

Genetic Genealogy – *year's ago, the double helix of DNA was an impenetrable scientific mystery, now its dynamic genealogical tool.*

More genealogists than ever before are turning to DNA testing to explore their family history. In addition to traditional Y-DNA and mitDNA tests, which examine your paternal and maternal lines, testing companies now offer autosomal DNA testing which lets you explore where your ancestors came from, and third-party sites let you do even more once you have your DNA results - you can **connect with distant cousins**, because we have many more distant cousins than close relatives, and find your **'ethnicity'**...

Y-chromosome (Y-DNA) passed on by a father to his sons and usually follows the inheritance of surnames, most favoured by **One-Name studies groups**, but females will need to find a suitable candidate for testing such as their father, brother, uncle or cousin.

Mitochondrial DNA (mitDNA) passed on by a mother to both her sons and daughters, but only females can pass on their mtDNA to the next generation. Not so easy to use mtDNA testing for some genealogy because the surname changes with each generation making it more difficult to identify cousins for comparison purposes.

Autosomal DNA (atDNA) the 22 non-sex chromosomes used to determine your ancestry by identifying the geographical location of your ancestors, each company checks your atDNA, (its more accurate name is 'admixture testing') with their DNA results from contemporary populations who live in regions that populate their reference databases, and this will enable them to 'estimate' the person's **'ethnicity'**

Step1. Check out the testing labs, the available [offers](#) and especially [customer's comments](#) at: www.dnatestingchoice.com

Some of the Top Testing websites:

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|--|---------------------------|
| • 23andMe – mainly used for health purposes | over 12 million database |
| • AncestryDNA | over 18 million database |
| • Family Tree DNA | over 1.2 million database |
| • LivingDNA – in partnership with Findmypast | relatively small database |
| • MyHeritage | over 4 million database |

Autosomal DNA results ([your Zip file data](#)) from **23andMe**, **AncestryDNA**, **Family Tree DNA**, **LivingDNA** and **MyHeritage** can also be emailed to www.GEDmatch.com to find even more possible DNA matches (**free**) from their over 1.6 million users...

In November 2019, many DNA testing sites like **23andMe**, **AncestryDNA** and **MyHeritage** started to offer reports on **DNA traits** using the autosomal (**atDNA**) test for genealogy which also contains the important information about our bodies. Some traits and diseases are acquired, like a tattoo or the flue but others, like freckles, red hair, and eye colours are built into our genetic makeup, and can be a pointer towards a distant family connection...

DNA testing security -

“Doubts have been expressed about the security of the DNA material submitted to testing companies however, it is not clear if these doubts have any real substance to them. Some companies may have excellent security – some may not. The small print might say that your DNA is stored for twenty years. It might say that your DNA is shared with other similar companies, which sounds as if it means with other genealogists’ DNA testing services but may also mean with pharmaceutical companies” comments, Dr Graeme Davis, University Lecturer, Academic Researcher and Genealogist.

Remember, when you buy a DNA test you will enter into a legally binding contract with the relevant company and recent concerns have been expressed about the wide range of rights in some of these standard contracts, especially in the USA.

- In July 2018, the British pharmaceutical company **GlaxoSmithKline**, announced a link to the DNA testing company **23andMe**. They will combine 23andMe’s large-scale genetic database with the scientific and medical knowledge, and commercialisation expertise of GSK.
- Also, in 2018 the California Golden State killer was apprehended by a law enforcement agency using **Family Tree DNA** records linked to the publicly available DNA database of **GEDmatch.com** – in both these cases, the DNA testing company did not get their own customers permission to use their DNA material...

DNA testing for ethnicity –

Determining your **‘ethnicity estimate’** is done by comparison to the population databases, using data from surveys like the ‘Genographic Project’, launched in 2005 by The National Geographic Society, a **Genetic Anthropological Study** that aimed to map historical human migration patterns by collecting and analysing DNA samples. As of May 31, 2019: 997,222 participants in over 140 countries joined the public participation phase of the project, which has now ended.

Other ways to obtain ethnicity information is by inference, both **Ancestry.com** and **23andMe** do some of this by utilising contributed pedigree charts with a common location for four grandparents, by doing this they ‘conclude’ that an individual’s DNA is “native” to that location.

DNA is NOT magic, special, or different – it’s just one small piece of evidence that complements your traditional genealogical research; you have a genealogical question, you first research BMD records, Census records, Parish records, Manorial records, Will’s & Admons, Electoral records, War records, Directory records, Newspaper records and then use your DNA records, to make your genealogical conclusion...

However, Graeme Davis, also states that *“employing DNA in one-name studies has the overwhelming advantage in the simplicity of the concept. It bundles together all records relating to one surname and draws together the patrilineal connections. The ideal is often the establishment of an ultimate ancestor from whom all bearers of the surname can be traced, and this is indeed sometimes possible. DNA analysis offers a tool to prove the line established by the records”*.

Somewhere in the region of 35 million people have been tested as of July 2020, with more being added to databases every day however, the power of genetic genealogy lays in the process of comparison, you need to work with your matches in various databases, and compare family trees in order to identify a common ancestor.

However, a recent survey in the USA found that a number of the 30 million people, had taken a DNA test for fun in order to find out where they came from (their ethnicity), and many did not have, any family tree records!

Finally,

- prioritise preservation of your closest family tree DNA matches, over gathering more and more twigs...
- and don't get too concerned about ethnicity, **AncestryDNA** recently updated their estimate with a new algorithm, with more specific regions, in particular, the new algorithm analysis European DNA population databases more precisely, and this will happen many times in the future with all DNA testing sites

For more help on Genetic Genealogy, check out the information on: www.dna-explained.com also, search www.UKBMD.org.uk click on 'ONS' for lists of 'one-name' studies groups

CITATION:

Davis, Graeme. 2012. *Solving genealogy problems*. Oxford: How To Books Limited.