

Al- Mustaqbal university collage  
Department of radiology  
technologies  
1.St stage  
Lecture: 2



# Plasma membrane

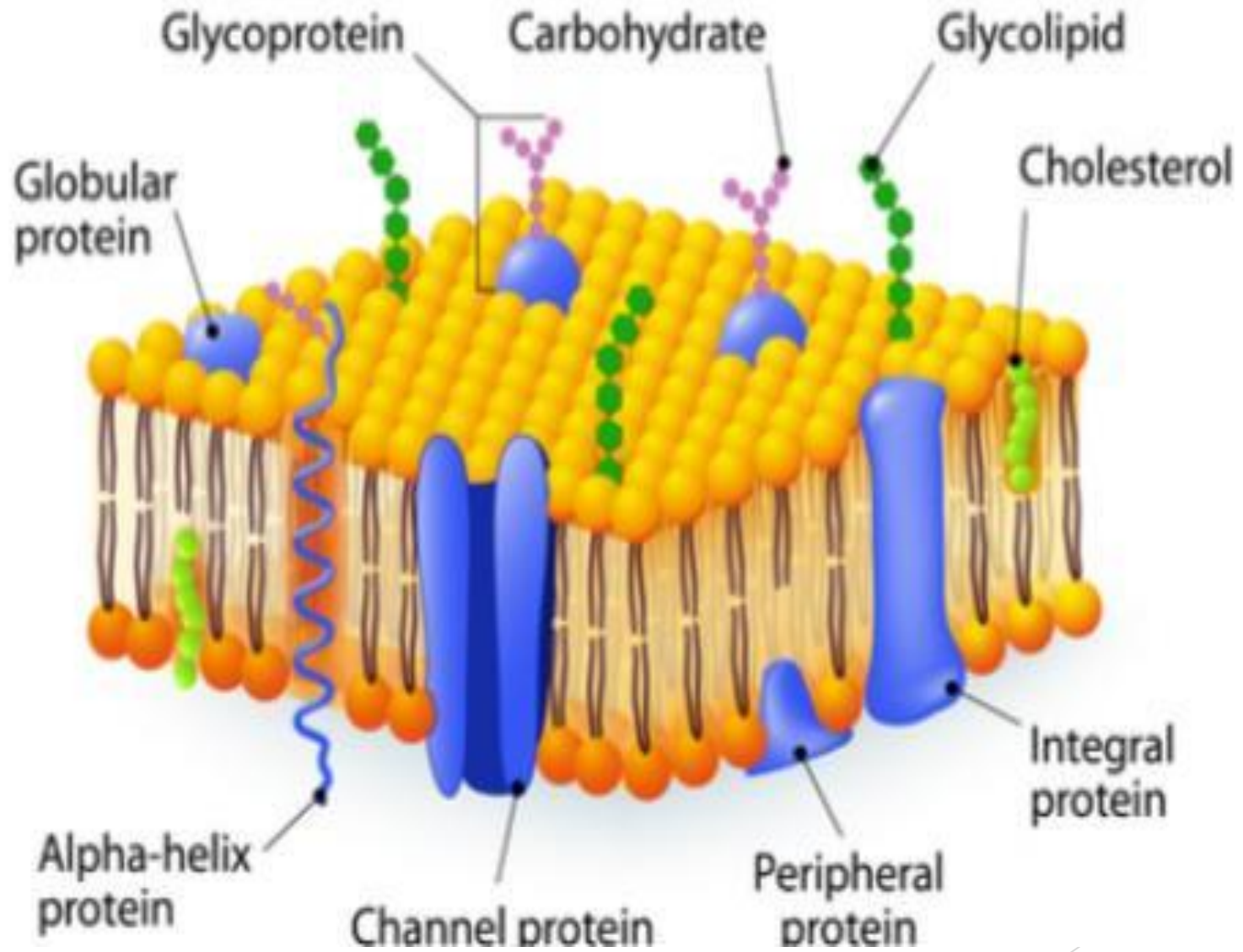
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# Plasma membrane

- The plasma membrane, also called **the cell membrane or plasmalemma**.
- It is the membrane found in all cells that separates the interior of the cell from the outside environment.

# Plasma membrane

- The plasma membrane consists of a lipid bilayer that is semipermeable.
- The plasma membrane regulates the transport of materials entering and exiting the cell.



# Plasma membrane

- ▶ In addition, cell membranes are involved in a variety of cellular processes such **as**:
  1. Cell adhesion
  2. Ion conductivity
  3. Cell signaling
  4. Serve as the attachment surface for several extracellular structures
  5. Protects the cell from its environment

# Structure of plasma membrane

- ▶ **Without** the plasma membrane, there would be **no cell**.
- ▶ The membrane also **protects** and **supports** the cell and controls everything that **enters** and **leaves** it.
- ▶ It allows only certain substances to pass through while **keeping** others in or out.

# Structure of plasma membrane

- ❖ The membrane **is mainly** composed of:
  1. **lipids**
  2. **proteins**
  3. **Carbohydrates**
  4. **Water makes about 29% of total weight**

# Chemical composition

## 1. Lipid

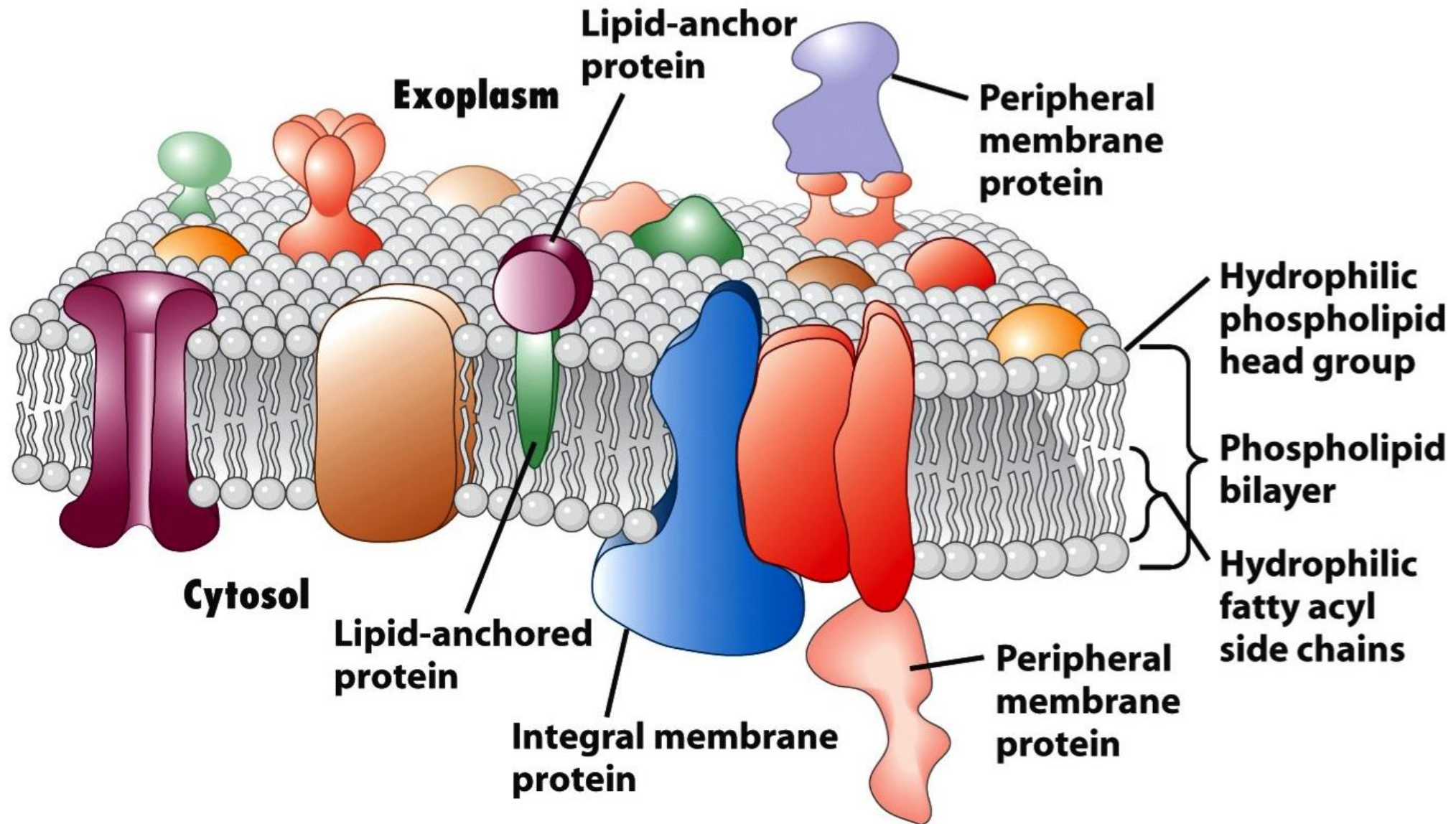
- ▶ The lipids identified in the plasma membrane consist of **cholesterol**, **phospholipids** and **galactolipids**.
- ▶ The phospholipids include **phosphatidylcholine**, **phosphatidylethanolamine** and **sphingomyelin**



# 2. Proteins

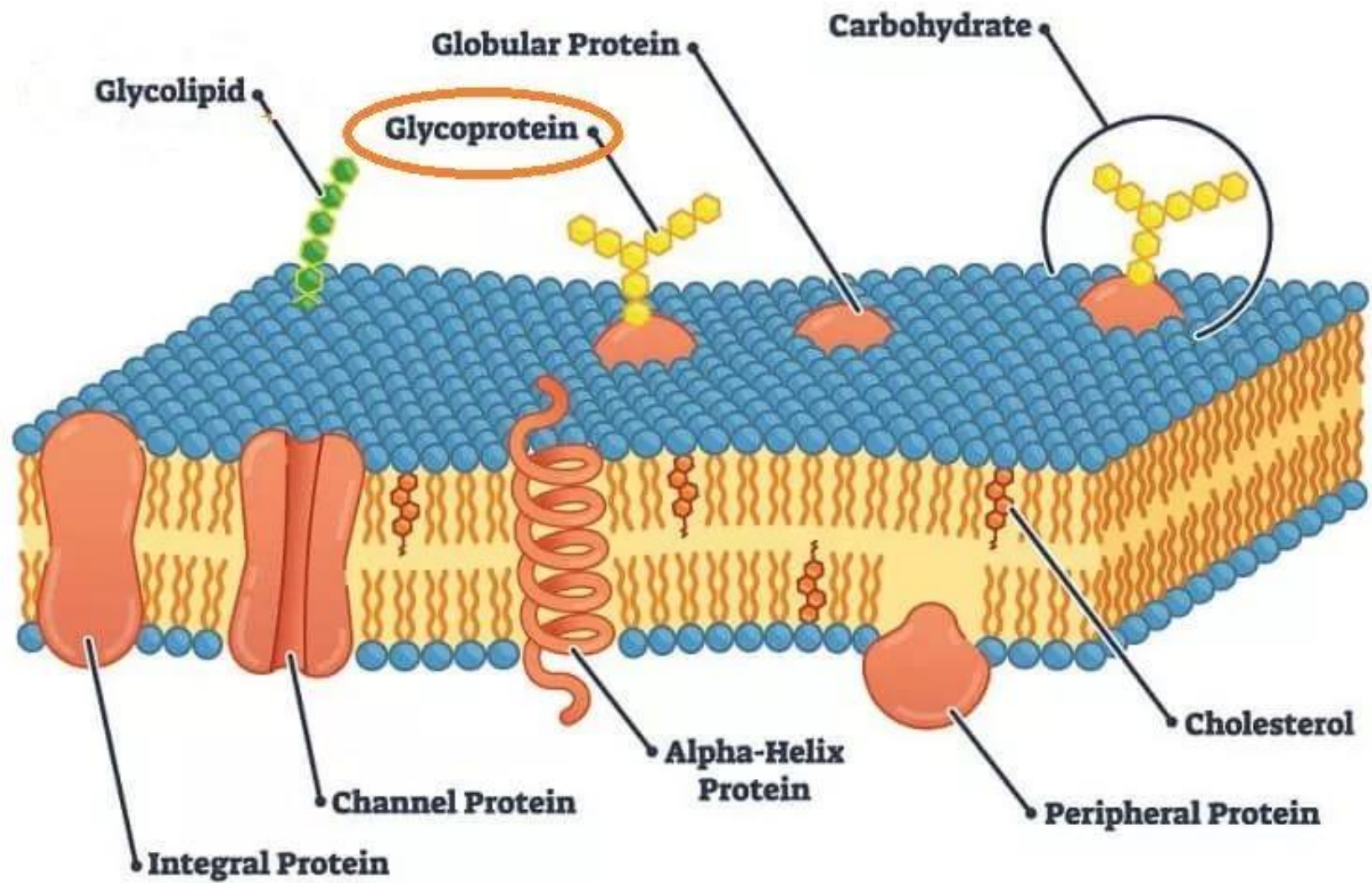
- ▶ Proteins are the **second** major component of plasma membranes.
- ▶ There are two main categories of membrane proteins:
  1. **Integral membrane:** The proteins are found inside the membrane are hydrophobic
  2. **Peripheral membrane:** The proteins are found on the outside and inside surfaces of membrane attached either to integral proteins or to phospholipids.
- **Unlike** integral membrane proteins, peripheral membrane proteins do **not stick** into the **hydrophobic** core of the membrane, and they tend to be more **loosely** attached.

# 2. Proteins

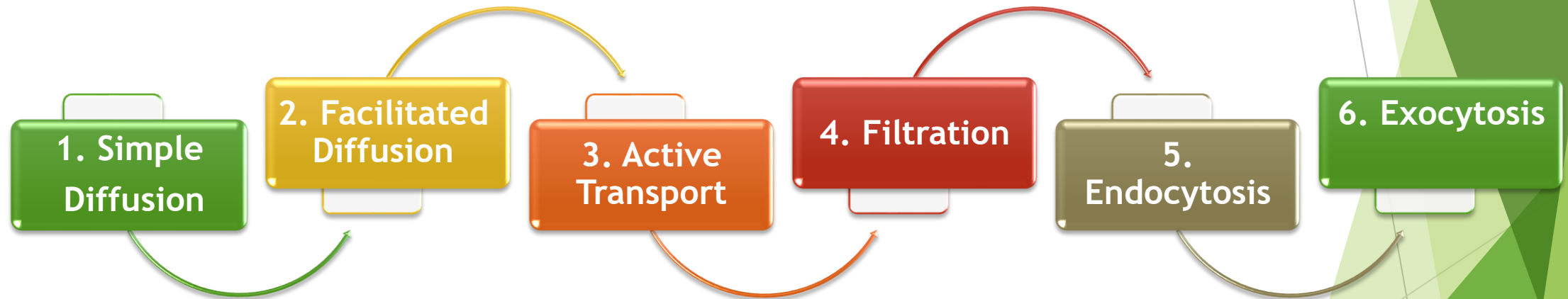


# 3. Carbohydrates

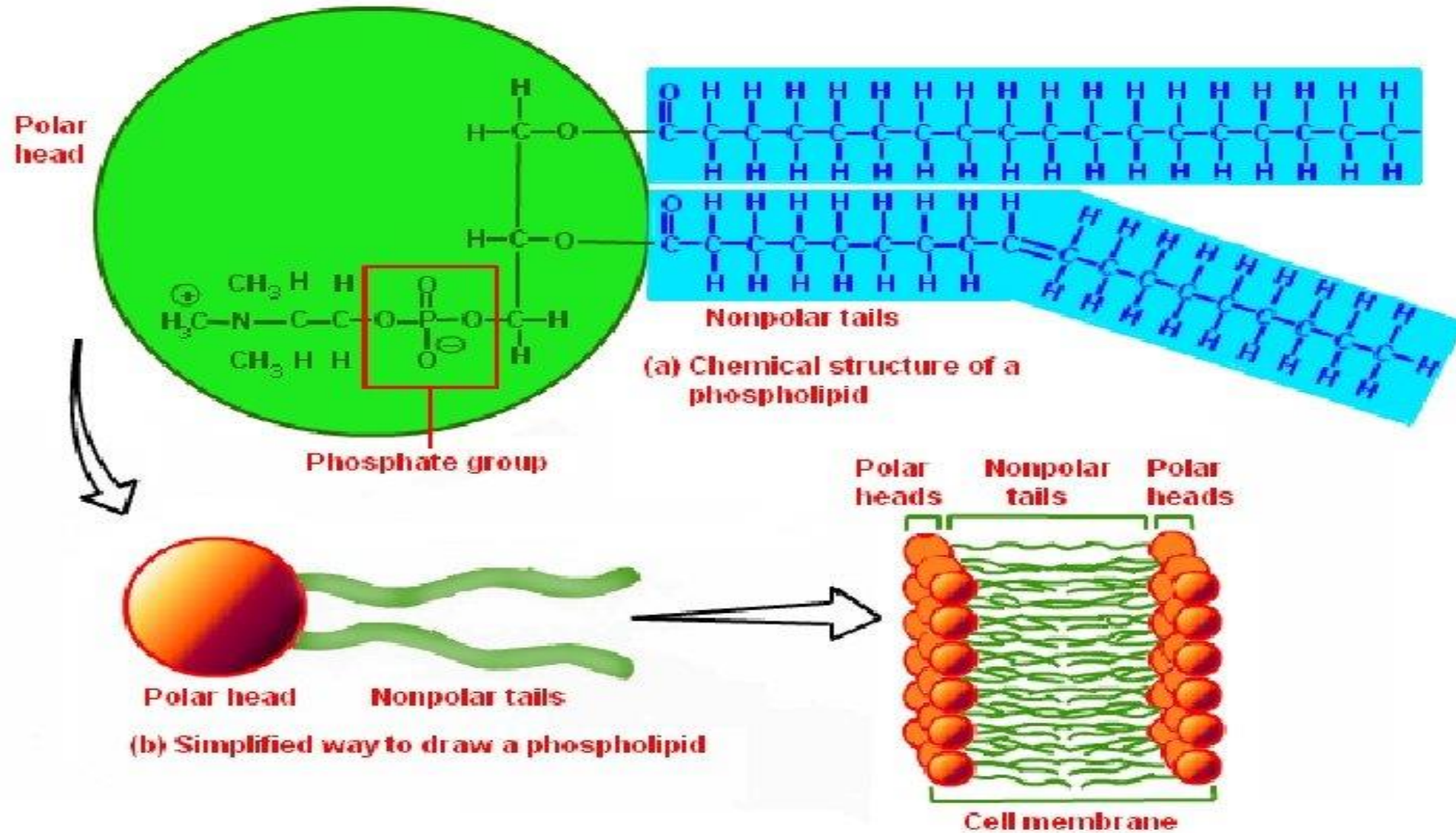
- **Carbohydrates:** are the **third** major component of plasma membranes.
- In general, they are found on the **outside** surface of cells and are bound either to **proteins** (forming **glycoproteins**) or to **lipids** (forming **glycolipids**).
- These carbohydrate chains may consist of **2-60** monosaccharide units and can be either **straight** or **branched**



# Types of transport via cell membrane



# Chemical composition



THANK  
YOU