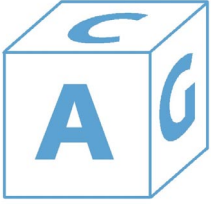



Genome games glossary



Underlined words can be found elsewhere in the glossary

 Where you see this symbol, follow the link for more information

Allele: One member of a pair or series of genes that occupy a specific position on a specific chromosome. (<http://dictionary.reference.com/>)

Amino acid: Any of a class of 20 molecules that are combined to form proteins in living things. The sequence of amino acids in a protein and hence protein function are determined by the genetic code. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Aryan race: A member of the Indo-European-speaking people first living in Iran and later entering India and conquering the people living there. (<http://www.wordcentral.com/>)

In Nazism and neo-Nazism, a non-Jewish Caucasian, especially one of Nordic type, supposed to be part of a master race. (<http://dictionary.reference.com/>)

See also **Eugenics**

Asexual reproduction: Reproduction in which an organism produces one or more clones of itself, such as by fission or budding. (<http://biotech.icmb.utexas.edu/search/dict-search.html>)

Biotechnology: The use of microorganisms, such as bacteria or yeasts, or biological substances, such as enzymes, to perform specific industrial or manufacturing processes. Applications include the production of certain drugs, synthetic hormones, and bulk foodstuffs as well as the bioconversion of organic waste and the use of genetically altered bacteria in the cleanup of oil spills. (<http://dictionary.reference.com/>)

Blastocyst: See **Blastula**

Blastula: An early embryo typically having the form of a hollow fluid-filled rounded cavity bounded by a single layer of cells. (<http://www.wordcentral.com/>)

Cancer: Diseases in which abnormal cells divide and grow unchecked. Cancer can spread from its original site to other parts of the body and can also be fatal if not treated adequately. (www.genome.gov/glossary.cfm)

Carbon Copy: Also known as CC, Carbon copy was the first cloned cat. She was cloned by a team at Texas A&M University in February 2002.

 (http://www.bbc.co.uk/science/genes/gene_safari/clone_zone/pet02.shtml)

Carrier: An individual that carries one gene for a particular recessive trait. A carrier does not express the trait but, when mated with another carrier, can produce offspring that do. (<http://dictionary.reference.com/>)

Cells: One of the tiny units that are the basic building blocks of living things, that carry on the basic functions of life either alone or in groups, and that include a nucleus and are surrounded by a membrane. (<http://www.wordcentral.com/>)

Chromosomes: 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. (www.genome.gov/glossary.cfm)

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Clones: An exact copy made of biological material such as a DNA segment (e.g., a gene or other region), a whole cell, or a complete organism. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Cloning: Using specialized DNA technology to produce multiple, exact copies of a single gene or other segment of DNA to obtain enough material for further study. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

CopyCat: See **Carbon Copy**

Cryogenesis: The science concerned with the production and effects of very low temperatures. (<http://cancerweb.ncl.ac.uk/omd/index.html>)

Designer babies: Popular press term for selecting which babies will be born on the basis of their genetics.  (http://www.bbc.co.uk/science/genes/gene_safari/wild_west/designer_babies.shtml)

Detective: A person, usually a member of a police force, who investigates crimes and obtains evidence or information. (<http://dictionary.reference.com/>)

Double helix: The coiled structure of double-stranded DNA in which strands linked by hydrogen bonds form a spiral configuration, with the two strands oriented in opposite directions. (<http://dictionary.reference.com/>)

DNA: Deoxyribonucleic acid. The chemical inside the nucleus of a cell that carries the genetic instructions for making living organisms. (www.genome.gov/glossary.cfm)

DNA bank: A service that stores DNA extracted from blood samples or other human tissue. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

DNA database: See **DNA bank**

DNA detectives: See **Detective**

DNA fingerprint: An individual's unique sequence of DNA base pairs, determined by exposing a sample of the person's DNA to molecular probes. DNA fingerprints are often used as evidence in criminal law cases. Also called genetic fingerprint. (<http://dictionary.reference.com/>)

DNA fingerprinting: A method of identification (as for forensic purposes) by determining the unique pattern of a person's DNA. (<http://www.wordcentral.com/>)

See also **DNA fingerprint**

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. (www.genome.gov/glossary.cfm)

Dolly: Dolly was the first mammal to be cloned from an adult cell. She was created by scientists at the Roslin Institute in Edinburgh in 1996.

 (http://www.bbc.co.uk/science/genes/gene_safari/factfiles/dolly.html)

Egg cell: A female gamete; an ovum. (<http://dictionary.reference.com/>)

See also **Gamete**

Embryo: An organism at any time before full development, birth, or hatching. (<http://dictionary.reference.com/>)

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Eugenics: The study of improving a species by artificial selection; usually refers to the selective breeding of humans. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Evolution: Change in the genetic composition of a population during successive generations, as a result of natural selection acting on the genetic variation among individuals, and resulting in the development of new species. (<http://dictionary.reference.com/>)

Extinct species/Extinction: The death of an entire species. (<http://biotech.icmb.utexas.edu/search/dict-search.html>)

Forensic: Relating to the use of science or technology in the investigation and establishment of facts or evidence in a court of law. (<http://dictionary.reference.com/>)

Forensic evidence: See **Forensic**

Forensic science: See **Forensic**

Frankenstein: The fictional Swiss scientist who was the protagonist in a gothic novel by Mary Wollstonecraft Shelley; he created a monster from parts of corpses. (<http://dictionary.reference.com/>)

Fraternal twin: Either of two twins who developed from two separate fertilized eggs. (<http://dictionary.reference.com/>)

Gamete: A mature sex cell that usually has half of the normal number of chromosomes and is capable of uniting with a gamete of the opposite sex to begin the formation of a new individual. (<http://www.wordcentral.com/>)

Genes: 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. (www.genome.gov/glossary.cfm)

Gene pool: The collective genetic information contained within a population of sexually reproducing organisms. (<http://dictionary.reference.com/>)

Gene therapy: An experimental procedure aimed at replacing, manipulating, or supplementing nonfunctional or malfunctioning genes with healthy genes. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Genetic counselling: A short-term educational counselling process for individuals and families who have a genetic disease or who are at risk for such a disease. Genetic counselling provides patients with information about their condition and helps them make informed decisions. (www.genome.gov/glossary.cfm)

Genetic engineering: Altering the genetic material of cells or organisms to enable them to make new substances or perform new functions. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Genetic testing for disease: Analysing an individual's genetic material to determine predisposition to a particular health condition or to confirm a diagnosis of genetic disease. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Genomes: An organism's genetic material. (<http://dictionary.reference.com/>)

Genotype: The genetic makeup, as distinguished from the physical appearance, of an organism or a group of organisms. (<http://dictionary.reference.com/>)

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Gregor Mendel: An Austrian monk and botanist who lived from 1822 to 1884; his breeding experiments on garden peas and subsequent formulation of the laws of heredity formed the basis for the field of genetics. (<http://biotech.icmb.utexas.edu/search/dict-search.html>)

Hetrozygote: Possessing two different forms of a particular gene, one inherited from each parent. (www.genome.gov/glossary.cfm)

Homozygote: Possessing two identical forms of a particular gene, one inherited from each parent. (www.genome.gov/glossary.cfm)

Human Genome Project: An international research effort to map and identify the role of all genes in the human genome. (<http://dictionary.reference.com/>)

Hybrid: The offspring of genetically dissimilar parents or stock, especially the offspring produced by breeding plants or animals of different varieties, species, or races. (<http://dictionary.reference.com/>)

Identical twins: Twins derived from the same fertilized ovum that at an early stage of development becomes separated into independently growing cell aggregations, giving rise to two individuals of the same sex, identical genetic makeup, and closely similar appearance. (<http://dictionary.reference.com/>)

Immortality: Living or lasting forever. (<http://www.wordcentral.com/>)

Implantation: The process by which a fertilized egg implants in the uterine lining. (<http://dictionary.reference.com/>)

Inheritance: The process of genetic transmission of characteristics from parents to offspring. (<http://dictionary.reference.com/>)

IVF: In vitro fertilisation. (Literally, "in glass") Fertilization outside the body in a laboratory; the term "test tube baby" is inaccurate since fertilization occurs in a small circular dish, not a test tube. (<http://biotech.icmb.utexas.edu/search/dict-search.html>)

Karyotype: A photomicrograph of an individual's chromosomes arranged in a standard format showing the number, size, and shape of each chromosome type; used in low-resolution physical mapping to correlate gross chromosomal abnormalities with the characteristics of specific diseases. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Locus: The position that a given gene occupies on a chromosome. (<http://dictionary.reference.com/>)

Microscope: A piece of laboratory equipment that is used to magnify small things that are too small to be seen by the naked eye, or too small for the details to be seen by the naked eye, so that their finer details can be seen and studied. (<http://biotech.icmb.utexas.edu/search/dict-search.html>)

Mutation: A permanent structural alteration in DNA. In most cases, DNA changes either have no effect or cause harm, but occasionally a mutation can improve an organism's chance of surviving and passing the beneficial change on to its descendants. (www.genome.gov/glossary.cfm)

Nucleus: The central cell structure that houses the chromosomes. (www.genome.gov/glossary.cfm)

Petri dish: A shallow circular dish with a loose-fitting cover, used to culture bacteria or other microorganisms. (<http://dictionary.reference.com/>)

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Pharm animals: Popular press term for animals that have been genetically engineered to produce medicines in their milk or urine. (http://www.bbc.co.uk/science/genes/gene_safari/pharm/a_pharming.shtml)

Pharming: Popular press term for the production of genetically engineered animals that produce medicines in their milk or urine. (http://www.bbc.co.uk/science/genes/gene_safari/pharm/a_pharming.shtml)

Phenotype: The visible characteristics of a plant or animal that result from the combined effects of the genes and the environment. (<http://www.wordcentral.com/>)

Protein: A large molecule composed of one or more chains of amino acids in a specific order; the order is determined by the base sequence of nucleotides in the gene that codes for the protein. Proteins are required for the structure, function, and regulation of the body's cells, tissues, and organs; and each protein has unique functions. Examples are hormones, enzymes, and antibodies. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Recessive: A gene which will be expressed only if there are 2 identical copies or, for a male, if one copy is present on the X chromosome. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Reproductive cloning: making a full living copy of an organism. (<http://dictionary.reference.com/>)

RNA: Ribonucleic acid. A chemical found in the nucleus and cytoplasm of cells; it plays an important role in protein synthesis and other chemical activities of the cell. The structure of RNA is similar to that of DNA. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)

Saviour siblings: Popular press term for embryos selected to be born to help save a sibling suffering from a particular disorder.



(http://www.bbc.co.uk/science/genes/gene_safari/wild_west/designer_babies.shtml)

Selective breeding: Combining the desirable traits of at least two genotypes, in order to breed new varieties. (<http://www.bbc.co.uk/genes/>)

Spare organs: In the future, it may be possible to create spare organs from stem cells for replacement in the case of damage or disease. (http://www.bbc.co.uk/science/genes/gene_safari/clone_zone/human_cloning04.shtml)

Sperm: A reproductive cell produced by the male of an animal species which, when united with an egg (of the same species), results in conception and the development of an embryo. (<http://biotech.icmb.utexas.edu/search/dict-search.html>)

Stem cells: An undifferentiated cell whose daughter cells may differentiate into other cell types. (<http://dictionary.reference.com/>)

Test tube: A clear, cylindrical glass tube usually open at one end and rounded at the other, used in laboratory experimentation. (<http://dictionary.reference.com/>)

Test tube babies: Conceived by or developed from fertilization in laboratory apparatus or by artificial insemination. (<http://dictionary.reference.com/>)

The term "test tube baby" is inaccurate since fertilization occurs in a small circular dish, not a test tube. (<http://biotech.icmb.utexas.edu/search/dict-search.html>)

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Therapeutic cloning: Can create cloned human cells, but not whole embryos beyond the 14-day stage. May be used to better understand human development, provide resources for stem cell therapy research, and develop new treatments for disease.

 (http://www.mrc.ac.uk/pdf_therapeutic_cloning.pdf)

Transgenic: Of, relating to, or being an organism whose genome has been altered by the transfer of a gene or genes from another species or breed. (<http://dictionary.reference.com/>)

Transgenic animal: See **Transgenic**.

Wildtype: The typical form of an organism, strain, gene, or characteristic as it occurs in nature, as distinguished from mutant forms that may result from selective breeding. (<http://dictionary.reference.com/>)

Xenotransplantation: See **Xenograft**

Xenograft: Tissue or organs from an individual of one species transplanted into or grafted onto an organism of another species, genus, or family. A common example is the use of pig heart valves in humans. (http://www.ornl.gov/sci/techresources/Human_Genome/glossary/)