Warburton DNA Project Overview

The **Warburton DNA Project** has been running since 2006 and as of November 2022 has test results for 64 Warburtons. It is hosted by **Family Tree DNA**.

This paper provides an overview of the project, including its objectives, mechanics, and evolution. For an understanding of **DNA and its Uses in Genealogy** please see my paper of the same name. There are some definitions at the end of this paper to remind you of key terms. More information on the results is paper: **DNA Results Commentary**. I have also written a more personal paper: **My Use of DNA in Genealogy**.

Project Objectives

The **Warburton One-Name Study** develops Warburton family trees that document the descendants of an early ancestor. These are referred to as clans. Clans may originate with early adopters of the Warburton name, or a later non paternal event. Clans may also contain branches that result from documented illegitimacies.

The objective of the **Warburton DNA Project** is to enhance these clans by finding those that share an earlier common ancestor, and understanding when that ancestor lived. Also where several clans are so linked, it builds a haplotree which defines the relationship between the clans in more detail. These haplotrees are small additions to **Family Tree DNA's** Block Tree, a family tree of humankind that can demonstrate the deeper origins of your line, and can be explored using a Discover Tool.

The **Warburton DNA Project** uses Y-chromosome DNA testing because the Y-chromosome passes from father to son in the same way that a surname normally does. To support the objectives these, tests are designed:

1. **To find matches with fellow Warburtons**. A match between two DNA results means the owners of the results have a common ancestor who may be lost in the mists of time. Parish records were only introduced in the reign of Elizabeth I, and existing records usually start in the early 17th century. Unless you belong to the aristocracy there are no records before this time. Furthermore the records were pretty rudimentary. If like me you are lucky, your ancestors didn't move very far so generations of baptisms, marriages and burials can be found in the same parish church. But if they moved from somewhere else your earliest ancestor will just appear in a particular parish with nothing to indicate where he came from. In these cases DNA may be the only solution.
2. **To establish a position on the Family Tree DNA Tree of Humankind**. Your most recent shared SNP (see definitions) will identify the sequence of SNPs back from you to earliest man. Tests could also identify new SNPs currently unique to you, but potential future matches. It is your sequence of SNPs, combined with historical and archeological research, that defines your deep history. Researchers are building an ever more detailed picture of how peoples migrated into Europe, and then to the British Isles. The same history is shared by whole families, clans, and groups of clans, so once you know where you fit in the general picture, you can sit back and watch the story develop. This sequence also helps to structure numbers of genetically linked clans into haplotrees, really new twigs that connect to the world haplotree. I have already produced haplotrees for the two largest Warburton groups.

I am looking for participants who share these objectives. You could participate by taking a test, by finding test candidates, and by contributing to costs, either directly to test participants, or through the project's General Fund. If you are thinking of taking a test you

should consider whether you need to test yourself, which test is most suitable, and how much are you willing to spend?

Do you Need to Test, and if so Which?

Your Y-chromosome will be the same as your father's, your brother's, your son's, and any other male relative in your paternal line. Of course ladies don't have a Y-chromosome but if you are studying your father's line through a male relative then the same situation applies.

The first thing you should do is find out if anyone has already tested your Y-chromosome. If they have, how closely related are they? You need to consider the possibility that things are not as they seem and infidelities and illegitimacies might have occurred. These 'non-paternal events' are always a consideration with the Y-chromosome. The closer your relationship with the person tested the more confidence you can have that your results will be virtually the same.

Even if you can't find someone who has tested it is worth checking how interested your relations are in the results. As they will share the results they might share the costs.

I have developed a series of scenarios later in this paper to help you to decide if a test is appropriate, and which one.

Costs

DNA tests cost money, though costs are slowly reducing. The **Warburton DNA Project** has used Short Tandem Repeat Test (STR) tests since its inception, specifically the Y-37 test at **Family Tree DNA** since 2011 when the project relocated there. However to achieve all the projects objectives we need Single Nucleotide Polymorphism (SNP) tests. There are SNP tests for a single SNP or a small panel of SNPs, which are quite cheap, but to use these you need to know which SNPs are worth testing. Then there are Next Generation Sequencing (NGS) tests that trawl a large proportion of the Y-chromosome looking for new SNPs, as well as producing results for a large number of STR markers. The **Family Tree DNA** NGS test is called **BigY-700**. This is the most expensive test, but only one result is needed for each Warburton clan. I have produced some Scenarios below to help you decide which test is most appropriate for you.

There are also some cost reduction strategies. **Family Tree DNA** have regular sales which include significant discounts. There is also opportunity for cost sharing. Your result is shared by your Warburton clan, so you could get together with other clan members to share the cost, or you could seek a contribution from the project's General Fund.

General Fund

I have established a General Fund at **Family Tree DNA**. It could be used to collect family members' contributions towards a test for one of them.

A way to use the Fund effectively would be to identify test candidates to be tested during the next sale period and publicise these on the Warburton website, requesting support from the wider Warburton community. We might then hope to generate sufficient funding to allow the tests to be ordered when the sale arrives.

Donations to the General Fund of any amount are welcome. Every little helps. If you would like to support the project by making a donation to the fund please go to https://www.familytreedna.com/groups/warburton/about/background. Here you will find a Donate button. This will take you to the appropriate page where you can make your donation via credit card, or PayPal.

Success Rate

To date, if you ignore known non-paternal events, about 84% of test results have been matched to at least one other result, either in their own clan, or in other clans. Over 45% or results fall in one of two large groups. Reasons for failure to match are discussed in the **Unmatched Results** section of **DNA and its Uses in Genealogy** on the Warburton website.

Project Evolution

There have been considerable developments in testing and interpretation of DNA results in the 16 years since the Warburton Project began. A haplotype is the group of people who share a particular SNP. The naming of these haplotypes has changed over time. Now it is represented by a letter which signifies a high level haplotype, and the name of the most recent Single Nucleotide Polymorphism (SNP) to occur. For the majority of Warburton results this is R-M269.

Over the last 16 years there has been a complete rethink of the historical narrative for haplogroup R. It was originally thought to have moved north from Iberia following the melting of the ice after the last Ice Age. Now it is believed it originated in Western Asia and migrated into Europe much later, within the last 5,000 years. Its rapid rise to become the most common haplotype in Western Europe is attributed in part to its horse based culture, and lactose tolerance, though much of this is still conjecture. Nevertheless the combination of DNA and archeological study is slowly piecing the story together. This history is covered more fully in **DNA Results Commentary**.

In the last year there have been significant developments in the tests available, and in the announcement of the **Family Tree DNA** Tree of Mankind. Each BigY result includes a representation, in the form of a Block Tree, of the part of the Tree of Mankind where your most recent SNP fits. In addition FTDNA have now produced a **Discover Tool** that allows you to explore the sequence of SNPs back to the earliest humans and beyond, including the approximate age of the SNP, the number of BigY testers who have that SNP, and where their earliest known male line ancestor lived. I have collated this information in a document called **SNP Ages from the FTDNA Discover Tool**.

Originally you could only order a Big Y test as an upgrade to an STR test. That combined with the relative price made it logical to base the Warburton Project, like most other one name projects, on the Y-37 STR test. However in April 2018 **Family Tree DNA** announced BigY-500 which could be ordered directly and included all the STR markers in the Y-37, Y-67, and Y-111 tests, and at least 389 more. When I saw the price of Big Y-500 drop below $500 in sales, and compared that with the £400 I paid for my very first, limited mtDNA test in 2006, I realised that Big Y had to be a serious first option for some people.

Furthermore BigY-500 has now been superseded by BigY-700. It is an improvement in terms of the amount of the Y-chromosome it covers, and the quality of the test itself. It covers over 700f STR markers, and a significant increase in the number of SNPs it uncovers. The average time between SNPs in the average result is 83 years, reduced from 125 years in the BigY-500 test. This metric is used in dating SNPs. The price if BigY-700 has further reduced and can now be as low as $379 in sales. Also earlier Y37 and BigY-500 tests can be upgraded for a lesser price.

Significance of Big Y and the Y Tree to the Warburton Project

Anyone considering a DNA test now has three options, Big Y-700, Y-37, and specific SNP tests.

Specific SNP tests rely on an indication of where a match might be, and a previous Big Y test to identify the SNPs to be tested. I usually use YSEQ.org for these tests, primarily because they have an option to" Wish a SNP", to have a new SNP test created for a private variation.

The difference between STR matches and SNP matches is that SNP matches are definitive whilst STR matches are only indicative. A SNP occurred once in a particular individual. Everyone sharing that SNP is descended from that individual, and shares the sequence of preceding SNPs that defines their shared history.

An STR match indicates a common ancestor, but because STR mutations are bi-directional it requires additional information, such as a common surname, to verify this. Also STR tests can only indicate very high level SNPs.

For these reasons the Warburton Project's objectives would be best met if everyone took Big Y-700. But this would be an expensive approach. In reality a very good result can be achieved with a mix of the three tests. This is one reason why cost sharing, particularly for Big Y-700, is an important option.

Scenarios

To understand how these tests might be used I will describe a number of scenarios.

1. Are you linked in a family tree to someone who has taken Big Y? You will share the Big Y result so repeating it will add little value. You may wish to verify your link to the Big Y result with a specific SNP test.
2. Are you in a clan which is linked by an STR match to another clan where someone has taken Big Y? You will also share much of the Big Y result, but you will not know exactly where you diverge. A specific SNP test may do this it you match one of his recent SNPs. Unfortunately not all SNPs uncovered by FTDNA are testable at YSEQ. Also the earlier your lineage split from his, the more benefit will be obtained from another Big Y test. This will identify your later SNPs including your private variants, which will make dating the shared SNP more accurate, Your private variants may also become future branch points. The 700 STR results will provide a second mechanism for dating the common ancestor. In the Warburton Project only members of the Lancashire, Cheshire and Ashley and Notts Groups fall into the first two scenarios. All others are in one of the scenarios below.
3. Are you in a group of two or more clans linked by indicative (STR) matches? In this case there is no Big Y result to provide SNPs for comparison. A Big Y test is required to provide these SNPs. However the result of that test is of interest across all the clans, offering an opportunity for cost sharing. You don't have to be one of the original testers, provided you are confident of your relationship to him. However an upgrade from an earlier STR test will be cheaper. Once the Big Y result is obtained, members of the matching clans should then take specific SNP tests to determine the most recent SNP they share with you. This might be one of your personal variants.
4. Are you in a clan that has an unmatched STR result, or matches contained within the clan? Here the best option is a Big Y test. There may be evidence that the original result was influenced by a non-paternal event. On the other hand it is possible a 700 year old Warburton clan is still quite small. The Big Y test may result in recent shared SNPs where the other parties have a different surname, giving a clue as to the origin of a non-paternal event. Or there may be no shared SNPs in the last 700 years, supporting the case for an old but small clan.
5. Are you in a clan with no DNA result, or not in a published clan. In this case there are two options. A Big Y test will give a definitive result, but it just might turn out to be close to a previous Warburton Big Y result, and so provide little additional information. Starting with a Y-37 test might produce an indicative match, moving you into one of the above scenarios. A Y-37 followed by Big Y is a little more expensive than going straight to Big Y, but if a Y-37 can be followed by a few specific SNP tests it would be a lot cheaper.

Mechanics

The testing process is simple, though you must be male to take this test, and have the Warburton surname or variant to be included in the Warburton Project.

Historically the process of testing, payment, and notification of individual results has been run by **Family Tree DNA**. However I recommend some tests for specific SNPs are purchased from YSEQ. In either case a numbered test kit is sent to your home. When the test kit arrives you simply perform the test, which involves taking a swab from inside your cheek, and mail the kit back. As the process proceeds you will be kept informed by email. As project administrator I will also be informed of each step. When I recommend a test at YSEQ you should inform me of your results when you receive them.

Family Tree DNA sets up a **myFTDNA** webpage for each DNA participant. You can log in to this webpage at https://www.familytreedna.com/login.aspx using your kit number, and a password that is provided by **Family Tree DNA** when you joined the project.

On the **myFTDNA** webpage you are able to see your results and matches, manage your personal information, order new tests, and join projects. Amongst the things you can control are:

1. Project sharing. Specify if you are willing for your pseudonymised results to be included in the Warburton project's public results page. If you do not opt in to project sharing only a project member accessing the project from their FTDNA Page will be able to see them.
2. Opt into matching and specify your matching preferences. This is the level of new matches that will be notified by email to both you, and to the project administrator. I would recommend you opt to receive email notification and show contact information for Y-DNA37 matches only (Y-DNA25 matches if you tested at DNA Heritage). This will reduce many meaningless notifications.
3. Specify project administrator access. You can set this to minimum required, limited, or advanced. As project administrator I can access your myFTDNA webpage if you specify limited or advanced access, but I can only change anything if it is set to advanced. Limited access is recommended.
4. Set your earliest ancestor information. I used to be able to set the name and location of your earliest known ancestor so that it appears in the project results. However this ability is now only available if you set my access to advanced so I must rely on you to do it if access is set to limited.

Family Tree DNA also provides a public **Warburton DNA Project** webpage which I maintain. It includes an introduction page, a table of results, a Join page, and a link to donate to the General Fund. It can be accessed at http://www.familytreedna.com/public/warburton/default.aspx. Only the results of members who have specified project sharing will be shown. To see all the results, find the list of your Projects on your **myFTDNA** webpage, and click on the Warburton project. This will take you to the same Warburton Project webpage but now the results will include all project members.

I may refer to your results in my **DNA Results Commentary** paper on this website. I will also identify which Warburton clan your profile is associated with. I will only ever refer to you by your kit number, and the name and dates of your earliest known ancestor.

Summary

Knowing what DNA says about your origins can enrich your family tree, and your knowledge of yourself. However to be fully informative it is a group exercise where information is pooled and matches found. It should also be viewed as a component of traditional family history research. Each can enhance the other. The **Warburton DNA Project** is intended to facilitate this process. I am using it to enhance my understanding of the history of the Warburtons and my place in that history, and I am happy share everything I learn.

If you are a Warburton and have an interest in your origins then I encourage you to get involved. Even if you are linked to someone who has tested previously and so don't need to test I am interested to hear from you.

Definitions

The following definitions are provided to help understanding of this paper. They are covered in more detail in **DNA and it Uses in Genealogy:**

1. **Y-chromosome:** A part of the human genome that is only present in males. The human genome consists of 23 pairs of chromosomes. One of these pairs consists of two X-chromosomes in females, and one X-chromosome and one Y-chromosome in males. It is passed unchanged from father to son, except for occasional copying errors.
2. **Mutation:** This is a copying error. There are two types of mutation of interest:
    2.1. Short Tandem Repeat (STR): A change in the number of times a small piece of DNA is repeated at a specific location. The location has a name (e.g. DYS390) and is sometimes called a marker. DNA tests can be defined by the number of markers tested (e.g. Y-DNA37 is a 37 marker test).
    2.2.Single Nucleotide Polymorphism (SNP). This is change in a single DNA molecule. DNA is a string of (millions of) molecules. There are four types of molecule, designated by a letter (A, C, G, T). A SNP occurs when the type of molecule changes. SNPs are originally identified by their location, but significant ones are given names (e.g. M269, U106, S6881, FGC13477).
3. **Allele:** This is one of the possible results of an STR marker. Different allele have a different probabilities of occurring.
4. **Haplogroup:** The group of people who share a specific SNP is referred to as a haplogroup. The word population has been divided into a small number of basic haplogroups defined by a letter (e.g. R, G, I, J). Originally these haplogroups were subdivided using a string of numbers and letters (e.g. R1b), but more recently subdivisions are referred to by a defining SNP (e.g R-M343 is equivalent to R1b).
5. **Haplotree:** This is a type of evolutionary tree known technically a Phylogenetic Tree, It is a tree that shows the evolution of the human Y-chromosome. Its branches are defined by the mutations that created them.
6. **Lineage**: Some SNPs represent branch points. The different branches are referred to as lineages. Not all SNPs result in additional identified branches. There may be a block of SNPs between two branches so the SNP identified as triggering the branch may not be the youngest. If the block is subsequently broken up by the discovery of a new branch, the sequence in the block, and the identification of the triggering SNP may change.

7. **TMRC**: Time to Most Recent Common Ancestor, calculated in generations (see **Mutations Table** on the Warburton website) and converted into dates at 35 years per generation before 1945.
8. **Non paternal event:** This occurs when a son does not take the surname of his natural father, thus introducing a new DNA profile to the Warburton name.This could arise from illegitimacy, infidelity by a wife, adoption, e.g. by a step farther, or in honour of an inheritance, as when the Egerton family became Egerton Warburton when they inherited Arley Hall.
9. **Big Y, Big Y-700:** These are DNA tests at **Family Tree DNA.** Big Y is a generic term, Big Y-700 is the currently available version of the test. It is a Next Generation Sequencing (NGS) test that searches a proportion of the Y-chromosome for matches to known SNPs, and the occurrence of new SNPs.
10. **Personal Variant:** This is a SNP found during a Big Y test that is new, and currently unique to the tester. It probably won't have a SNP name, but a request can be made at YSEQ.net for a test to be generated for it, and this will cause it to be named.
11. **Warburton clan:** A Warburton family tree showing the descendants of an earliest known ancestor.