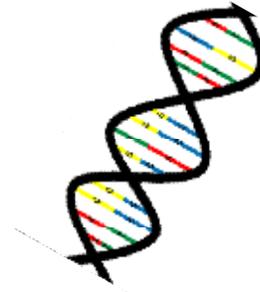


Introduction to DNA for Genealogy

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DNA and traditional genealogy work together to identify our ancestors and to tell their stories. We need to understand DNA, which test to take, and which company to use. This presentation will answer basic questions and identify terms we need to know. It will also introduce creating a testing plan and tools available.

The Questions

What is being tested? DNA from cells in our mouth. The DNA is located in two locations within our cells – the mitochondria and our chromosomes. Mitochondrial DNA is passed from a mother to all of her children. Chromosomes are inherited from both parents. We have 23 pairs, one set from each parent. There are 22 numbered pairs called autosomes. The 23rd pair are the sex chromosomes and determine our gender.

How is the test taken? DNA is collected by either spitting into a tube or scraping the cheek. Spitting can be hard for the elderly or others. Follow the directions which come with the collection kit. Typically you will be asked to not eat, drink, or smoke for 30 minutes prior to collecting the sample.

Why take a DNA test? Why not? We may be curious about our ethnicity, our health, or who our cousins are. We may have genealogical questions to answer or brick walls to tear down. We may have a known adoption and biological parents to identify.

There are also several reasons not to take a DNA test. We may need more information before deciding. We may have privacy concerns. We may suspect family secrets. We may know the family secrets and want to keep them such.

Whatever our reasons, everyone has the right to say yes or say no to taking a DNA test. We do not have the right to anyone else's DNA or DNA test results. If we are concerned about secrets, we need to be aware that our relatives may test. If we are concerned about privacy, we should read each company's privacy policy and terms of service. There are ways to not share our results with others – privacy settings.

If we are still undecided, there are several books, videos, and movies created to tell others' DNA stories.

Who should test? Anyone who wants to test, understands the possibilities, and can legally consent should take a DNA test. Since each descendant only receives half of each parent's DNA, it is important to test the oldest living generation, especially if that is you.

When to test? Now. As soon as your target tester says yes. Or, when your test is on sale. DNA testing companies typically have sales for Christmas, Mother's Day, Father's Day, and around major genealogy conferences.

DNA testing is more powerful when it is combined with traditional genealogy to answer specific questions about our ancestors and relatives. The specific question will determine who should test, what test they should take, and which company to test with. A testing plan should be created and used.

Which test do I take? It depends upon your why and/or your question. There are three types of DNA tests: autosomal, mitochondrial, and Y-DNA. An autosomal test can be taken by anyone and includes DNA from all of your ancestors back to about your 3rd great-grandparents. A mitochondrial test can be taken by both sexes. It reveals information only on your direct maternal line. A Y-DNA test can only be taken by males. It reveals information on your direct paternal line and can provide matches on that line. Do not overlook the fact that females have fathers, brothers, uncles, and male cousins.

Where do I test? There are at least 25 DNA testing companies. Which company depends upon your why and/or your question. Your physical location can determine which companies can accept your DNA sample. Not all companies do all types of DNA testing. Some companies are geared toward different ethnicities. The cost of taking the test varies by company and type of test. Some companies do not compare you to other test takers.

Some companies allow for downloading of DNA information. Some companies allow for uploading of DNA information. Others do not. The person to answer your question may have tested with a different company. Downloading and uploading reduces the need to take multiple autosomal tests.

What do the results look like? It depends upon which test and which company exactly how the test results look.

For mitochondrial tests, the results will be a combination of letters and numbers called a haplogroup. Matches are provided but your common ancestor may be over 500 years ago.

For Y-DNA tests, a predicted or confirmed haplogroup will be provided along with matches. Your matches may or may not share your surname.

For autosomal DNA, you will be provided an ethnicity estimate. If you allowed matching, you will also receive a list of probable relatives. Each company will have their own set of tools to help you analyze your results.

What Do I Do With the Results? Enjoy them. Argue with them. Analyze them. Did they answer the question? Did they reveal secrets to explore? Learn more from the DNA companies' websites, genealogy blogs, and social media. There are professional genealogists who specialize in DNA.

Terms to Know

centiMorgans (cM) The way DNA is measured.

Endogomy When you and relative are related in more than one way. If two brothers marry two sisters, their children are double cousins. More than one relationship means you may share more DNA than any one relationship would predict. It also means your shared ancestor may be more distant than expected.

Estimate The definition of estimate is “to judge tentatively or approximately the value, worth, or significance.”¹

Ethnicity Estimate The DNA testing company's estimate of which world populations your DNA matches.

Half Relationship When two people only share one person in an ancestral couple. They can share either the husband or the wife. Half-siblings share one parent. Half first cousins share on grand-parent.

Raw Data A computer file that you download from one DNA testing company to share with another DNA testing company, GedMatch.com, or your medical provider.

Removed Relationship When you and your cousin have a different number of generations to your shared ancestor/ancestral couple. A grandson and great-grandson are 1st cousins once removed. A grandson and 2nd great-granddaughter are 1st cousins twice removed.

¹ Merriam-webster.com

Analysis Tools

AutoClusters Separates your matches into groups of individuals that share similar DNA.

Chromosome Browser Visual of where you and a match or group of matches shares DNA on each chromosome.

GedMatch.com It is not a DNA testing company. It analyzes the raw data that is uploaded to its website. It provides ethnicity estimates, matching, and analysis tools. It is used for cold cases and by law enforcement. If you have privacy concerns do not use this site.

Shared cM Project Relationship chart that indicates how many centiMorgans a specific relationship is expected to share. Provides an average and a range.

Shared Matches Indicates if two of your matches share DNA. It may not be the same DNA they each share with you.

Thru Lines from Ancestry Reviews online trees to predict how you and a match are related. Be skeptical. Prove or disprove.

Theory of Family Relativity from MyHeritage Reviews online trees and their historical record collections to predict how you and a match are related. Be skeptical. Prove or disprove.

Resources

[Ancestry.com](#) learning center and [ancestry.com/dna](#)

[FamilySearch](#) – [familysearch.org/home/dna-testing](#). No sign in required.

[International Society of Genetic Genealogy Wiki](#) – [isogg.org/wiki](#)

[MyHeritage.com](#) – [myheritage.com/dna](#)

[Extended Family Chart](#) from Midwest Genealogy Center

Professional genealogists specializing in DNA to learn from:

Blaine Bettinger – [The Genetic Genealogist](#)

Cece Moore – [The DNA Detectives](#)

Diahan Southard – [Your DNA Guide](#)

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