

# Tool Time with FamilyTreeDNA

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### I. Overview

- A. All of the features for autosomal DNA are found under the Family Finder section of your main dashboard via grey buttons or orange links with the exception of one. The myFamilyTree tool is an essential tool for using any type of DNA and can also be accessed by a grey button on the dashboard above the Family Finder section.

### II. myFamilyTree

- A. This feature allows you to upload a GEDCOM or to build a tree from scratch.
  - i. To upload a GEDCOM click on the icon in the top right corner of the myFamilyTree page. This will prompt you to select the file from your computer.
  - ii. To build a tree from scratch, click on the center icon and select “Add relationship”.
    - a. From here select the appropriate relationship and then click “confirm”. From here you can enter pertinent genealogical information then click save.
    - b. Using this method, you can build a tree even without a GEDCOM.
- B. Linking relationships
  - i. Once you have built or uploaded a tree, look for the “DNA Matches” icon in the top left of the tree page.
  - ii. From here you can search for a relative and attach them to their node in the tree using the drag-and-drop method.
- C. Once you have attached a match, return to your dashboard using the “Return to Dashboard” icon in the top left.

### III. Family Finder Matches

- A. This will list all of your matches in descending order of closeness. There is a lot of information on each one so let’s go over the columns from left to right.
  - i. Name – This lists the name of the individual as they have reported it. When you click on their name, you will see their name, email, and any genealogical information they have listed. If they have done a Y-DNA or Mitochondrial DNA test, it will also show those haplogroups.
    - a. Female icon – If you have linked a relative to your tree on your maternal side, any match shared by that relative will display a pink female icon.
    - b. Male icon - If you have linked a relative to your tree on your paternal side, any match shared by that relative will display a blue male icon
    - c. Email icon -If you use an email system such as Microsoft Outlook, clicking this icon will open a window for you to email this match. If not, you can contact them by clicking on their name and copy/pasting their email.
    - d. Notepad icon – This allows you to make an internal note about that match. This note will not be visible to the match.
    - e. Tree icon – If this tree is blue, it means they have a tree they have built or uploaded, and have made available to matches.
  - ii. Match Date – By clicking on this column header it will rearrange your matches in order from most recent to oldest. Clicking this column header again will reverse the order.
  - iii. Relationship Range – This gives you an idea of how closely related you might be to a match based on the amount of shared DNA. It is a range because of the nature of autosomal DNA

- and random recombination. In other words, you could have a 2<sup>nd</sup> cousin who happened to inherit slightly less DNA in common with you than a third cousin.
- iv. Shared Centimorgans and Longest Block – Both of these play a role in how closely related you may be to a match. A longest block is an unbroken group of centimorgans that you share with a match. With each generation from the common ancestor, these blocks generally get shorter as they are broken up by recombination. Longest blocks on matches can be an indicator of how many generations you are removed from a common ancestor. You can have a match that has a smaller number of overall centimorgans than another match, but if their longest block is longer, that may be an indication they are as close or closer to you.
  - v. X-Match – This means the match shares DNA with you on your X chromosome, so the common ancestor would have to be someone you inherited an X chromosome from. For a male this would mean the match would be on the maternal side, as they would only have one X chromosome inherited maternally. For a female it could be either the father's or mother's side. However, if it is from that person's father's side, it would have to be from their father's mother's side, as they could only receive from their father the one X chromosome that father received from his mother. This process works for every generation you go back, limiting the number of possible ancestors who contributed to your X-DNA.
  - vi. Linked Relationship – These are matches that you have linked in your tree.
  - vii. Ancestral surnames – These are names that a match has entered in their tree or elsewhere in their genealogical information.

#### B. Family Matching

- i. Above the list of names, you will see four categories
  - a. All – This is a list of all of your matches.
  - b. Paternal – These are only those matches who share a common close paternal relative you have linked.
  - c. Maternal - These are only those matches who share a common close maternal relative you have linked.
  - d. Both – These are matches who share both a common paternal and maternal close relative.

#### C. Other Tools

- i. Above the Family Matching categories, you will see three other options.
  - a. Not In Common With – If you select a match, using the check box to the left of their name, it will pull up a list of all matches that the two of you do not share.
  - b. In Common With – Like the Not In Common With feature, but it will provide a list of common matches.
  - c. Chromosome Browser – You can select up to seven matches to view them in the chromosome browser, which we will discuss in the next section.
- ii. At the very top of the page there is a drop-down menu that allows you to filter your matches by relationship range, x-matches, paternal, maternal, or both categories.
- iii. To the right of this filter is a search box to search by name or ancestral surname.

#### IV. Chromosome Browser

- A. This tool allows you to compare your shared autosomal segments with those of your matches.
- B. To start, you can select your matches either through the match list as discussed earlier, or with the Chromosome Browser directly, which has the same filtering tools.
- C. After you have selected up to seven matches and click the “compare” button it will show you a visual representation of your chromosomes with the segments they share overlaid on top of this. There is a separate colored bar for each match you select. Each color corresponds with the list of

the selected matches found at the top of the page. The areas on the chromosomes that are greyed out with grey and black diagonal lines represent regions of the chromosomes that we do not look at for matching purposes.

- D. **IMPORTANT:** This is a half-identical representation of your chromosomes. Each chromosome consists of two sets, one from each parent. This representation is as if you laid both sets on their sides and looked at them cross ways, or in other words through both sets. This means that any given segment that you share with a match could be that segment from the maternal half of the chromosome or the paternal half.
- E. Two different views of the Chromosome Browser
  - i. Chromosome view
    - a, When you hover over each shared segment, you will see your matches name, the chromosome you are looking at, the shared centimorgans in that segment, the number of shared SNPs, and the genomic position of that segment. The genomic position is important because the position for the maternal and paternal halves of that segment will be different and you can use this information to see which half you are looking at
    - b, Just above chromosome one there is a drop-down menu that allows you to limit the number of centimorgan segments that will be shown between 1 or more and 10 or more. This is important because the importance of the segment length can vary between individuals and populations.
    - c, To the right of this drop-down menu you can download the shared segments of the matches you selected as a .csv file. This file will contain the start and end location of each segment as centimorgans and shared SNPs.
  - ii. Detailed Segment View
    - a, This view shows you the same information found in the downloadable .csv file mentioned above. The advantage of this view is that, unlike the .csv file, you can remove certain matches from the list to narrow your search.

## V. myOrigins

- A. Also known as an ethnicity report, this tool shows the regional percentage of your ancestry. These percentages are based on reference populations from that region, and each company has its own set of reference populations. These percentages can often seem to be contradictory to a person's established genealogy, and there are a few things I always like to tell people to keep in mind:
  - i. These reference populations, no matter how long they have lived in a region, ultimately come from somewhere else, and therefore share DNA with other populations, particularly neighboring ones. The problem is particularly pronounced in Europe, as populations such as southern, central, and northern Europe have had contact for thousands of years. The same is true for Great Britain, as all British populations ultimately migrated there at the end of the last ice age from western, central, and southern Europe.
  - ii. The reference population is not necessarily indicative of the entire region. For example, if a company's Native American reference is a southwest North American group, and your known ancestor is from Eastern North America, then the Native American DNA that your ancestor passed down to you might not have been a segment shared by the southwestern reference.
  - iii. Due to the nature of autosomal DNA, if the ancestor from a given region lived several generations ago, then the DNA they passed down to you may have been so thinned out by all the other ancestors that it does not appear in your percentages.

- iv. Ultimately, Ethnic percentages are reliable at a continental level because continents tend to be fairly geographically isolated from one another. At the sub continental level they become less reliable.
- B. When you click on myOrigins, the main landing page will show you two options:
  - i. The orange box on your left will show your continental-level percentages.
    - a. You can click on each continental-level percentage to view the sub-continental regions, or you can click on “Show All”. When you click on “Show All” It will show you a list of all regions available, and your percentage of each one.
  - ii. You can click on each region to read a description of that region.
- C. myOrigins Map
  - i. Clicking on the map on your right will bring up a heat map representing the populations you match, and regions we find the reference population most heavily.
  - ii. You can expand the percentages listed to show each continental sub-level by clicking the “expand all” link in the top right corner.
  - iii. The box in the bottom-right corner will list all matches with whom you share a regional percentage. You can toggle between this list displaying from most shared percentage to least or vice-versa by clicking the icon in the top right corner of this box. Please note it will only show you the continental-level percentage of continental percentages shared by you.
  - iv. When you click on a match name, if they have done a Y-DNA or mitochondrial DNA test, and have input the location of their most distant known direct maternal and-or direct paternal ancestor, it will drop in a pin in that location on the map.
  - v. In the bottom right of the screen are two push pin icons.
    - a. If an autosomal match has also taken a Y-DNA test and input the location of their most distant known paternal ancestor, when you click on the green icon it will drop pins in all of those locations. When you click on a given pin it will display their name, and from here you can email them.
    - b. Clicking on the orange icon will do the same for the location of the most distant known direct maternal ancestor of all those matches who have done a mitochondrial test.

## VI. Linked Relationships

- A. This is a list of all the relationships you have linked in your tree.

## VII. Matrix

- A. This tool is found via an orange link towards the bottom-right of the Family Finder section on the main dashboard. It allows you to compare multiple matches to see if they match each other.
- B. When you click on this tool you will see a selection box of your matches. Here you can select multiple matches to see if they match each other.

## VIII. Advanced Matching

- A. This tool allows you to select multiple test types. While it takes some investigative work to determine which line an autosomal match shares a common ancestor with you, a Y-DNA match will definitely share a common ancestor on your direct paternal line, and a mitochondrial match will definitely share a common ancestor on your direct maternal line. The downside to these matches are that they might be incredibly distant, sharing an ancestor that lived hundreds or even thousands of years ago. If a person matches you on, say, both autosomal and Y-DNA however, you know which line they match you on, and you also know they must be within the last few hundred years.

- B. Below the options for test types, there is an option to “Show only people I match in all selected test types.” It is important to select “yes” for this option or else you will have to sift through all of your matches in every test type to find the ones who have check boxes next to them.

#### IX. Download Raw Data

- A. This allows you to download a copy of your raw data that includes all of your SNPs and mutations along with their genomic positions. There are several different file formats to choose from. GEDmatch uses Build 36 Concatenated.

#### X. Ancient Origins

- A. I have saved this section for last because, while fascinating, it is the least useful for genealogists. It tends to be of more of an anthropological nature, so to put it in context, first we need a brief background on how groups of people got into Europe.
- B. Around 15,000 years ago, the worst of the last ice age had abated, and Europe began to open up to new expansions of people. The first groups of people to arrive were hunter-gatherers, bringing with them a stone tool set that was more advanced than their paleolithic ancestors, but not as advanced as those of later cultures. While they were in Europe, agriculture and herding were developing in the Caucasus and steppe region. As these new techniques developed, these Neolithic (or “new stone age”) farmers began to enter Europe, bringing their new technologies with them. Later, other groups in the steppes developed metallurgy and entered into the bronze age. They began to invade Europe with their superior technology and largely replaced the former groups that had been there.
- C. AncientOrigins compares your autosomal DNA to that of archaeological sites throughout Europe. By putting these ancient remains in the context of other artifacts found at the archaeological sites, we are able to determine which of three groups they belonged to: Hunter-Gatherers, Neolithic Farmers, or Metal Age Invaders. Although the three groups had distinct technologies and cultures, just like today, they did not live in isolation, and often intermingled. This means that most Europeans have a little bit of all three in them.
- D. When you view your AncientOrigins, you will see a percentage of each one. When you click on one of them, you will be able to read a little bit about them. You can also click on an interactive map to read about the archaeological sites that we based this analysis on.
- E. While such ancient DNA might not help you track down that elusive ancestor, it *can* give you a better idea of your heritage and the long genetic road that culminated in you.