**Glossary of Genetic Terms**

[**Compiled by the Genetics Education Center**](http://www.kumc.edu/gec)**, University of Kansas Medical Center**

red line

[**A**](http://www.kumc.edu/gec/glossnew.html#A) **|** [**B**](http://www.kumc.edu/gec/glossnew.html#B) **|** [**C**](http://www.kumc.edu/gec/glossnew.html#C) **|** [**D**](http://www.kumc.edu/gec/glossnew.html#D) **|** [**E**](http://www.kumc.edu/gec/glossnew.html#E) **|** [**F**](http://www.kumc.edu/gec/glossnew.html#F) **|** [**G**](http://www.kumc.edu/gec/glossnew.html#G) **|** [**H**](http://www.kumc.edu/gec/glossnew.html#H) **|** [**I**](http://www.kumc.edu/gec/glossnew.html#I) **| J |** [**K**](http://www.kumc.edu/gec/glossnew.html#K) **|** [**L**](http://www.kumc.edu/gec/glossnew.html#L) **|** [**M**](http://www.kumc.edu/gec/glossnew.html#M) **|** [**N**](http://www.kumc.edu/gec/glossnew.html#N) **|** [**O**](http://www.kumc.edu/gec/glossnew.html#O) **|** [**P**](http://www.kumc.edu/gec/glossnew.html#P) **| Q |** [**R**](http://www.kumc.edu/gec/glossnew.html#R) **|** [**S**](http://www.kumc.edu/gec/glossnew.html#S) **|** [**T**](http://www.kumc.edu/gec/glossnew.html#T) **|** [**U**](http://www.kumc.edu/gec/glossnew.html#U) **|** [**V**](http://www.kumc.edu/gec/glossnew.html#V) **|** [**W**](http://www.kumc.edu/gec/glossnew.html#W) **|** [**X**](http://www.kumc.edu/gec/glossnew.html#X) **|** [**Y**](http://www.kumc.edu/gec/glossnew.html#Y) **|** [**Z**](http://www.kumc.edu/gec/glossnew.html#Z)

red line

**Amino acid sequence** -- the linear order of the amino acids in a protein or peptide.

**Artificial insemination** -- the placement of sperm into a female reproductive tract or the mixing of male and female gametes by other than natural means.

**Autosome** -- a nuclear chromosome other than the X- and Y-chromosomes.

**cDNA** -- complementary DNA produced from a RNA template by the action of RNA- dependent DNA polymerase.

**Chromosome** -- in the eukaryotic nucleus, one of the threadlike structures consisting of chromatin and carry genetic information arranged in a linear sequence.

**Clone** -- genetically engineered replicas of DNA sequences.

**Cloned DNA** -- any DNA fragment that passively replicates in the host organism after it has been joined to a cloning vector.

**Deletion** -- the loss of a segment of the genetic material from a chromosome.

**Deletion mapping** -- the use of overlapping deletions to localize the position of an unknown gene on a chromosome or linkage map.

**Disease** -- any deviation from the normal structure or function of any part, organ, or system of the body that is manifested by a characteristic set of symptoms and signs whose pathology and prognosis may be known or unknown.

**DNA fingerprint technique** -- a method employed to determine differences in amino acid sequences between related proteins; relies upon the presence of a simple tandem-repetitive sequences that are scattered throughout the human genome.

**DNA hybridization** -- a technique for selectively binding specific segments of single-stranded (ss) DNA or RNA by base pairing to complementary sequences on ssDNA molecules that are trapped on a nitrocellulose filter.

**DNA probe** -- any biochemical used to identify or isolate a gene, a gene product, or a protein.

**DNA sequencing** -- "plus and minus" or "primed synthesis" method, developed by Sanger, DNA is synthesized in vitro in such a way that it is radioactively labeled and the reaction terminates specifically at the position corresponding to a given base; the "chemical" method, ssDNA is subjected to several chemical cleavage protocols that selectively make breaks on one side of a particular base.

**Dominant** -- alleles that determine the phenotype displayed in a heterozygote with another (recessive) allele.

**Down syndrome** -- a type of mental deficiency due to trisomy (three copies) of autosome 21, a translocation of 21 or mosaicism.

**Dwarfism** -- conditions of short stature with adult height under 4'10" as adult, usually with normal intelligence and lifespan. Ehlers Danlos Syndrome connective tissue condition including problems with tendons, ligaments, skin, bones, cartilage, and membranes surrounding blood vessels and nerves. Symptoms include joint laxity, elastic skin, dislocations. Many forms: autosomal dominant, autosomal recessive, X-linked forms.

**Ethics** -- the study of fundamental principles which defines values and determines moral duty and obligation.

**Gene** -- a hereditary unit that occupies a certain position on a chromosome; a unit that has one or more specific effects on the phenotype, and can mutate to various allelic forms.

**Gene amplification** -- any process by which specific DNA sequences are replicated disproportionately greater than their representation in the parent molecules; during development, some genes become amplified in specific tissues.

**Gene map** -- the linear arrangement of mutable sites on a chromosome as deduced from genetic recombination experiments.

**Gene therapy** -- addition of a functional gene or group of genes to a cell by gene insertion to correct an hereditary disease.

**Genetic counseling** -- the educational process that helps individuals, couples, or families to understand genetic information and issues that may have an impact on them.

**Genetic linkage map** -- a chromosome map showing the relative positions of the known genes on the chromosomes of a given species.

**Genetic screening** -- testing groups of individuals to identify defective genes capable of causing hereditary conditions.

**Genetic variation** -- a phenotypic variance of a trait in a population attributed to genetic heterogeneity.

**Genome** -- all of the genes carried by a single gamete; the DNA content of an individual, which includes all 44 autosomes, 2 sex chromosomes, and the mitochondrial DNA.

**Genotype** -- genetic constitution of an organism.

**Germ cell** -- a sex cell or gamete (egg or spermatozoan).Haldane equation Haldane's law: the generalization that if first generation hybrids are produced between two species, but one sex is absent, rare, or sterile, that sex is the heterogamic sex.

**Hybridization** -- the pairing of a single-stranded, labeled probe (usually DNA) to its complementary sequence.

**Meiosis** -- the doubling of gametic chromosome number.

**Mitosis** -- nuclear division.

**mRNA** -- messenger RNA; an RNA molecular that functions during translation to specify the sequence of amino acids in a nascent polypeptide.

**Multifactorial** -- a characteristic influenced in its expression by many factors, both genetic and environmental.

**Mutation** -- process by which genes undergo a structural change.

**Probability** -- the long term frequency of an event relative to all alternative events, and usually expressed as decimal fraction.

**Sex determination** -- the mechanism in a given species by which sex is determined; in many species sex is determined at fertilization by the nature of the sperm that fertilizes the egg.

**Translation** -- the formation of a polypeptide chain in the specific amino acid sequence directed by the genetic information carried by mRNA.

**UNESCO** -- United National Educational, Scientific, and Cultural Organization.