

Introduction to Cell Biology

The Cell

The cell (from Latin cell **meaning** small room) is the basic structural, functional and biological unit of all known organisms. A cell is the smallest unit of life. Cells are often called the building blocks of life. The study of cell is called Cell Biology, Cellular Biology or **Cytology**.

In 1665, the cell was discovered by **Robert Hook**. It is a small united area where all kinds of actions and reactions collectively take place. Some cells have membrane bound organelles and some do not have. Depending upon the internal structure of the cell, two types of cells are found in an organism namely **Eukaryotic** and **Prokaryotic**. Organisms that are made up of single cells are known as single-celled **unicellular**, organisms and from many cells are known as **multi-cellular** organisms.

The Cell Theory:

The cell theory includes four principles in modern biology:

- 1- All organisms are composed of one or more cells. While many organisms, such as the bacteria, are single-celled **unicellular**, other organisms, including humans and plants, are **multicellular** within the life processes of metabolism and heredity occur.
- 2- Cells are the smallest living things.
- 3- Addition cells are not originating at present, rather, life on earth represent a continuous line of descent from those early cells.
- 4- Cells arise only by the division of previously existing cell.

The functions of cells:

- 1- The capacity to extract energy from the environment and change it from one form to another.
- 2- The capacity to use this energy to build more organic molecules to maintain themselves and grow.
- 3- The capacity to deal with the environment selectively.
- 4- The capacity to reproduce.

In general, the smallest living microorganism on the earth is the **viruses** while the smallest unicellular microorganisms are the **mycoplasma**. But the biggest living organism is the Sequoia plant (red wood tree).