**IDENTIFICATION OF GENETIC MATERIAL**

Physical and chemical nature of the genetic material is important for understanding the functioning of the gene. The chemistry of the genetic material was known before its significance in the study genetics was recognised. In late nineteenth century and early twentieth century scientists believed protein molecule to be the carrier of hereditary information. But several spectacular observations proved deoxyribonucleic acid (DNA) as the genetic material. Following the publication of path breaking observation by Mendel on heredity, Fredrich Meischer in 1869 isolated a novel compound from nucleus named nuclein. Later observations revealed that nuclein was an important constituent of chromosomes. DNA can be proved as the genetic material from the following points:

1. In prokaryotes and viruses, the genetic material is DNA.

2. In eukaryotes DNA is mostly confined to the nucleus, a stable macromolecule and the amount is directly proportional to the number of the chromosomes.

3. The measurement of the amount of protein and DNA in somatic and germ cells reveal that the amount of DNA in germ cells is exactly half of the amount found in somatic cells, no this type correlation in protein amount. The amount of DNA content is a species specific characteristic.

4. Like genes, DNA molecules are also self-replicating and in the process old DNA acts as template for the new DNA molecule.

5. UV ray peak absorption wavelength of DNA is 2600 angstrom is identical with the highest efficiency of mutagenesis by UV ray.

6. Avery, McLeod and McCarty in 1944 in their work on transformation experiment in Pneumococus bacteria convincingly proved that DNA is the genetic material.

7. Hershey and Chase in 1952 confirmed that the genetic material in bacteriphage (virus) is DNA.

8. Fraenkel and Conrat in 1955 proved that RNA is the genetic material in Tobaco mosaic vrus (TMV).