

Adenine - /ad·e·nine/ - One of four bases found in the nucleotides of the DNA molecule represented by the letters A, T, G, and C. Adenine is the “A”. The others are Thymine, Guanine, and Cytosine. When these bases form the base pairs which are the rungs of the DNA ladder, Adenine always pairs with Thymine (A-T or T-A) and Guanine always pairs with Cytosine (G-C or C-G). See Base Pair and Nucleotide.

Admixture - /ad·mix·ture/ - Genetic term for the result of intermixing by two or more population groups. In the case of the BioGeographical Ancestry Test, this would be reported as the detection of minority genetic content from intermixing in the past of individuals of Indo-European, East Asian, Native American, and Sub-Saharan African ancestry. In many cases involving Genetic Genealogy projects, this admixture is at minority levels in the genome and may not be readily apparent in the person’s phenotype and not always reliably detectable with the DNA tests currently available. See BioGeographical Ancestry Test and Phenotype.

AfricanAncestry.com – A DNA testing company specializing in DNA testing of people of African descent. See Appendix B for addresses and telephone number.

Allele - /al·lele/ - One of the variant, alternative forms of a gene, nucleotide, or non-gene DNA sequence pattern, at a particular locus (location), on a chromosome. Different alleles, if located in a gene, produce variations in inherited characteristics such as hair color or blood type or even diseases. In an individual, one allele (the dominant form) may be expressed more than another form (the recessive one). Different alleles of DNA sequences when not located in genes do not produce variations in inherited characteristics or diseases. Mutations when they occur outside the gene areas do not affect the survival, function, or characteristics of the organism and thus are easily passed along in the DNA replication process for many generations with no effect on the organism. But these different alleles (different nucleotides or different DNA sequence patterns) found at certain known locations in the genome DNA sequence can be used to easily tell one DNA genome from another. The term allele is commonly used in Genetic Genealogy in referring to test results in non-gene areas of the genome to mean the sequenced base (A, T, G, or C) letter character symbol of a DNA nucleotide at a specific nucleotide known location in the genome DNA sequence, the specific DNA sequence pattern at a specific known location in the genome DNA sequence, or the numeric value of the number of repeats of a particular STR repeating DNA sequence pattern at a certain known location in the genome DNA sequence. For Genetic Genealogy Y chromosome DNA testing genetic markers the alleles are expressed as numbers. See DYS, SNP, STS, Mini-Satellite, Micro-Satellite, and STR.

Allele Frequency - /al·lele fre·quen·cy/ - The frequency of occurrence of a particular allele in the total population. For example: If 500 out of 1000 males tested typically have the allele value of 24 at Y chromosome marker DYS 390, then the allele frequency for the value of 24 at DYS 390 is 0.50. See Allele and DYS.

Alu - /pronounced ah-loo/ - A repetitive DNA sequence found hundreds of thousands of times at various locations in the autosomal chromosomes in the human genome and in some cases it is also found in the Y chromosome. The sequence is about 300 base pair long. See YAP.

Amel -/a-mel/ – Shorthand word for Amelogenin. The term AMEL refers to a DNA test used, typically as part of a forensic CODIS test, to determine the person’s sex by detecting which sex chromosomes are present in the DNA sample. The test reports XX for female and XY for male. See Sex Chromosome and CODIS.

Amelogenin -/a-mel-o-gen-in/ - Most frequently used human DNA sexing technique. More commonly known by its shorthand name of Amel. See Amel.

AMH – Acronym for Atlantic Modal Haplotype. See Atlantic Modal Haplotype (AMH) and Western Atlantic Modal Haplotype (WAMH).

Amino Acids - /a-mi-no ac-ids/ - A group of 20 different kinds of small molecules made of three bases, i.e., triplet combinations. Triplet base combinations of the bases of A, T, G, and C, such as CAG which codes for the amino acid named Glycine. The various triplet base combinations coding for amino acids are linked together in long chains in gene areas of the DNA which code for proteins. Amino acids are often referred to as the “building blocks” of proteins. See Base, Codon, and Protein.

Amplification - /am-pli-fi-ca-tion/ - An increase in the number of copies of a specific DNA fragment or the entire DNA molecule. See Polymerase Chain Reaction (PCR).

Ancestor - /an-ces-tor/ - One from whom a person descends. See Antecedent.

Ancestor of Interest - /an-ces-tor of interest/ - An ancestor for whom you are trying to learn or deduce his genetic markers, possibly to compare to your own or to that of someone else in your project. Using genealogical and reverse genealogical techniques and knowing the mode of inheritance of the DNA genetic markers you wish to test for, you track down one or more of target ancestor’s descendants who may be carrying the DNA you are interested in having tested in order to try and have them join your project and be tested for your project to provide the haplotype data needed to allow you to deduce the Ancestor of Interest’s haplotype, i.e., the Ancestral Haplotype of those descendants. See Mode of Inheritance, Reverse Genealogy and Ancestral Haplotype. See Figure 5 in Appendix A.

Ancestral - /an-ces-tral/ - Relating to or inherited from an ancestor. See Ancestor.

Ancestral Clan Father - See Paternal Line Clan.

Ancestral Clan Mother – See Maternal Line Clan.

Ancestral Haplotype – /an·ces·tral hap·lo·type/ - The haplotype of the most recent common ancestor from which the current haplotypes all descended from, although the descendants probably have some differences or mutations. The parent or original haplotype for the descendant line being studied. For example in a Y-DNA surname project, the ancestral haplotype for males can sometimes be deduced by careful analysis of haplotypes of the various descendants, especially if there are two or three surviving direct but separate male lines of descendants from the original common male ancestor who can be tested today. See Ancestral Result, Haplotype, MRCA, and Triangulation. Compare to Modal Haplotype. See Figure 5 and 7 in Appendix A.

Ancestral Informative Marker (AIM) – /an·ces·tral in·for·ma·tive marker/ - A genetic marker which because of a high frequency of occurrence in certain population groups is indicative of the geographic or population group origin of that portion of the DNA in the genome of the person tested.

Ancestral Result – /an·ces·tral re·sult/ - Term used by FamilyTreeDNA.com which is another term for the Ancestral Haplotype. See Ancestral Haplotype. Compare to Modal Haplotype. See the discussion titled “The Ancestral Result” in FamilyTreeDNA.com’s October 2003 Facts & Genes newsletter. Here is the direct URL to that issue: http://www.familytreedna.com/facts_genes.asp?act=show&nk=2.9 See Appendix B.

Ancestry /an·ces·try/ – A person’s line of descent from an ancestor. See Ancestor.

AncestrybyDNA.com – An online division of DNAPrint™ which markets the DNAPrint™ BioGeographical Ancestry DNA test. See Appendix B for addresses and telephone number.

Antecedent – /an·te·ced·ent/ - A preceding event, condition, or cause. Used in genealogical and genetic work to describe those who came before the subject who is under study. See Ancestor and Ancestry.

Anthropology - /an·thro·pol·o·gy/ - The science of human beings. Especially the study of human beings in relation to distribution, origin, classification, and relationship of races, physical characteristics, environmental and social relations, and culture.

Anthrogenealogy - /an·thro·ge·ne·al·o·gy/ - A word coined by FamilyTreeDNA.com. The science of genealogy by genetics. Utilizing molecular biology to trace a lineage beyond the limits of historical records. See Appendix B.

Anthrogenealogist - /an·thro·ge·ne·al·o·gist/ - A person engaged in Anthrogenealogy. See Anthrogenealogy.

Atlantic Modal Haplotype (AMH) - /at·lan·tic mod·al hap·lo·type/ - A descriptive term used to characterize the most common haplotype in parts of Europe. The DYS markers and STR allele repeat values for the AMH are: DYS388=12, DYS390=24, DYS391=11, DYS392=13, DYS393=13, and DYS394 (aka DYS19) =14. Also known as the Western Atlantic Modal Haplotype (WAMH). Compare Cohanim Modal Haplotype.

Autosomal Chromosomes - /au·to·so·mal chro·mo·somes/ - The 44 non-sex determining chromosomes which are arranged in 22 pairs or sets. Humans have 23 pairs of chromosomes. The first 22 pairs are the autosomal chromosomes. They are numbered from largest to smallest. The 23rd pair is the sex determining chromosome pair, i.e., the X and Y chromosomes. Compare Sex Chromosome and Monosome. See Autosome, X chromosome, and Y chromosome.

Autosomal DNA - /au·to·so·mal D·N·A/ - The non-sex determining chromosomes. See Autosomal Chromosomes.

Autosome - /au·to·some/ - Any chromosome other than a sex determining chromosome. Humans have 22 pairs of autosomes. Autosomes are chromosomes not involved in sex determination. The human genome contains 46 chromosomes. These 46 chromosomes are also called the diploid. The 46 chromosomes are divided into two groups, i.e., the 22 homologous pairs of autosomes numbered by size from 1-22 and 1 pair of sex determining chromosomes (the X and Y chromosomes ... XX = female and XY = male), which is numbered the 23rd chromosome pair. Note: The Y sex chromosome is much smaller and very different than the X sex chromosome and thus in males which are XY in the 23rd sex determining chromosome pair, this XY pair of chromosomes is non-homologous. Compare to Sex Chromosome and Monosome. See X chromosome, Y chromosome, Diploid, and Homologous.

Back Mutation – A mutation which is in the opposite direction of a prior mutation and effectively reverses or cancels out a prior mutation. See Mutation.

Base - A small chemical molecule which is the information portion of the nucleotides in DNA. A DNA nucleotide is made of a molecule of sugar, a molecule of phosphoric acid, and a molecule called a base. The base is the information data bit in the nucleotide. Two bases linked together as a base pair forms a rung of the DNA ladder shaped double helix molecule. The chemical bases are: Adenine, Thymine, Guanine, and Cytosine. These bases are represented by the letters A, T, G, and C, respectively. When these bases form the base pairs which are the rungs of the DNA ladder, Adenine always pairs with Thymine (A-T or T-A) and Guanine always pairs with Cytosine (G-C or C-G). The bases are further divided into two classes by chemical makeup. Adenine and Guanine are chemically known as purines. Thymine and Cytosine are chemically known as pyrimidines. See Base Pair, Nucleotide, Purine, and Pyrimidine. See Figure 2 in Appendix A.