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### **Molecular basis of inheritance**

Genetics mainly deals with the study of genes, heredity, and genetic variation. Genes exist on chromosomes and chromosomes are comprised of DNA and proteins. DNA is a molecule that carries genetic information in all living organisms and viruses where it is used in reproduction, functioning, growth, and development. It is a long polymer of deoxyribonucleotides.

Refer to the molecular basis of inheritance notes provided here for conceptual understanding of the topic.

## **DNA**

DNA is a double-helical structure that carries all the genetic information. Its length is determined by the number of nucleotide pairs present in it. It is an acidic substance in the nucleus identified by Friedrich Meischer. Its double helical structure was given by Watson and Crick.

**Also Read:** [DNA Structure](#)

## **Structure**

DNA is made up of 6 molecular structures that comprise of one phosphate molecule and five carbon sugar termed deoxyribose. A nucleotide is a basic building block of DNA. A nucleotide is comprised of one of the 4 bases, one sugar molecule, and one phosphate molecule. A sugar-phosphate chain act as a backbone and bases are on the inside. Nucleotide subunits are linked together to form a DNA strand thus providing polar stability.

The three-dimensional structure of DNA arises from chemical and structural features of 2 polynucleotide chain. A purine base pairs up with pyrimidine base. For instance guanine pairs with cytosine. So the two strands that are held together by a hydrogen bond are complementary to each other and they run in the antiparallel direction.