DNA Matching Made Easy on MyHeritage

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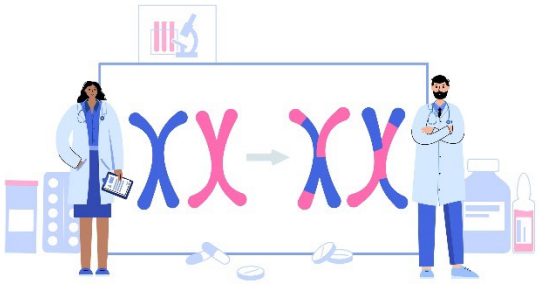
Whether you tested years ago at MyHeritage or just thought about it, there are always new things to learn in autosomal DNA (atDNA) analysis. This presentation will give you information on the current tools available at MyHeritage and tips on how to be more effective with your DNA analysis and research. But first, so we are all on the same page, let us review what atDNA is.

Autosomal DNA review

In autosomal DNA (atDNA) are the 22 pairs of non-sex chromosomes located in the cell's nucleus in genetically healthy humans. The sex chromosomes (X and Y) are the 23rd pair of chromosomes and determine if you are male (XY) or female (XX), resulting in 46 total chromosomes for a healthy human. They are numbered 1 – 22 and arranged primarily by size. However, the combination of genes on the chromosomes differs for each person and makes you and me a genetically unique organism.

Thus, 50% of your genetic makeup came from your father and 50% from your mother. We have cells with a nucleus containing genetic information and other "stuff" within a cell wall. To create the cells that will eventually become sperm and eggs, specific cells go through meiosis. Through this process, our cells half themselves.

First, the chromosomes in the cell pair up to replicate or make a copy, doubling the number of chromosomes in the cell. When the cell divides the first time, there will then be the correct number of chromosomes (46) in the newly created daughter cells. At this point, recombination occurs, which is the part genetic genealogists are interested in seeing.



Recombination is also called crossing over and occurs when the chromosomes exchange genetic material. The "arms" of the chromosomes inherited from the person's mother and father touch at multiple points over the

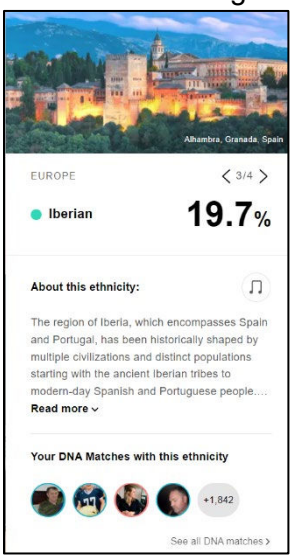
chromosome's length. A connection is made wherever they touch, and chromosome segments are exchanged. This process creates new combinations of chromosomal DNA, making each of us unique.

Finally, in this process, the cells divide again into cells containing only one-half of the information needed to create a new person. These cells are called gametes. One gamete from the father and one from the mother eventually combine to create a new chromosomally unique individual. It is these segments that we trace through the generations to find out genetic cousins.

Not everyone in a family shares the same DNA sequences. Unless they are identical twins, each child in a family will have different combinations of DNA passed onto them from their parents. Now, think about what happens in the next generation. The child's DNA mixes with a new parent, and even less is passed down from prior generations.

Ethnicity Results

At MyHeritage, they created “The Founder Populations Project” for ethnicity analysis. This project consists of MyHeritage members (not necessarily in the DNA database already!) with trees showing ancestors who have resided in the same region for at least six generations.



About 5,000 members responded to the request to participate. From their DNA, the project began.

MyHeritage has 42 distinct ethnicities created from this project. However, just like any company, there are limitations to ethnicity results. First, remember that each company develops its own ethnicity databases, so there will be variations depending on how the algorithm is run. This is especially true when you have ancestry that could be from overlapping regions or had heavy migration around the world. For example, people with high Scandinavian results but no genealogical evidence of ancestors from those countries may be from areas that the Norse invaded.

Sorting Your Matches

Looking at your DNA match list can be very, very daunting. However, I have learned over the years that taking advantage of the filters and various ways to sort the results can be beneficial to make the task at hand more manageable. When you go to your match list, the ribbon under the total number of DNA matches allows you to see these results in various ways

besides labeling them or making notes. When you click on the “Filters” icon, you can sort your matches in the following ways.

- Tree Details: Sort by shared surname or places, if they have a family tree at MyHeritage, or if there are “Theory of Family Relativity” or “Smart Matches.”
- Relationships: Sort results by how close or distant the match could be to you.
- Locations: These are the different countries your matches state they are located.
- Ethnicities: Click on your ethnic results to show the matches that share your ethnicity results.
- Genetic Groups: Sort your matches by those who are in the same groups as you.
- Labels: This is a way to color code your matches in various ways. You would color code by surname or ancestral line, research projects, people you know, people you need to research, or any way you would like!

As you scroll down the page, each match has a snapshot of the information you will discover once you click on “Review DNA Match,” Here, you can see how you may be related, the amount of DNA in common, and if they have a tree at MyHeritage you can visit it. Visiting the tree first can give you ideas of common ancestry before you delve into the information further.

One note. If you have not created a family tree on MyHeritage, you really need to. It does not need to be fully flushed out. Even a simple skeleton tree will help you with the analysis process. This is because several features offered for analysis rely on you and your match, having a family tree on the site.

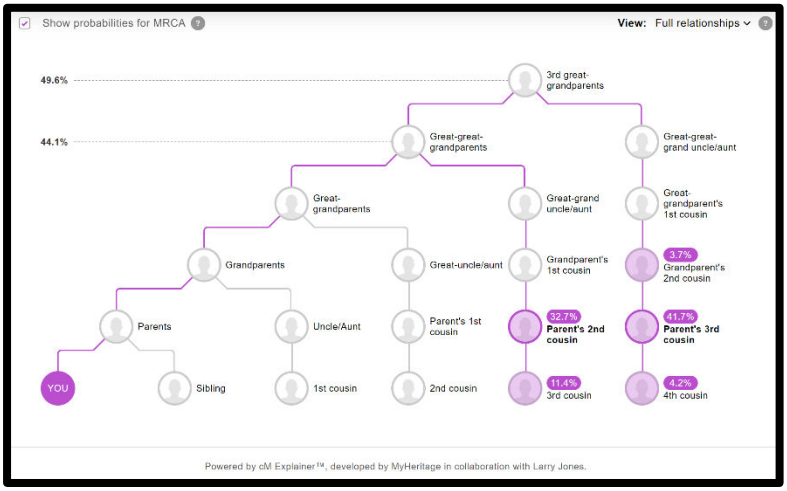
Looking Critically at Your Match

When you click on a match, you will be taken to a page where you can learn everything the database can tell you about the DNA you share with this person. Once again, do not be overwhelmed. Take it one step at a time. But your goal is to squeeze every bit of information out of that site. Let us look at each section you can see on the match page.

- Theory of Family Relativity: Not every match will have this section. Based on your family tree and the match’s family tree, the platform will make a suggestion of your common ancestor(s). It is up to you to look at this information and decide if it is

correct! This is a suggestion, not necessarily fact, since it comes from user-generated trees.

- Possible relationships: If your match does not have a Theory of Family Relativity section, calculating how you might be related is very important. These are all ways you could relate to your match based on the amount of shared DNA. If you have no other clues, this will give you several possible ancestor couples. You now have a starting point when you did not have one before.



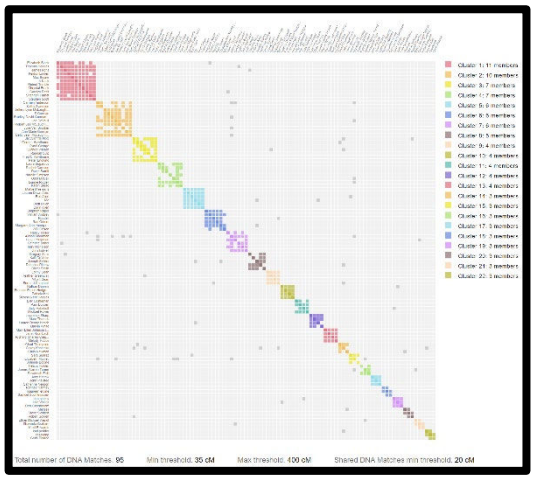
- Shared Ancestral Surnames: You may or may not have this section, it will depend on if the person has a family tree. Based on the family trees, these surnames will be the ones you and your match have in common.
- Shared DNA Matches: Finally, the reason why many people take a DNA test. These are all the people you and the match you are looking at have in common. Just remember, just because you and your match share DNA with someone does not mean it is from the same ancestral couple! You could be related to that person in completely different ways. However, if the three of you have a triangulated segment (the same segment of DNA in common), you will see an icon on the right-hand side of the list. Clicking on the icon will take you to a chromosome browser showing you exactly where you share DNA.
- Chromosome Browser: This chart visually represents where you share DNA with your match. The “Advanced Options” menu lets you download the matching data and add it to your research spreadsheets.

Additional Tools

MyHeritage has a few more tools to gather more information from your DNA matches. One suggestion. It is important to keep good notes (or screenshots) of this information as you

research. That way, you can keep track of the DNA relationships and see patterns that emerge among your matches.

You can use the chromosome browser to compare your DNA to no more than seven matches. There are several reasons you may want to do this. Perhaps it is to see how descendants of common ancestral lines inherited DNA. Maybe you want to compare the DNA of people with the same surname. Or for a variety of different reasons.



Another great tool that allows you to visualize, on a large scale, how your match results are related is AutoClusters. It groups your matches into clusters that share DNA with you and each other. It is a quick way to find family groups, some of which you may not have realized are related!

Resources

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