



## Can DNA Tests Help You?

Family historians are regularly encouraged to purchase DNA tests. This paper explores the types of DNA tests available and what we should consider before deciding whether to buy one.

### Types of DNA tests

All human beings have pretty much the same DNA – over 99% of your DNA will be the same as that for anyone else across the world. DNA tests compare mutations: that is the differences between us. We all have small amounts of these. If we compare our mutations sometimes they match, which may indicate that we are related.

The three types of tests available look at different types of DNA: Y-chromosome, Mitochondrial and Autosomal.

### Y-chromosome (direct male line)

The Y-chromosome is passed from father to son and therefore often correlates to surnames. If you are female you can't take that test yourself as you don't have a Y-chromosome, but a male relative such as a brother or father can act as a substitute.

The test is of greatest use for establishing whether people, usually with the same surname, have a common ancestor in the direct male line on both sides. So it is of particular interest to one-namers. It is possible that if your results are compared with others in a company's database, the outcome of previously unknown liaisons, including those connected with slavery, may emerge.

Both mitochondrial and Y-chromosome tests have a range that goes back hundreds of thousands of years. That means they can tell you whether you and another person are related even very far in the past, but they can't tell you when your common ancestor lived.

### Mitochondrial (direct female line)

We all have mitochondrial DNA and so anyone can take this test. As mitochondrial DNA is passed from mother to child, it follows the direct female line.

It is only really useful if you want to check a link with someone who you think may be related to in the direct female line on both sides. An example of its use was to support the identity of Richard III. The skeleton's mitochondrial DNA matched that of a descendant in the direct female line of Richard III's mother. Genealogists had traced the female line down through the generations, until they found a living descendant, who happened to be male. But few people seek to check such a possible connection.

### **Autosomal (wider spectrum)**

We inherit autosomal chromosomes from our parents, so both men and women can take this test. Half of this DNA comes from one parent and half from the other. However, we don't pass on our parents' DNA in equal amounts to our children.

Generally, autosomal DNA tests are able to tell us about connections going back a few hundred years and therefore can often be used to corroborate paper research. If you have an elderly relative whom you can test, you may be able to push the horizon back somewhat further. In any case, we probably carry little or no DNA (other than that shared by human beings as a whole) from most of our ancestors who were living more than 400 years ago. Therefore, autosomal tests are not usually sensitive enough to match relatives whose most recent shared ancestors lived more than 400 years ago. It is the autosomal test which, despite its limitations, people are encouraged to use to estimate their "ethnic origins".

### **What do you want to find?**

Everyone has their own combination of reasons for being interested in family history. Whether a DNA test might be helpful depends largely on what you want to discover. Some possible reasons include:

#### **Check the accuracy of the results of traditional research**

DNA testing may help verify your research. It can indicate that you do have the correct ancestor, when your DNA is a suitable match with that of other descendants. Alternatively, the results may challenge the accuracy of your research – or theirs.

#### **Check whether people with the same surname are biologically linked in the direct male line**

This is undoubtedly an area where DNA has a major role. Naturally, before trying to get a range of people with your surname to take Y-chromosome tests it is important to agree who will pay for them.

## **Connect with relatives who are also interested in family history**

Many DNA services include the opportunity to discover matches with other customers who share some DNA markers. Such connections will be mainly with very distant cousins, because we have many more distant cousins than close relatives. Making contact with such individuals may assist your research, as it is possible that they may know more than you do. However, consulting the vast number of online family trees, often accompanied by pictures and stories about people mentioned, offers a more straightforward and for most people a cheaper way to contact and cooperate with family-history-minded relatives who actually have something to share.

## **Estimate your “ethnic origins”**

“Ethnic origins” is a highly debatable area. Categories such as “British” and “Scandinavian” are inherently vague, often using arbitrary geographical boundaries. DNA testing is not necessary, for instance, to know that there has been a great deal of migration across the North Sea, English Channel and Irish Sea over the centuries. The identification of apparently more precise populations, such as countries or even districts within England, is also questionable because they cannot take account of the effects of extensive migration and intermarriage across the frontiers selected.

The DNA markers used to indicate origins are those drawn from people who happen to be living in the areas at the present day and who have been tested by the relevant firm. There is no guarantee that the same DNA pattern would have been found there when – hundreds or thousands of years ago – some of your ancestors may have inhabited the area.

For most family historians, documentary research and talking with real live relatives is a far more reliable and interesting way to assemble the stories of our forebears or for identifying our kin than paying for the “quick fix” of a DNA report.

Just one example of the wildly different “ethnicity” estimates sold to a single individual can be seen in a report by [The Legal Genealogist](#).

## **Possible pitfalls**

- As with all family history research, a DNA report may surprise you. For instance, you might discover illegitimacy or adoption in the recent past that you were unaware of.
- Just because you are presented with a match in the database doesn't prove you are related. The test results only gives you a probability. The closer the match, the more likely the connection is to be real.
- Advertising for DNA testing services is largely pitched to people who have not done research of their own. It offers an easy option for those who do not want to look at documents to discover their roots. Therefore, many of those who you may contact through DNA matching services will have little of substance to offer you.
- It is time-consuming to read and understand the terms of contracts offered by the DNA testing companies. But if you sign up you are committed.
- It appears that DNA databases have already been used to identify criminal suspects. They could be used to identify people of interest for whatever reason to the powers

that be, including use by government and other organisations based anywhere in the world if they are able to access the relevant electronic files.

## Next steps

If you think that DNA would help answer your questions, remember that there are many providers to choose from. Their prices often have seasonal variations. Not all companies offer all of the possible tests.

If you buy a DNA test you will enter into a legally binding contract with the relevant company. Concerns have been expressed about the wide range of rights included in some standard contracts.

Only “click and agree” terms if you understand what they mean and want to be bound by them.

## Checklist before placing an order

- What do I really want to find out?
- Is a DNA test likely to help achieve this?
- If so, what type of test?
- How much does the test cost including shipping?
- Do I need to pay a subscription fee to use the database?
- How long will I have to wait for a report?
- How many people are in the database from my likely areas of origin?
- Am I allowed to export my results and put them in other databases?
- Who owns my data, whom am I allowing to use it and what can they use it for?
- Do I trust the authorities in the places where my data will be physically stored not to alter privacy laws without my agreement?

## Useful links

- [DNA lectures](#) - 13 presentations from WDYTYA 2017.
- [International Society of Genetic Genealogy](#) - Useful articles for those new to DNA testing for genealogy, plus in-depth material.
- [Joel Winston blog](#) – An American consumer rights lawyer reviews the terms of a DNA contract.
- [Privacy guidelines](#) – Details of privacy policies adopted by some DNA companies.
- [The Guild of One-Name Studies](#) - General DNA information, not just for those thinking of undertaking a surname project.