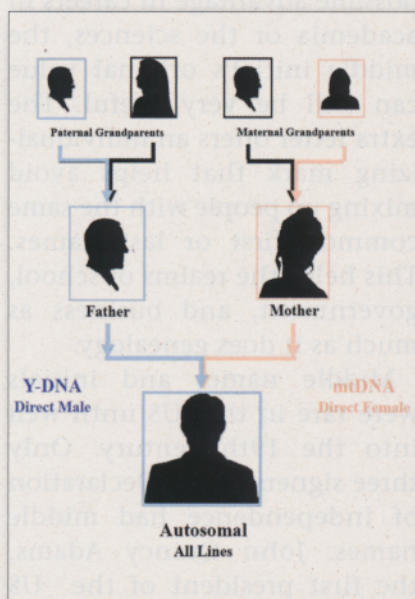


Understanding the Basics of DNA Testing For Your Family History

DNA has become so familiar to genetic genealogists. We chat about MRCA, haplogroups, mutation rates, SNPs, centiMorgans, and segments that are IBD versus IBS. Yet some of us are left scratching our heads, afraid to admit we don't even know what the letters D-N-A stand for.

DNA, or Deoxyribonucleic acid, is considered the blueprint from which your body is built. If you stretched out the DNA from just one cell, it would be six feet long. Because your body contains 100 trillion cells, your DNA is about a billion miles long. It could reach about 10 times to the sun, yet your DNA is only 50 trillionths of an inch wide.



(Image courtesy of author)

Your DNA is a genetic record of your family tree, since every bit of your genome was passed down in your family before it ended up in you. Y-DNA and mtDNA were handed down intact along the

There are three kinds of DNA used in genetic genealogy:

- **Y-DNA** is passed intact along the exclusively male line of the family, like the family name. If two men share the same Y-DNA, they have a common ancestor along the direct male line of their families. Y-DNA testing is popular among male adoptees searching for their birth names. This test does not apply to women.
- **Mitochondrial DNA (mtDNA)** is passed intact along the exclusively female line of a family. Both men and women inherit their mtDNA from their mothers; only women pass it on to the next generation. If two people share the same mtDNA, they have a common ancestor along the direct female line of their families. Both men and women are eligible for this test.
- **Autosomal DNA** is passed along all lines of a family, direct male, direct female, and mixed gender. If two people share autosomal DNA, they have a common ancestor, but without further analysis, it is impossible to know along which line of the family their connection occurred.

generations of the direct male lines and direct female lines of your family, while autosomal DNA is handed down along all lines of your family. Each of your parents contributed half of your autosomal DNA, each of your grandparents contributed a quarter of it, each of your great grandparents an eighth, and so on. For autosomal DNA, the rule of thumb is that the further back your connection with an ancestor, the smaller the amount of DNA he probably contributed. Some remote ancestors may not have contributed any autosomal DNA to your genome.

Fortunately, your ancestors passed their DNA down to many other descendants, not just to you. The purpose of a DNA test is to identify these other descendants, based on what kind and how much DNA they have in common with you. This is the "genetic" part of genetic genealogy.

Since DNA cannot tell you where you might connect with them, you must compare family pedigrees with your "matches" to find out. This is the "genealogy" part of genetic genealogy.

Of course, DNA analysis can be much more complicated, but these basic definitions are what you need to get started. Now you can say that at least you know how to spell D-N-A. ☪☪



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