

# A Short Communication on Molecular Composition of a Cell

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## INTRODUCTION

Cells are the basic unit of life. In the modern world, they are the smallest known world that performs all of life's functions. All living organisms are either single cells, or are multicellular organisms composed of many cells working together. The cells are largely composed of compounds that contain carbon. The cells consist of cytoplasm enclosed within a membrane, which contains many biomolecules such as proteins and nucleic acids.

## History

The cells were discovered by Robert Hooke in 1665, who named them for their resemblance to cells inhabited by Christian monks in a monastery. In 1839 Matthias Jakob Schleiden and Theodor Schwann stated that all organisms are composed of one or more cells.

## Subcellular components

The cells are of two types, they are eukaryotes and prokaryotes. The eukaryotes contain a nucleus whereas prokaryotes are single-celled organisms. All cells (prokaryotic or eukaryotic) have a membrane that envelops the cell, regulates what moves in and out (selectively permeable), and maintains the electric potential of the cell. Inside the membrane, the cytoplasm takes up most of the cell's volume. All cells (except red blood cells which lack a cell nucleus and most organelles to accommodate maximum space for hemoglobin) possess DNA, the hereditary material of genes, and RNA, containing the information necessary to build various proteins such as enzymes, the cell's primary machinery. There are also other kinds of biomolecules in cells.

## Other components in a cell

The cell contains major classes of intracellular organic molecules that includes nucleic acids, proteins, carbohydrates, and lipids, all of which are essential to the cell's functions.

**Nucleic acids:** Molecules that contain and help express a cell's genetic code. There are two major classes of nucleic acids: deoxyribonucleic acid (DNA) and ribonucleic acid (RNA). DNA is the molecule that contains all of the information required to build and maintain the cell, whereas the RNA has several roles associated with expression of the information stored in DNA. The nucleic acids alone aren't responsible for the preservation and expression of genetic material. The cells also use proteins to help replicate the genome and accomplish the profound structural changes that underlie cell division.

**Proteins:** A second type of intracellular organic molecule. These substances are made from chains of smaller molecules called amino acids, and they serve a variety of functions in the cell, both catalytic and structural.

**Carbohydrates:** The starches and sugars in cells, are another important type of organic molecule. Simple carbohydrates are used for the cell's immediate energy demands, whereas complex carbohydrates serve as intracellular energy stores. Complex carbohydrates are also found on a cell's surface, where they play a crucial role in cell recognition.

**Lipids:** Lipids are also known as fat molecules are components of cell membranes-both the plasma membrane and various intracellular membranes. They are also involved in energy storage, as well as relaying signals within cells and from the bloodstream to a cell's interior.

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