



Nucleic acids

DNA - The Double Helix

Recall that the **nucleus** is a small spherical, dense body in a cell. It is often called the "control center" because it controls all the activities of the cell including cell reproduction, and heredity. **Chromosomes** are microscopic, threadlike strands composed of the chemical **DNA** (short for deoxyribonucleic acid). In simple terms, DNA controls the production of **proteins** within the cell. These proteins in turn, form the structural units of cells and control all chemical processes within the cell. Think of proteins as the building blocks for an organism, proteins make up your skin, your hair, and parts of individual cells. The proteins that are made largely determine how you look. The proteins that will be made for your body are determined by the **sequence of DNA** in the nucleus.

What important polymer is located in the nucleus? _____

_____ is the instructions for making a cell's _____.

Chromosomes are composed of **genes**, which is a segment of DNA that codes for a particular protein, which in turn codes for a **trait**. Hence you hear it commonly referred to as the gene for baldness or the gene for blue eyes. Meanwhile, DNA is the chemical that genes and chromosomes are made of. DNA is called a **nucleic acid** because it was first found in the nucleus. We now know that DNA is also found in some organelles such as the **mitochondria** and **chloroplasts**. It is the DNA in the nucleus that actually controls the cell's workings.

_____ on chromosomes code for specific _____ in a cell.

DNA is also found in _____ and _____.

In 1953, **James Watson** and **Francis Crick** established the structure of DNA. The shape of DNA is a double helix, which is like a twisted ladder. The sides of the ladder are made of alternating sugar and phosphate