VOLUME 1, ISSUE 1, 2024

STUDY CELL BIOLOGY AND EXPLAIN IT TO STUDENTS

Umarova M.Z
Andijan State Medical Institute, Uzbekistan

Annation: This article discusses the cell both as an individual unit and as a contributing part of a larger organism. As an individual unit, the cell is capable of metabolizing its own nutrients, synthesizing many types of molecules, providing its own energy, and replicating itself in order to produce succeeding generations

Keywords: Electron microscopy, discovery of DNA, cancer systems biology

The cell is the basic structural and functional unit of all forms of life. Every cell consists of cytoplasm enclosed within a membrane, and contains many macromolecules such as proteins, DNA and RNA, as well as many small molecules of nutrients and metabolites. The term comes from the Latin word cellula meaning 'small room.

Cells can acquire specified function and carry out various tasks within the cell such as replication, DNA repair, protein synthesis, and motility. Cells are capable of specialization and mobility within the cell.

Most plant and animal cells are only visible under a light microscope, with dimensions between 1 and 100 micrometres. Electron microscopy gives a much higher resolution showing greatly detailed cell structure. Organisms can be classified as unicellular (consisting of a single cell such as bacteria) or multicellular (including plants and animals). Most unicellular organisms are classed as microorganisms.

The study of cells and how they work has led to many other studies in related areas of biology, including: discovery of DNA, cancer systems biology, aging and developmental biology.

Cell biology is the study of cells, which were discovered by Robert Hooke in 1665, who named them for their resemblance to cells inhabited by Christian monks in a monastery.Cell theory, first developed in 1839 by Matthias Jakob Schleiden and Theodor Schwann, states that all organisms are composed of one or more cells, that cells are the fundamental unit of structure and function in all living organisms, and that all cells come from pre-existing cells.[7] Cells emerged on Earth about 4 billion years ago.

Cell**,** in biology, the basic membrane-bound unit that contains the fundamental molecules of life and of which all living things are composed. A single cell is often a complete organism in itself, such as a bacterium or yeast. Other cells acquire specialized functions as they mature. These cells cooperate with other specialized cells and become the building blocks of large multicellular organisms, such as humans and other animals. Although cells are much larger than atoms, they are still very small. The smallest known cells are a group of tiny bacteria called mycoplasmas; some of these single-celled organisms are spheres as small as 0.2 μm in diameter (1μm = about 0.000039 inch), with a total mass of 10^{-14} gram—equal to that of 8,000,000,000 hydrogen atoms. Cells of humans typically have a mass 400,000 times larger than the mass of a single mycoplasma bacterium, but even human cells are only about 20 μm across. It would require a sheet of about 10,000 human cells to cover the head of a pin, and each human organism is composed of more than 30,000,000,000,000 cells. This article discusses the cell both as an individual unit and as a contributing part of a larger organism. As an individual unit, the cell is capable of metabolizing its own nutrients, synthesizing many types of molecules, providing its own energy, and replicating itself in order to produce succeeding generations. It can be viewed as an enclosed vessel, within which innumerable chemical reactions take place simultaneously. These reactions are under very

precise control so that they contribute to the life and procreation of the cell. In a multicellular organism, cells become specialized to perform different functions through the process of differentiation. In order to do this, each cell keeps in constant communication with its neighbours. As it receives nutrients from and expels wastes into its surroundings, it adheres to and cooperates with other cells. Cooperative assemblies of similar cells form tissues, and a cooperation between tissues in turn forms organs, which carry out the functions necessary to sustain the life of an organismSpecial emphasis is given in this article to animal cells, with some discussion of the energy-synthesizing processes and extracellular components peculiar to plants. (For detailed discussion of the biochemistry of plant cells, *see* photosynthesis. For a full treatment of the genetic events in the cell nucleus, *see* heredity.)

LITERATURE:

1. The biology of plant cells is treated in PETER H. RAVEN, RAY F. EVERT, and SUSAN E. EICHHORN, *Biology of Plants*, 6th ed. (1999), a general work; and KEITH ROBERTS, *Handbook of Plant Science* (2007).
2. BERTIL HILLE, *Ion Channels of Excitable Membranes*, 3rd ed. (2002); THOMAS ZEUTHEN and WILFRED D. STEIN, *Molecular Mechanisms of Water Transport Across Biological Membranes* (2002).
3. *Wheater's Functional Histology: A Text and Colour Atlas* (2006), a well-illustrated account of the histology of the human body; and J.M.W. SLACK, *From Egg to Embryo: Determinative Events in Early Development*, 2nd ed. (1990).