

Cell and Cell Theory

Cell

- A Cell is the basic unit of life. All living things are made up of one or more cells. Living things that are made of one cell only are called unicellular organism, whereas those that are made up of many cells are called multicellular organism
- The study of cells, known as Cell Biology, investigates cells' structure, functions, and interactions within organisms, examining how they contribute to tissue and organ formation and their significance in health and disease.

Microscope

- The microscope is an instrument used to view objects that cannot be seen by the unaided eye. It can magnify the size of very small objects

The Invention of the Microscope

- Romans had already invented and experimented with glasses during the first century.
- They discovered that small objects become larger when viewed through this glass sample.
- The word lens is derived from the Latin word lentil, because it closely resembled the shape of the lentil bean.
- Around 1595, the first compound microscope was invented by Zacharias Janssen (1580-1638)
- They made these microscopes by placing several lenses together, and discovered that objects were further enlarged upon viewing.

Discovery of Cell

- .In 1665, Robert Hooke examined a thin slice of cork under the microscope that he built. He observe small compartments of the cork. He named the small compartments cellula because they reminded him of the “little rooms” in the monastery.
- Anton Van Leeuwenhoek created a microscope with a much higher magnification than the microscope that Hooke used. He used it to observe specimens such as bacteria, cells, and protist. He called them “animalcules.”

Development of Cell Theory

- 1838- German Botanist, Matthias Schleiden, concluded that all plant parts are made of cells.
- 1839- German physiologist, Theodor Schwann, who was a close friend of Schleiden, stated that all animal tissues are composed of cells.
- 1858- Rudolf Virchow, German physician, he stated *Omnis cellula e cellula*, which means that all cells arise from preexisting cells.
- Robert Remak - Prove the idea of cell division by hardening the cell membrane

Cell Theory

- Their researches became the bases of the cell theory.
 1. All organisms are composed of one or more cells .
 2. Cell is the basic unit of life in all living things.
 3. All cells are produced by the division of preexisting cells.

Modern Cell Theory

- Modern Cell Theory contains four statements, in addition to the original Cell Theory:
 1. The cell contains hereditary information (DNA) which is passed on from cell to cell during cell division.
 2. All cells are basically the same in chemical composition and metabolic activities.
 3. All basic chemical and physiological functions are carried out inside the cells (movement, digestion etc.)
 4. Cell activity depends on the activities of sub-cellular structures within the cell (organelles, nucleus, plasma membrane etc.)

References:

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