

Genetics Vocabulary

Allele: One of the variant forms of a gene at a particular locus, or location, on a chromosome. Different alleles produce variation in inherited characteristics such as hair color or blood type. In an individual, one form of the allele (the dominant one) may be expressed more than another form (the recessive one). A gene pair.

dominant: A gene that almost always results in a specific physical characteristic, for example, a disease, even though the patient's genome possesses only one copy. (With a dominant gene, the chance of passing on the gene (and therefore the disease) to children is 50-50 in each pregnancy.)

recessive: A gene that produces little or no phenotypic effect when occurring in heterozygous condition with a contrasting allele and is expressed only when the determining gene is in the homozygous condition. (With a recessive gene, a disease can be "hidden" for several generations, until two recessive genes for the disease pair up.)

genotype: The genetic identity of an individual that does not show as outward characteristics.

phenotype: The observable traits or characteristics of an organism, for example hair color, weight, or the presence or absence of a disease. Phenotypic traits are not necessarily genetic.

homozygous: Possessing two identical forms of a particular gene, one inherited from each parent.

heterozygous: Possessing two different forms of a particular gene, one inherited from each parent.

chromosome: One of the threadlike "packages" of genes and other DNA in the nucleus of a cell. Different kinds of organisms have different numbers of chromosomes. Humans have 23 pairs of chromosomes, 46 in all: 44 autosomes and two sex chromosomes. Each parent contributes one chromosome to each pair, so children get half of their chromosomes from their mothers and half from their fathers.

DNA: (deoxyribonucleic acid) The chemical inside the nucleus of a cell that carries the genetic instructions for making living organisms

gene: The functional and physical unit of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein.

genetic code: The instructions in a gene that tell the cell how to make a specific protein. A, T, G, and C are the "letters" of the DNA code; they stand for the chemicals adenine, thymine, guanine, and cytosine, respectively, that make up the nucleotide bases of DNA. Each gene's code combines the four chemicals in various ways to spell out 3-letter "words" that specify which amino acid is needed at every step in making a protein.

To access other definitions related to genetics, listen to a detailed explanation, view an illustration, or to get related terms go to the following web site:

<http://www.genome.gov/glossary.cfm>