

UG sem V

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### Mutation

From the Mendel's laws it is clear that recombination can produce plants with new combinations of characters. In this type of recombination there is no new character produced nor introduced. The existing ones are only redistributed and assorted. This combinations were explained to be due to single difference of the interaction of single gene. When all possible characters combination have been completed, there can be no recombination and

So, the term mutation is used in two senses. In broader sense it covers all the changes in the genotype. But in narrow sense, it is a change in gene.

Many scientists according to their domain (field of work) defined mutation as follows

(i) De Vries defined mutation as a change of heredity not traceable to segregation or recombination.

(ii) Mayer - Mutation is a discontinuous chromosomal change with a genetic effect.

(iii) Amate (1956) defined mutation as a change in the hereditary constitution of a given sps.

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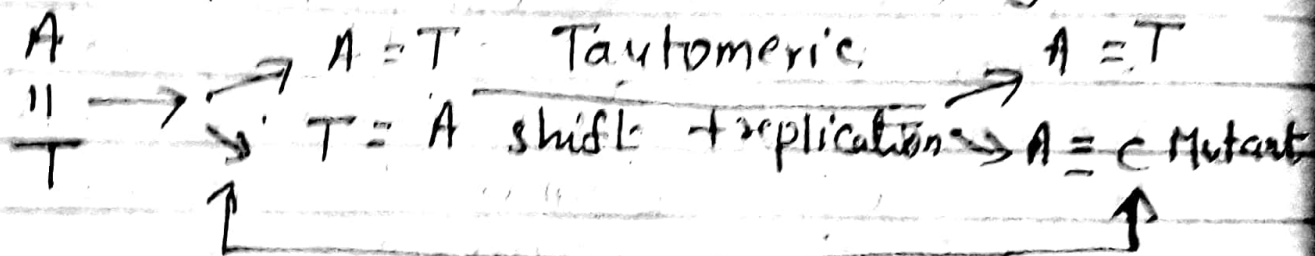
normal gene but of an alteration of their number, molecular st of sequence of nucleotides that constitute the gene themselves.

### Gene Mutation or Point Mutation

In all cellular organisms, the genetic information is carried in the sequence of 4 bases - A, G, C, T arranged along a DNA double helix. The two strands are complementary to each other and carry equivalent information from them. We also know that chromosome duplication depends upon the specificity of hydrogen bonding between the purine and pyrimidine.

of DNA template leads to produce  
the point mutation.

Each region of DNA that determines the st. of a single kind of protein molecule is called a gene. Thus observable effects of point mutation depends on how a change in DNA sequence of a gene affects the protein for which it codes and affects the role that protein play in the economy of the organism.



Occasionally it is observed that bases undergo "tautomeric shift" and lead to copy errors during DNA duplication, as in the figure.

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