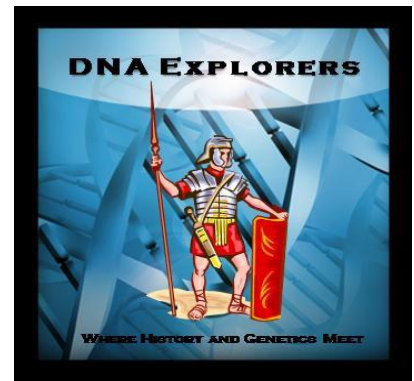


DNA Explorers
Fountaindale Public Library
Genetic Genealogy Presentation
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DNA terminology and a summary of testing companies are provided below.

DNA TERMINOLOGY

Y-DNA: Paternal DNA that is passed down from father to son and often follows surnames. Y-DNA is found in the *nucleus* of the cell (Figure 1). This DNA is used to trace only *one* paternal lineage within the family tree.

MtDNA: Maternal DNA that is passed down from a mother to all her children. MtDNA is “mitochondrial DNA” found *outside the nucleus* of cell in structures that are called mitochondria, which resemble tiny kielbasas (Figure 1). They provide energy for the cell. This DNA is used to

trace only *one* maternal lineage within the family tree. There are three regions tested: HVR I, HVR II and the Coding Region. All three regions together make up the Full Mitochondrial Sequence (FMS) (Figure 2).

Autosomal DNA: DNA that is passed down to children from both parents and resides in the nucleus of the cell. This type of DNA is used to trace all lines of the family tree to 4-5th cousins. Results used for a “cousins” test at 23 and me, AncestryDNA and FamilytreeDNA.

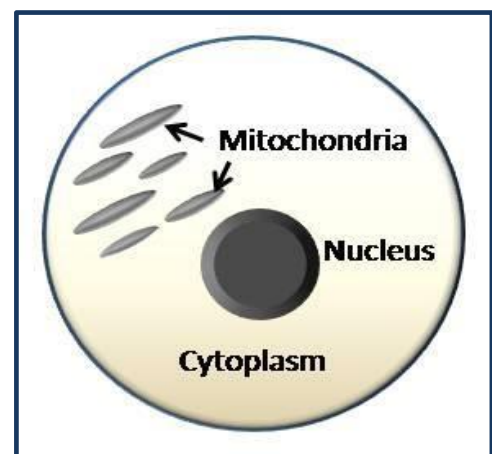


Figure 1. Human cell

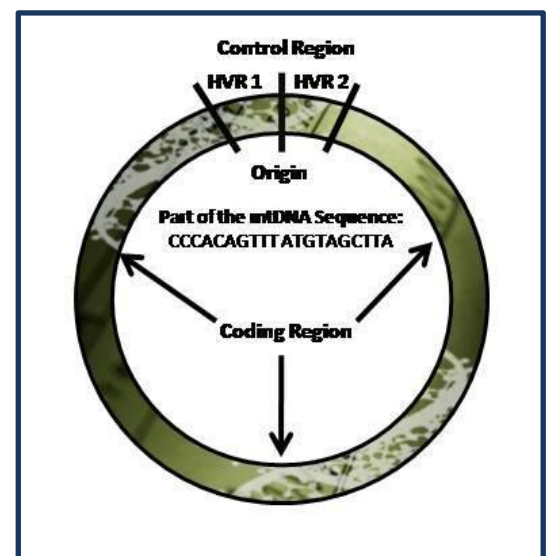


Figure 2. MtDNA

Family Tree DNA (FTDNA): Located in Texas, FTDNA has the largest direct to consumer DNA database of Y-DNA and mtDNA in the world. They provide Y-DNA tests from 37 to 111 markers. Basic test is 37 markers, mid-level test at 67 markers, high level test at 111 markers. Those interested in genealogical research should test at least 37 or 67 markers. Maternal lineage tests include basic (HVR I), mid-level (HVR I and HVR II) and advanced (Full Mitochondrial Sequence - FMS) (See Figure 2 on page 1.). The minimum test recommended is the Mid-level, but the FMS is best and last test you will need to take. The FMS test provides the best results and subgroup of your haplogroup. FTDNA also offers Family Finder the autosomal DNA test that looks at all lineages (a cousins test). A relatively new test is the Big-Y which tests a large part of the Y chromosome (for men only) and reveals many changes in the DNA which are beneficial for the genetic family tree. There are multiple tests to order and several are good for advanced testing. Website (www.familytreedna.com)

23 and Me: Located in California, 23 and me provide an all-in-one test service that includes: paternal and maternal ancestry, relative finder and percentage Neanderthal. Health risks results have been suspended. Although you will not receive marker results for your paternal and maternal tests you will find out your subgroup. There is also a global population break down of your autosomal DNA. The Relative Finder portion will show your matches to potential cousins in their database. There is only one test to order. Website (www.23andme.com)

Ancestry DNA: It is not know which lab AncestryDNA uses. Ancestry DNA is the DNA section of Ancestry.com. Ancestry DNA is now limited to autosomal testing to find relatives along all branches of the family tree for a couple of generations/cousins. The autosomal testing provides a limited ethnicity and geographical breakdown. The advantage of AncestryDNA is Ancestry's genealogical database. There is only one test to order. Website (www.dna.ancestry.com)