



SNS COLLEGE OF NURSING

SARAVANAMPATTI, COIMBATORE-35

DEPARTMENT OF NURSING

COURSE NAME : BSC (N) I YEAR

SUBJECT : BIOCHEMISTRY

UNIT I: INTRODUCTION

TOPIC : CELL

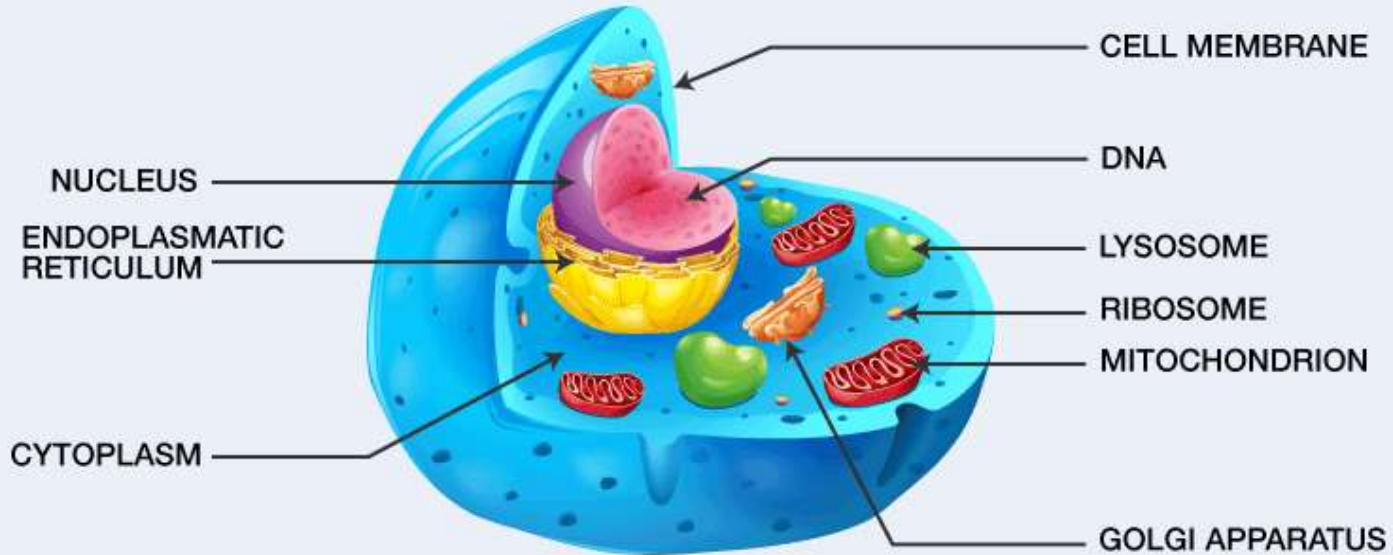


INTRODUCTION

- The first cells were observed and named by Robert Hooke in 1665 from slice of cork.
- Cells are the structural, functional, and biological units of all living beings. A cell can replicate itself independently. Hence, they are known as the building blocks of life.

CELL

CELL





DEFINITION

- The cell is the lowest level of structure capable of performing all the activities of life.
- **“A cell is defined as the smallest, basic unit of life that is responsible for all of life’s processes.”**



The Cell Thoery

- Proposed by Matthais Schleiden and Theodor Schwann in 1839:
- -All living things are made up of cells.
- -Cells are the smallest working unit of all living things.
- -All cells come from preexisting cells through cells division.
- Some organisms consist of a single cells = unicellular organism, others are multicellular aggregates of specialized cells.



Characteristics of Cells

- Cells provide structure and support to the body of an organism. The cell interior is organised into different individual organelles surrounded by a separate membrane.
- The nucleus (major organelle) holds genetic information necessary for reproduction and cell growth.
- Every cell has one nucleus and membrane-bound organelles in the cytoplasm.



Characteristics of Cells

- Mitochondria, a double membrane-bound organelle is mainly responsible for the energy transactions vital for the survival of the cell.
- Lysosomes digest unwanted materials in the cell.
- Endoplasmic reticulum plays a significant role in the internal organisation of the cell by synthesising selective molecules and processing, directing and sorting them to their appropriate locations.

FUNCTIONS OF CELLS

A cell performs major functions essential for the Growth and development of an organism. Important functions of cell are as follows:

- Provides Support and Structure
- Facilitate Growth Mitosis
- Allows Transport of Substances
- Energy Production
- Aids in Reproduction



1. Provides Support and Structure



- All the organisms are made up of cells. They form the structural basis of all the organisms. The cell wall and the cell membrane are the main components that function to provide support and structure to the organism. For eg., the skin is made up of a large number of cells. Xylem present in the vascular plants is made of cells that provide structural support to the plants.

2.Facilitate Growth Mitosis

- In the process of mitosis, the parent cell divides into the daughter cells. Thus, the cells multiply and facilitate the growth in an organism.

3. Allows Transport of Substances

- Various nutrients are imported by the cells to carry out various chemical processes going on inside the cells. The waste produced by the chemical processes is eliminated from the cells by active and passive transport.

4. Energy Production

- Cells require energy to carry out various chemical processes. This energy is produced by the cells through a process called photosynthesis in plants and respiration in animals.



5.Aids in Reproduction

- A cell aids in reproduction through the processes called mitosis and meiosis. Mitosis is termed as the asexual reproduction where the parent cell divides to form daughter cells. Meiosis causes the daughter cells to be genetically different from the parent cells.



CONCLUSION



- Cells are the smallest common denominator of life. Some cells are organisms unto themselves; others are part of multicellular organisms.



ASSESSMENT



1. What is a Cell?
2. State the characteristics of cells.
3. Elaborate Cell Theory.
4. Enlist the functions of cells



REFERENCE

- Shivananda Nayak b , " Hand book of Biochemistry & Nutrition (For B.sc Nursing students)
- Biochemistry for nurses,Uma Bhardwaj,Ravindra Bhardwaj,Pearson Publication.



Thank You