

# **Cell structure & types**

## **Lec.1**

**Histology**  
**Second year**

# Definition of a cell:

- basic structural and functional unit of life
- the smallest units that display the characteristics of life, i.e. reproduction, metabolism, response to stimuli

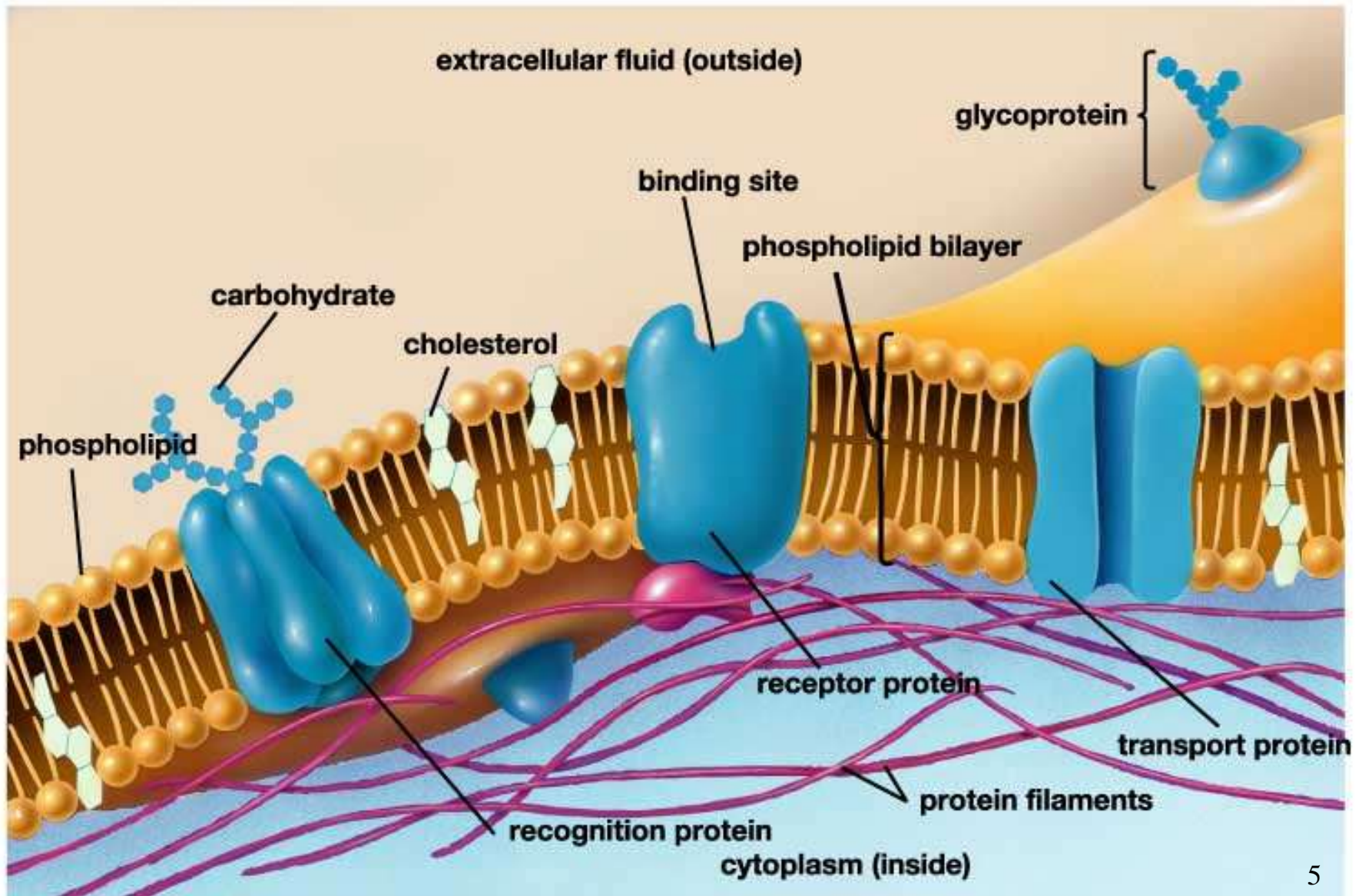
# General Subdivisions of a Cell

- Plasma Membrane = selectively permeable boundary between the cell and the environment
- Nucleus = regulatory center of the cell
- Cytoplasm = everything between the plasma membrane and the nucleus (fluid + organelles)

# Plasma Membrane

1. Structure = **phospholipd bilayer** with **proteins** embedded in, and attached to, the inner (**intracellular**) and outer (**extracellular**) surfaces
2. Function
  - a. Selectively permeable barrier: controls what enters and leaves the cell
  - b. Phospholipids are liquid at body temperature, so proteins float around in the membrane  
-functions as a **Fluid Mosaic**

# Plasma Membrane



- Identify and describe the structure and function of the major body systems.
- Skeletal
- Muscular
- Circulatory
- Respiratory
- Digestive
- Excretory
- Nervous

# Human Cell

- Is different cells that make one cell.
- There are many different cells in the body.
- Muscle cells
- Bone cells
- Cartilage cells
- Adipose cells
- Nerve Cells

# Human cell

- All cells have a nucleus, and cell membrane.
- Each cell is different. They have different jobs to perform in the human body.
- Each cell will combined with other cells alike themselves to make a body systems.



# Different body systems

- **Skeletal**
- **Muscular**
- **Circulatory**
- **Respiratory**
- **Digestive**
- **Excretory**
- **Nervous**

# Human Cell

- Mitochondrion
- Nucleus
- Cell membrane
- Cytoplasm



# Types of Cells



**Granule Cell**

- Nerve cells
- This is a Neuron with dendrites At the end.
- Dendrites receive and send chemical messages.
- These cells are in the Brain and Central and Peripheral nervous system.

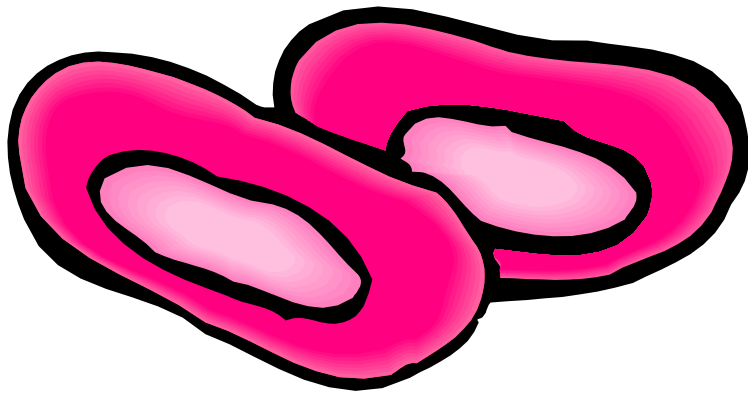
# Bone Cells



Bone Cell

- There are three different types of bone cells.
- Osteoblast – They build the bone.
- Osteocyte – This is the bone cover.
- Osteoclasts – Make white blood cells and Repair bone.

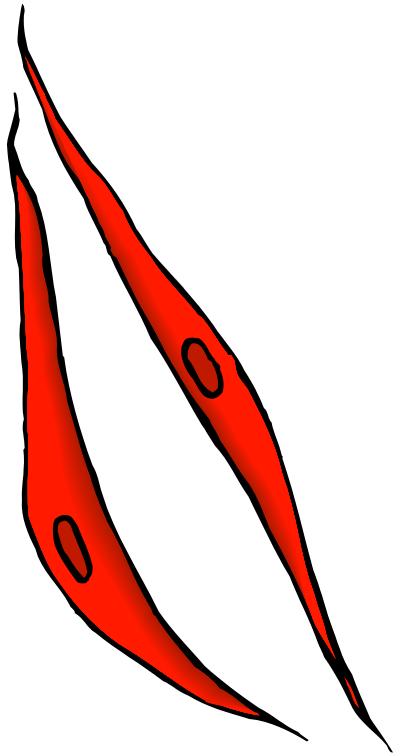
# Red blood cells



Red Blood Cell

- Red blood cells are made in the bone marrow.
- The main function of the red blood cells is to carry oxygen and food to the body tissues. Red blood cells also carry away waste and carbon Dioxide.

# Skeletal Muscle



Muscle cell

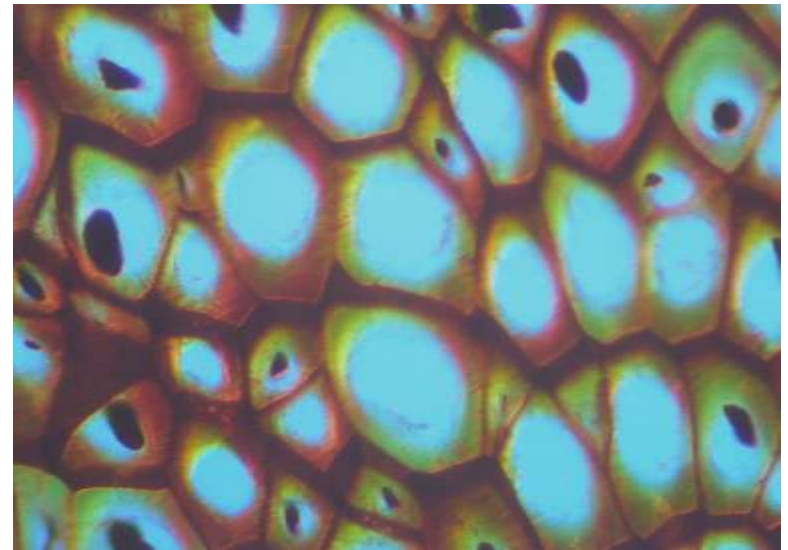
- The muscles do all types of the jobs. They are used to move our bones and pump the blood in our bodies. Muscles are divided into three types. Smooth, Skeletal, and Cardiac.

# Muscle cells

- *Smooth* muscle is found in the digestive, blood vessels, the stomach, found in the skin.
- *Cardiac* muscle makes up the heart. It runs on its own rhythm.
- *Skeletal* muscle is so named because it is found on bones.

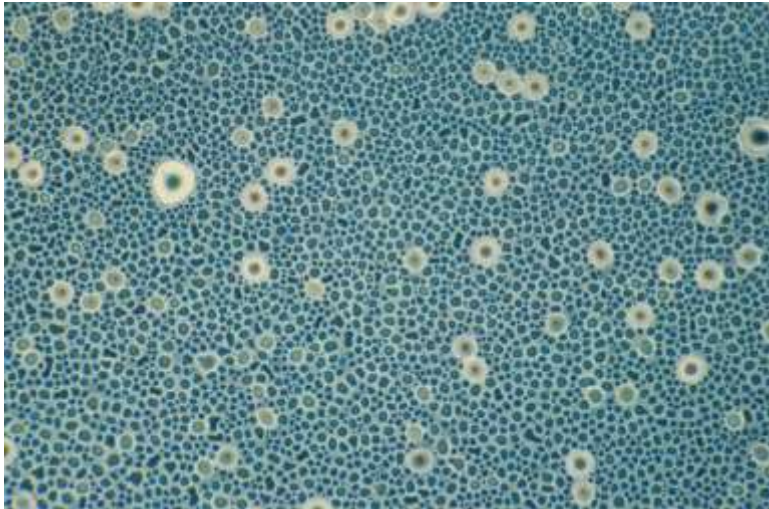
# Adipose Cells

- Adipose is fat. It covers the neurons, and some organs. The body stores fat for food.





# Cartilage Cells



- Found mainly with Skeleton muscle and Respiratory tracts. There are three types but we only need to know Elastic.