## DNA Structure and Function

DNA (Deoxyribonucleic acid) is the hereditary material in humans and almost all other organisms. Nearly every cell in a person's body has the same DNA. Most DNA is located in the cell nucleus, but a small amount of DNA can also be found in the mitochondria.

The information in DNA is stored as a code made up of four chemical bases: adenine (A), guanine (G), cytosine (C), and thymine (T). Human DNA consists of about 3 billion bases, and more than 99 percent of those bases are the same in all people.

## Protein Synthesis

Proteins are large, complex molecules that play many critical roles in the body. They do most of the work in cells and are required for the structure, function, and regulation of the body's tissues and organs. Proteins are made up of hundreds or thousands of smaller units called amino acids.

## Cell Division Process

Cell division is the process by which a parent cell divides into two daughter cells. Cell division usually occurs as part of a larger cell cycle. In eukaryotes, there are two distinct types of cell division: mitosis and meiosis.

Mitosis is used for growth and repair, while meiosis is used for sexual reproduction. During mitosis, the cell duplicates its contents, including its chromosomes, and splits to form two identical daughter cells.

## Photosynthesis

Photosynthesis is the process used by plants and other organisms to convert light energy into chemical energy. This process occurs in the chloroplasts of plant cells and involves the conversion of carbon dioxide and water into glucose using sunlight.