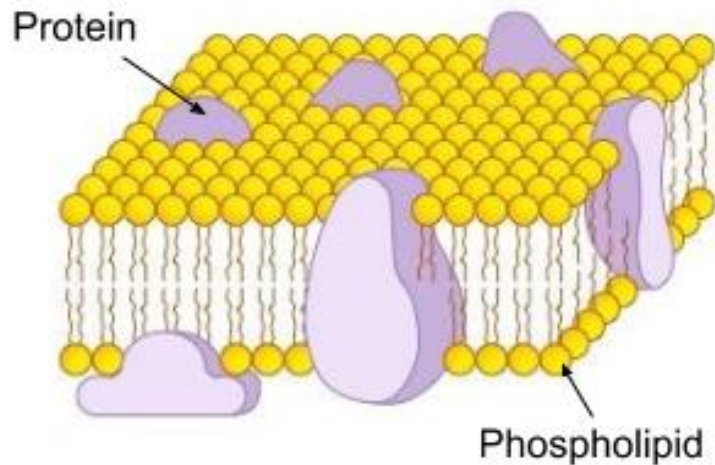
Asst. Prof.

TC College, Baramati.

# Fluid Mosaic Model

**Singer and Nicolson in 1972**

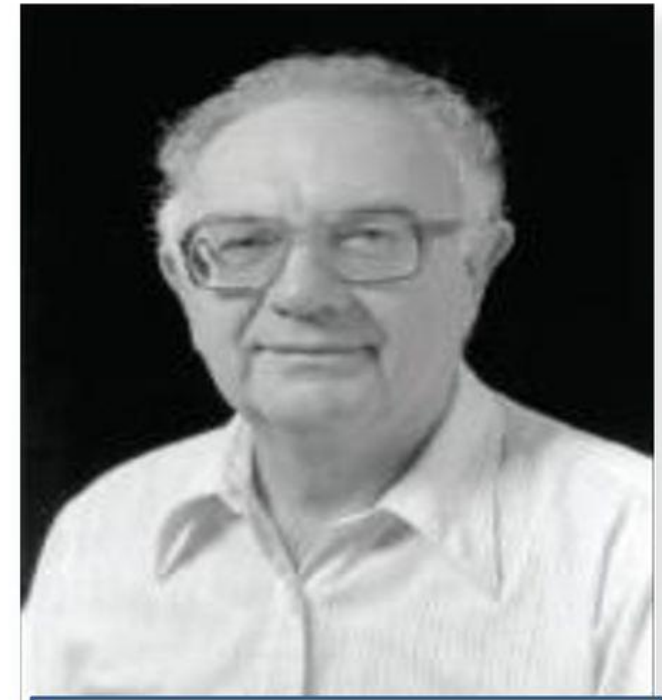
**Singer-Nicolson Model (1972)**



Proteins embedded within bilayer (*fluid-mosaic*)



**Garth Nicolson**  
(Bioquímico, USA)

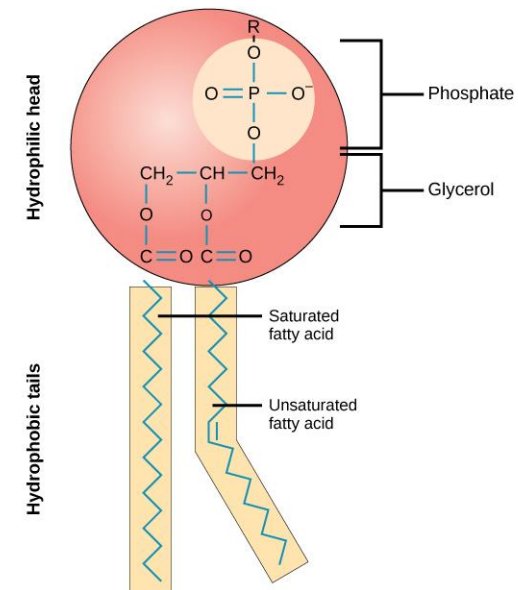


**Seymour Singer**  
(Prof. de biología, USA)

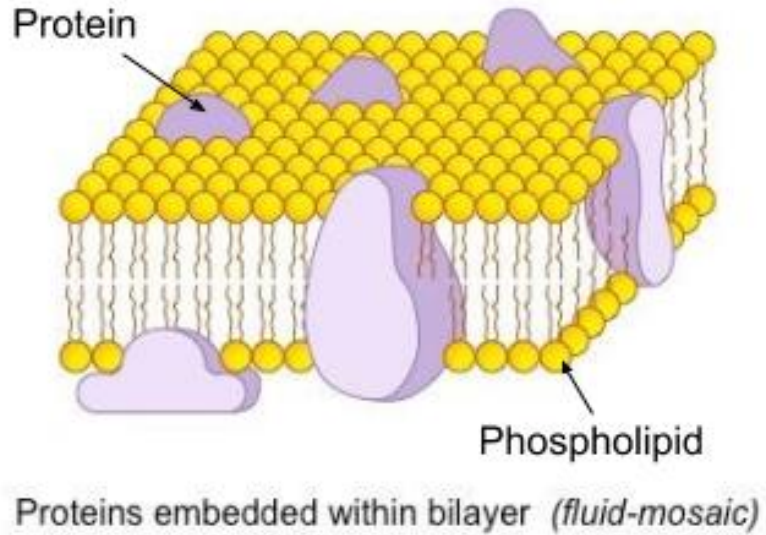
Singer, S. J. & Garth L. Nicolson (1972) "[The Fluid Mosaic Model of the Structure of Cell Membranes](#)" (abstract) [Science](#) 18 February 1972: Vol. 175 no. 4023 pp. 720-731 DOI: [10.1126/. Science](#).

# Fluid Mosaic Model

- **Singer and Nicolson** used the basic information of sandwich model but the interpretation of their model was somewhat different.
- **They agree**
  - ✓ Plasma membrane is made-up of **phospholipid bilayer**.
  - ✓ Protein are  **$\alpha$  globular protein**.
  - ✓ Phospholipid molecules are **amphipathic**.
  - ✓ **Weak force** (Vander wall) of **attraction** in between two layer of phospholipid molecule.



Singer-Nicolson Model (1972)



# Fluid Mosaic Model

**$\alpha$  Globular protein**

**Extrinsic protein**

(Present on outer side i.e. head part of the phospholipid molecule. The attachment of protein is loose)

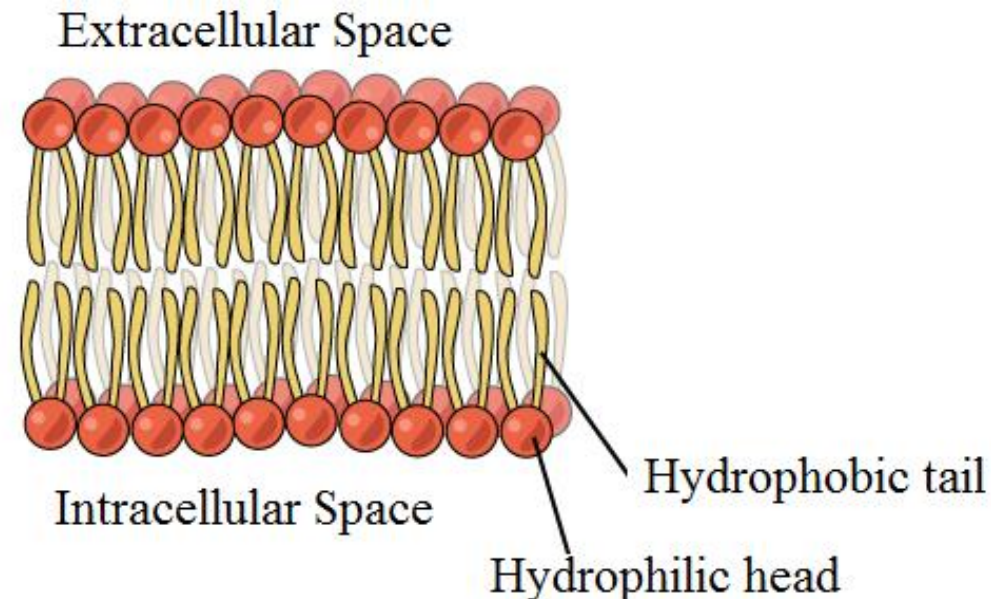
**Intrinsic protein**

(Partially or completely embedded on phospholipid bilayer)

# Fluid Mosaic Model

## Movement of phospholipid molecules

1. **Transition movement** – Movement of phospholipid molecules in the same layer.
2. **Flip flop movement** – Movement of phospholipid molecules between two layers.



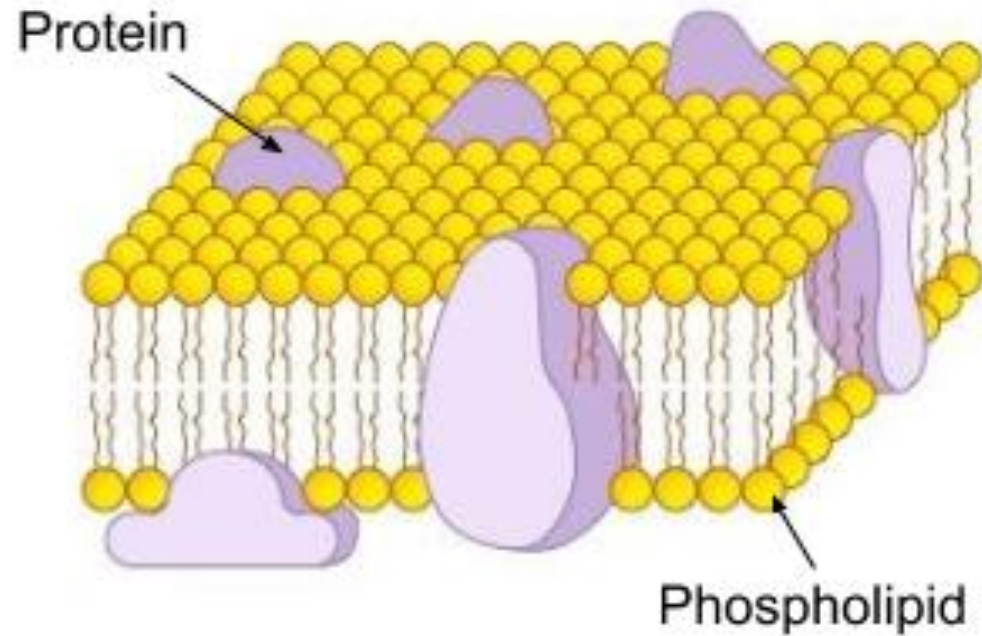
# Fluid Mosaic Model

**Model confirm the properties**

- ✓ **Water soluble molecule can enter in to the cell body**
- ✓ **Variable no. of protein & phospholipid**
- ✓ **Dynamic nature of plasma membrane**

*Thank  
You*

**Singer-Nicolson Model (1972)**



Proteins embedded within bilayer (*fluid-mosaic*)