

Ministry of Higher Education
Al-Mustaqbal university collage
Intelligent of Medical Systems Department



General Biology/Practical

Lecture (2)

Comparison Between Plant and Animal cells

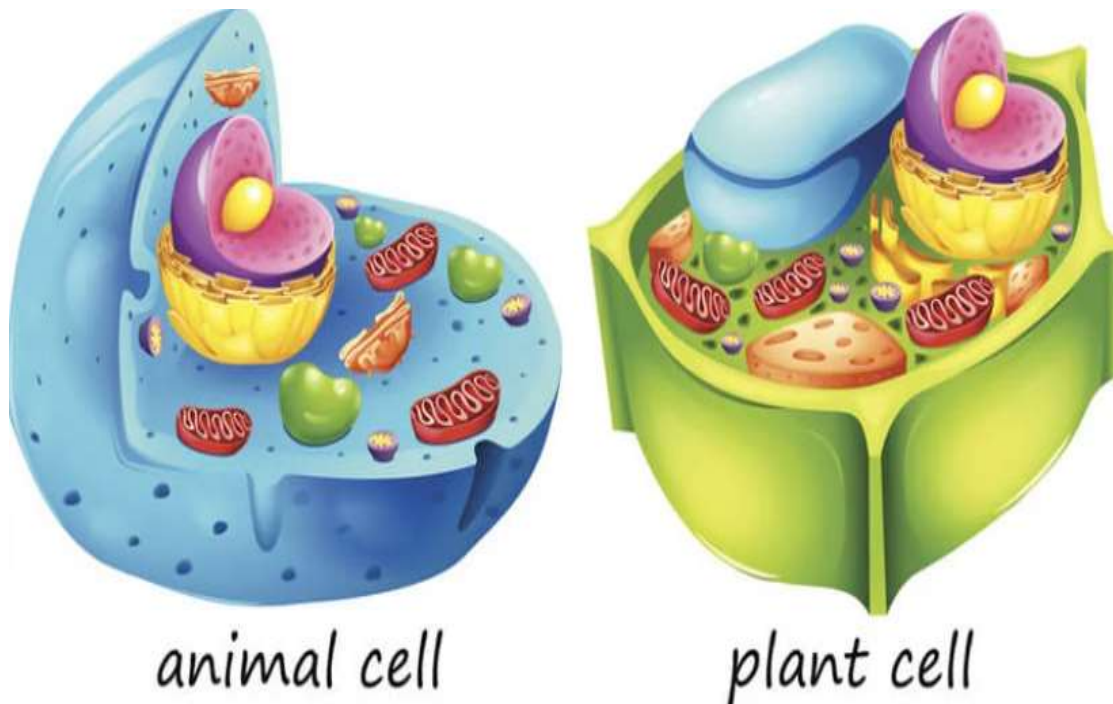
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The Cell

Cell: is the basic unit of which the bodies of all living organisms are composed. It is of two types: animal cells and plant cells.

Scientists research on the cell

- Hooke: The first to use the word cell in 1665.
- Dutch scientist Leeuwenhoek: the first to describe the cell in 1674.
- Scientist Schleiden: The first to discover the presence of cells in plants in 1838.
- Scientist: Schwann: The first to discover the presence of cells in animals in the year 1839.



Structures shared between plant and animal cells

Both plant and animal cells share many structures such as nucleus, plasma membrane, and cytoplasm.

1. Nucleus

- It is a spherical body surrounded by a double nuclear envelope, which helps the entry and exit of substances through many holes on its surface.
- It is considered the control center of the cell because it contains the genetic material (DNA), which is responsible for the transmission of hereditary traits.
- Inside the nucleus there is a spherical body called the nucleolus, which is responsible for manufacturing proteins.

2. Plasma membrane

- It consists of two layers of fat, and on its surface there are a group of protein substances.
- It surrounds all parts of the cell and works to protect it.
- It regulates the exchange of materials between the cell and its outer periphery by what is called the osmotic property.

The Cytoplasm

- It consists of a semi-transparent gel.
- Water occupies two-thirds of its volume.
- It contains dissolved substances such as salts, proteins, sugars and enzymes.
- It contains many organelles: the endoplasmic reticulum, ribosomes, the Golgi apparatus, mitochondria, lysosomes, plastids, centrosomes, vacuoles, and the cytoskeleton.

Difference between Plant and Animal cell

Plant cell:

- Surrounded by a cell wall and a plasma membrane
- Contain plastids
- Contains succulent vacuoles
- Adult cells contain central vacuoles
- Does not contain any centrosome.

Animal Cell

- They are surrounded by a plasma membrane containing facultative permeable holes.
- It does not contain a cell wall.
- It does not contain succulent vacuoles.
- It contains centrioles.

Similarities between plant and animal cell

There are several common elements in the composition of both plant and animal cells, namely:

1. Nucleus
2. Rough endoplasmic reticulum
3. Soft endoplasmic reticulum.
4. Ribosomes.
5. Golgi bodies
6. Mitochondria.
7. The plasma membrane.