Genetic Terminology

Like other sciences, the science of genetics has its specific terminology and We are giving here certain most common terms which are used more frequently in genetics.

Gene. The fundamental physical and functional unit of heredity, which carries information from one generation to the next; a segment of DNA, composed of a transcribed region and a regulatory sequence, that makes possible transcription.

Allele (Allelomorph). Alleles are genes controlling the same characteristic (e.g. hair colour) but producing different effects (e.g. black or red), and occupying corresponding positions on homologous chromosomes.

Autosome. The chromosomes which are not associated with sex are known as autosomes. Except the sex chromosomes (X) and (Y) other chromosomes are the autosomes.

Back cross. The cross of a progeny individual with its parents is known as back cross.

Carrier. A heterozygous individual. An individual who possesses a mutant allele but does not express it in the phenotype because of a dominant allelic partner; thus, an individual of genotype Aa is a carrier of a if there is complete dominance of A on a.

Codominance. When both the alleles (dominant and recessive) are equally expressed in the hybrid, the phenomenon is known as codominance, e.g.

Dominant allele. An allele that expresses its phenotypic effect even when heterozygous with a recessive allele; thus if A is dominant over a; then AA and Aa have the same phenotype.

Genotype. The genetic makeup or constitution of an individual, with reference to the traits under consideration, usually expressed by a symbol, e.g., +, DD (tall), dd (short), etc

Lethal gene. A gene whose phenotypic effect is sufficiently drastic to kill the bearer.

Linkage group. All of the genes located physically on a given chromosome.

Mendelian ratio. A ratio of progeny phenotypes reflecting the operation of Mendel's laws.

Mendel's first law. The two members of a gene pair segregate from each other during meiosis; each gamete has an equal probability of obtaining either member of the gene.

Mendel's second law. The law of independent assortment; unlinked or distantly linked segregating genes pairs behave independently.

Phenotype. The appearance or discernible character of an individual, which is dependent on its genetic makeup usually expressed in words.

Genotype. All of the genes possessed by an individual constitute its **genotype.** There are two form of genotype:

homozygous. The union of gametes carrying identical alleles produces a homozygous genotype. A homozygote produces only one kind of gamete.

heterozygous. The union of gametes carrying different alleles produces a heterozygous genotype. Different kinds of gametes are produced by a heterozygote.

Wild type. The genotype or phenotype that is found in nature or in the standard laboratory stock for a given organism.

X linkage. The presence of a gene on the X chromosome but not on the Y.

X- and -Y linkage. The presence of a gene on both the X and Y chromosomes.

Y linkage. The presence of a gene on the Y chromosome but not on the X.