

# CELL BIOLOGY

The word cell originated from the latin word *celluae* which means little room .

The term cell was coined by Robert Hooke .

Cell is the structural and functional unit of an organism .

*The branch of biology which deals with the morphological, physiological, biochemical ,genetical and developmental aspects of cells is Cytology or Cell Biology .*

## Robert hooke

Known as Father of Cytology .

First observed cells through a crude microscope .

Examined thin slice of cork cut with penknife under microscope, he saw a network of tiny box like Compartments .

His famous book *Micrographia* was published in the year 1665 .

## Antonie Von Leeuwenhoek

Known as Father of Microbiology .

He was the first one to observe, describe and sketch a free live cell .

He was a Dutch shopkeeper who devoted to design simple microscopes .

*He discovered sperm cells, RBC and several microorganisms using single lensed microscope .*

He observed some organization within cells (RBC) .

## Cell theory

Cell theory or Cell doctrine was formulated by Schleiden and Schwann .

M.J Schleiden discovered plant cell in the year 1838 , he proposed that all plant tissue are composed of cells.

Theodar Schwann in the year 1839 proposed that animal cells are the fundamental units of animals.

## Rudolf Virchow

Modified the Cell Theory by postulating the **Theory of Cell Lineage**.

He states that all cells arise from pre- existing cells ( *omnis cellula e cellula* ) .

The cell theory states that ;

All living things are composed of one or more cells .

Cell is the basic unit of structure of all organisms .

All cells arise only from existing cells .

### **Modern cell theory**

Modern cell theory states that ;

Cells are the morphological and physiological unit of all living organism.

The properties of a given organism depend on those of its individual cells .

The cells originate from other cells and continuity is maintained through genetic material .

The smallest unit of life is the cell .

Shortcomings of cell theory :

Viruses, viroids, virusoids, prions, coenocytic algae and coenocytic fungi do not agree with the statements of cell theory .

### **Robert Brown**

**Nucleus** was discovered by Robert **brown** in the year **1831** .

He observed a rounded structure in every cell .

*Nucleus is the driving engine of a cell .*

### **Protoplasm**

**Max Schultze** in **1861** identified and **described protoplasm** as the juicy part of the cell .

The term protoplasm introduced by **Johannes Purkinje** in **1839** .

**Protoplasm = cytoplasm + nucleoplasm .**

Protoplasm theory was formulated by **Hertwig** in the year **1892** .

*Protoplasm Theory is the generalization that living organisms are formed of a uniquely complex living material called protoplasm , and also that life does not exist in the absence of protoplasm .*

*Protoplasm forms **physical basis of life** serve as **the vehicle of life activities** .*

Viruses, viroids, virusoids, prions are exceptions to protoplasm theory since they do not contain protoplasm .

Cell is an accumulation of living substance ( protoplasm ) , limited in space and possessing a nucleus and Cell membrane.

