

## DNA TESTING & THE DEVON DNA PROJECT

It is now fifteen years since the first DNA tests became available for family history research and the new science of genetic genealogy was born. Prices have dropped considerably in that time and a huge range of tests is now available from a variety of different companies. DNA testing is no longer the preserve of a few early adopters but is for many people an integral part of their family history research. This article is intended as a general introduction to the subject. The three main types of DNA test are explained and the different types of DNA project are explored with particular emphasis on the new Devon DNA Project.

### Y-chromosome tests

The Y-chromosome DNA (Y-DNA) test is the most popular test for genealogy purposes because of its correlation with surnames. A Y-DNA test looks at various markers on the Y-chromosome, which is passed down from father to son through the generations virtually unchanged. A father and son would typically match on 37/37 markers. Fifth cousins on the direct paternal line might match on 35/37 markers. If there are too many mismatching markers then the two men will not be related within a genealogical time frame. A Y-DNA test can therefore be used to validate your research, but it will also go back beyond the paper trail by connecting two people with the same surname who have no proof of a documentary link. As women do not inherit the Y-chromosome they cannot take a Y-DNA test, but most women will have a father, brother, uncle or cousin who can take the test in their place. The cost of a Y-DNA test varies according to the number of markers tested. The 37-marker test is now the standard entry-level test. A 67-marker test can be useful in specific situations, and is particularly recommended when seeking matches for adopted or illegitimate lines. There is also a 111-marker test for advanced users.

### Mitochondrial DNA tests

A woman passes on her mitochondrial DNA (mtDNA) to her sons and daughters, and so an mtDNA test can be taken either by a man or a woman. However, only women can pass on mtDNA to the next generation, and an mtDNA test will therefore track the direct maternal line (your mother, your mother's mother, your mother's mother's mother, and so on back in time). The basic mtDNA test (known as the mtDNA Plus test) sequences sections of the mtDNA genome known as the hypervariable region. Your results are then compared with other people in the company's database to see if you have any matches. With this test people can sometimes have hundreds if not thousands of matches, many of which will not be genealogically relevant. Even if you can establish that your match has ancestors from the same county, it can still be quite a challenge to find the link in the paper trail because of the difficulties researching the maternal line where the surname changes upon marriage every generation. It is now also possible to order a test which sequences the entire mtDNA genome and which gives matches that are more likely to be relevant. This test is known as the FMS – full mitochondrial sequence. If two people have identical mtDNA sequences then they will usually share a common ancestor within the last few hundred years. When first introduced in 2005 the FMS test was very expensive, but with advances in technology is now much more affordable.

### Autosomal DNA tests

A new generation of DNA tests started to become available to the genealogist at the end of 2009. These tests look at around half a million markers in your autosomal DNA across all the chromosomes. The tests can be taken by both men and women and will help you to find connections on all your ancestral lines. Relationships can be predicted based on the number and length of shared segments of autosomal DNA. The larger the segments the closer the relationship will be. Autosomal DNA is shuffled up with each new generation, and passed on randomly. Therefore, although you might inherit a small autosomal segment from one great-great-grandmother, you might have no trace of the DNA from one of your great-great-grandfathers. These tests are therefore best suited for finding matches with close cousins up to the fourth or possibly fifth cousin level. They are also very useful for proving or disproving a particular hypothesis, for example, whether or not two people share a great-grandparent in common. There are three companies which offer this test. Family Tree DNA's test is known as the Family Finder. The offering from 23andMe is called DNA Relatives. AncestryDNA launched their autosomal DNA test in the UK in January 2015.

### DNA Projects

A Y-DNA test is of most value when the results are compared with other people with the same surname. For this reason the majority of Y-DNA tests are co-ordinated within surname projects. Tests ordered through a surname project usually qualify for discounted project pricing. There are also geographical DNA projects which collect both Y-DNA and mtDNA results from specific

countries or regions, and Y-DNA and mtDNA haplogroup projects to explore your deep ancestral origins. (A haplogroup is your ancient branch or clan of the human family tree on your paternal or maternal line.) Family Tree DNA in America have the largest database and host the majority of large projects of all types. The International Society of Genetic Genealogy, an independent, volunteer-run organisation, have some useful comparison charts on their website for the Y-DNA and mtDNA tests offered by the various companies.

### **The Cruwys/Cruse DNA Project**

I have been running a surname project for my CRUWYS/CRUSE one-name study for over a decade and my project now has over 100 members. I have seen at first hand how DNA testing can both verify my documentary research and also link together lines where no connection can be found in the paper trail. I have, for instance, been able to prove that the CREWES of Cornwall are related to the CRUWYS of Devon. The two lines share a common ancestor in John CRUWYS of Cruwys Morchard who was born in 1449 and they match on 35 out of 37 markers. I have one project member whose ancestor Henry CRUSE was shipwrecked off the coast of South Africa in the 1840s. The only clue to Henry's origins was his South African death certificate which indicated that he was born in Great Britain and his mother was Mary CRUSE. All efforts at tracing this line through traditional methods had failed, but a 36/37 marker DNA match with another project member proved conclusively that Henry was descended from a specific CRUSE line originating in the small Wiltshire village of Ogbourne St. George.

### **The Devon DNA Project**

In 2009 I set up a new DNA project at Family Tree DNA for the county of Devon. Despite the proliferation of surname projects there are still many Devon surnames which are not yet represented. There are also people of Devon origin who are adopted or who are from an illegitimate line for whom a surname project is not appropriate. The Devon DNA Project therefore provides the facility for people to compare their results with other people from the same geographical area where they are most likely to find a match. A geographical project is also more appropriate if you are considering taking an mtDNA test. By the end of March 2015 the Devon project had attracted over 300 members. Although, as expected, the majority of the participants live in the UK, we also have members living in America, Canada, New Zealand, South Africa, Japan and Argentina. The project has been able to accommodate people from existing surname projects such as BRAUND, MALLETT, PIKE and WILLING. We also have a number of project members for whom no surname project currently exists. Their names include: BURNARD, CAVILL, CHALLACOMBE, DARK, HORRELL, LIMEBEER, and YABSLEY. Two project members, a GIFFARD and a PIKE, are the last males in their respective lines. The GIFFARDS are one of the few Devon families who can trace their line right back to the 1200s. We also have a number of members who descend from illegitimate lines who are hoping to find matches with other surnames.

For some people it is possible to receive a free or subsidised Y-DNA test, especially if your surname is included in a large surname project or one which has a long-established Family Association. Some of the American projects are now looking to recruit UK participants and often provide free tests to attract their first few participants from the UK. In most cases you will be expected to provide a pedigree going back for several generations. Full or partial sponsorship is available for the following surnames with links to Devon providing that certain criteria are met: DILLON, GRAVES, HAM, LAND, PHILLIPS, PIKE, PITTS, SMITH, SOUTHWOOD, SOUTHARD, and WEST. Details of the offers can be found on the Devon DNA Project website. The list is by no means complete and there will no doubt be other surname projects with similar offers.

### **Conclusion**

Genetic genealogy is a new and fast-moving science. A DNA test should therefore be regarded as a long-term investment. As the databases and the various projects grow in size family historians will gradually have more and more matches and will be able to make connections with their cousins from around the world. Surname projects will provide new insights into the origins and evolution of surnames. The geographical and haplogroup projects will increase our understanding of our deep ancestry. Your DNA test will contribute to these findings and will serve as a legacy benefiting not just you but your children, your grandchildren, and future generations to come.

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*This is an updated version of an article that was first published in the Devon Family Historian, number 135, August 2010. The article is copyright to Debbie Kennett and may not be reproduced without her written permission.*