



Maternal Haplogroup

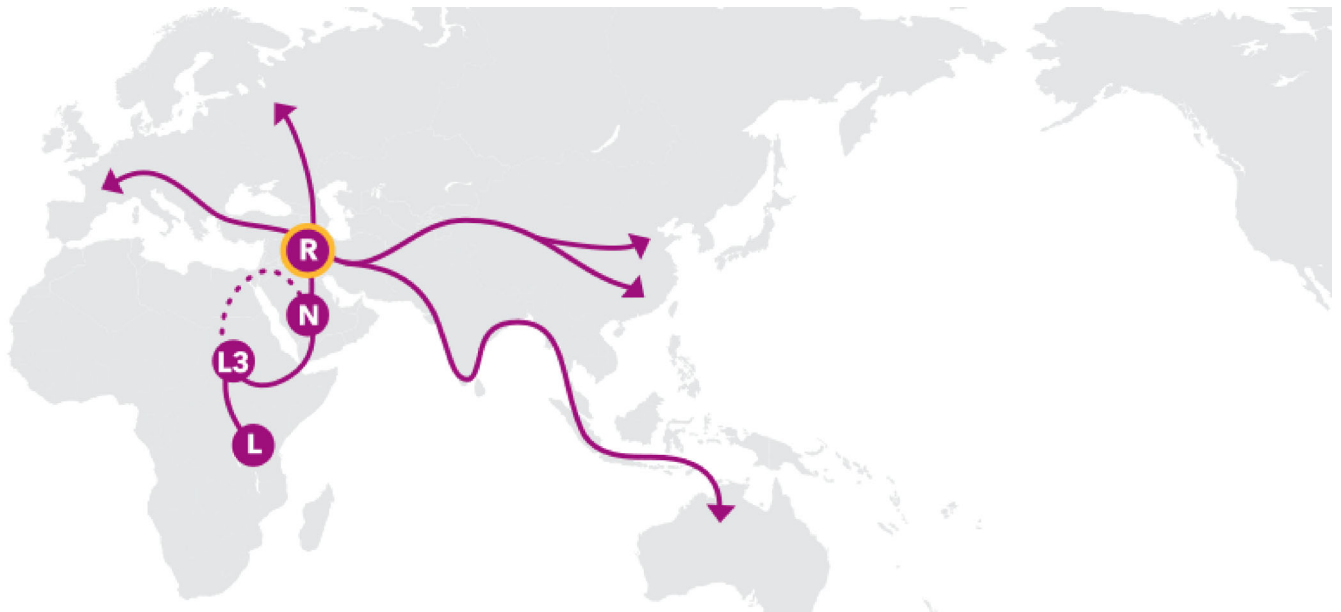
You descend from a long line of women that can be traced back to eastern Africa over 150,000 years ago. These are the women of your maternal line, and your maternal haplogroup sheds light on their story.



Tobias, your maternal haplogroup is HV1a2.

As our ancestors ventured out of eastern Africa, they branched off in diverse groups that crossed and recrossed the globe over tens of thousands of years. Some of their migrations can be traced through haplogroups, families of lineages that descend from a common ancestor. Your maternal haplogroup can reveal the path followed by the women of your maternal line.

Migrations of Your Maternal Line



180,000 Years Ago

Haplogroup L

If every person living today could trace his or her maternal line back over thousands of generations, all of our lines would meet at a single woman who lived in eastern Africa between 150,000 and 200,000 years ago. Though she was one of perhaps thousands of women alive at the time, only the diverse branches of her haplogroup have survived to today. The story of your maternal line begins with her.

65,000 Years Ago

Haplogroup L3

Your branch of L is haplogroup L3, which arose from a woman who likely lived in eastern Africa between 60,000 and 70,000 years ago. While many of her descendants remained in Africa, one small group ventured east across the Red Sea, likely across the narrow Bab-el-Mandeb into the tip of the Arabian Peninsula.

59,000 Years Ago

Haplogroup N

Your story continues with haplogroup N, one of two branches that arose from L3 in southwestern Asia. Researchers have long debated whether they arrived there via the Sinai Peninsula, or made the hop across the Red Sea at the Bab-el-Mandeb. Though their exact routes are disputed, there is no doubt that the women of haplogroup N migrated across all of Eurasia, giving rise to new branches from Portugal to Polynesia.

57,000 Years Ago

Haplogroup R

One of those branches is haplogroup R, which traces back to a woman who lived soon after the migration out of Africa. She likely lived in southwest Asia, perhaps in the Arabian peninsula, and her descendants lived and migrated alongside members of haplogroup N. Along the way, R gave rise to a number of branches that are major haplogroups in their own right.

17,000 Years Ago

Origin and Migrations of Haplogroup HV1

Your maternal line stems from a branch of haplogroup R called HV1. The members of haplogroup HV1 all descend from a woman who lived approximately 17,000 years ago, likely in the Middle East. The Ice Age was still in full swing, and much of Eurasia to the north was covered in massive glaciers. Then, gradually, the cold faded away and people from the Middle East and the southern edges of Europe began moving north. Some of these migrants were women who belonged to HV1.

Though some women moved into Europe, haplogroup is relatively rare among modern Europeans. HV1 can be found at low levels among the peoples of the northern Caucasus, Turkey and Iran. The highest levels of HV1 are in the nomads of the Middle East and North Africa. In fact, HV1 reaches almost 10% in the Druze of the Levant and 15% in Berbers of Tunisia. Although HV1 can be found in Moroccan Jewish, Yemenite Jewish and Palestinian Jewish populations, there are many non-Jews belonging to the haplogroup as well. For example, a small number of HV1 individuals have been found in Ethiopia and Sudan, though they appear to be very recent migrants from the Arabian Peninsula.

HV1a2

13,000 Years Ago

Your maternal haplogroup, HV1a2, traces back to a woman who lived approximately 13,000 years ago.

That's nearly 520.0 generations ago! What happened between then and now? As researchers and citizen scientists discover more about your haplogroup, new details may be added to the story of your maternal line.

Today

HV1a2 is relatively uncommon among 23andMe customers.

Today, you share your haplogroup with all the maternal-line descendants of the common ancestor of HV1a2, including other 23andMe customers.

1 in 3,100

23andMe customers share your haplogroup assignment.

Haplogroup HV is a part of the rich history of the Middle East.



Statues of Persian warriors in Persepolis, in present-day Iran.

Haplogroup HV is often found in the Middle East, an area that has played a pivotal role in human evolution. It served as both a passage for humans leaving Africa for Asia, and as the cradle of agriculture in the west – one of the most pivotal innovations in human history. The Middle East has also been a part of several different empires, conquests, and invasions, leaving it a genetically complex region.

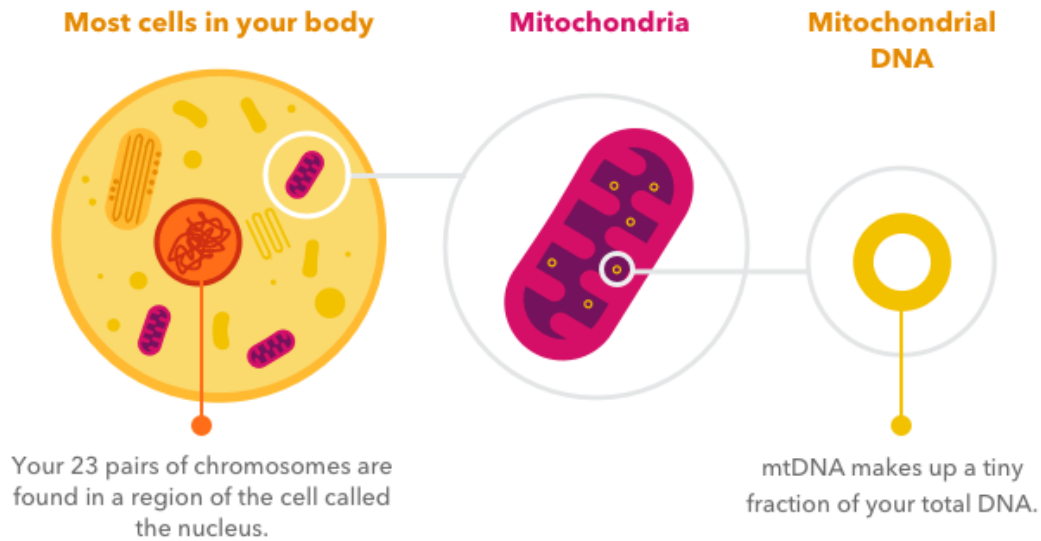
Over a span of 500 years, this region was part of both Persian and Parthian empires. The region became a nexus of trade and commerce because of its proximity to the Silk Road, which connected the Roman Empire and the Han Dynasty of China. After the Parthian Empire fell, populations from the Arabian Peninsula, Mongolia, and Turkey invaded Iran. In 637 AD, the Muslim conquest introduced Islam to Persia, establishing a religious presence that is still dominant nearly 1400 years later. The result of such a complex history is that the Middle East harbors lots of genetic diversity, including descendants from many different populations. As a member of HV, you can count yourself a part of that complex genetic and cultural tapestry.

The Genetics of Maternal Haplogroups

Mitochondrial DNA

Maternal haplogroups are determined by sets of genetic variants in a tiny, unusual loop of DNA called mitochondrial DNA (mtDNA). As the name suggests, mtDNA is found in the mitochondria, small but mighty structures inside our cells that turn fuel from the food we eat into energy.

Mitochondria evolved over billions of years from an independent bacterial cell that was engulfed by another cell. Instead of becoming lunch, the bacterium helped its new host use oxygen to produce energy. Over time it completely lost its independence and became an integrated part of the larger cell.

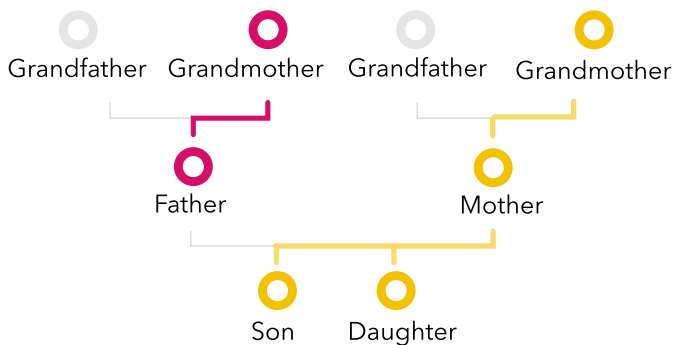


Maternal Inheritance

MtDNA is a powerful tool for tracing the history of maternal lines because of the way it is inherited: everyone has mtDNA, but only mothers pass it down to their children. So, you inherited a copy of your mother's mtDNA, who inherited it from her mother, who inherited it from hers, and so on through the generations along an unbroken line of women.

The copies passed down are not always perfectly identical, however. Small typos in the mtDNA sequence occasionally occur, creating new genetic variants. Over many generations, these variants stack up in unique patterns that are carried by different maternal lines around the world.

Only mothers pass their mtDNA down to their children

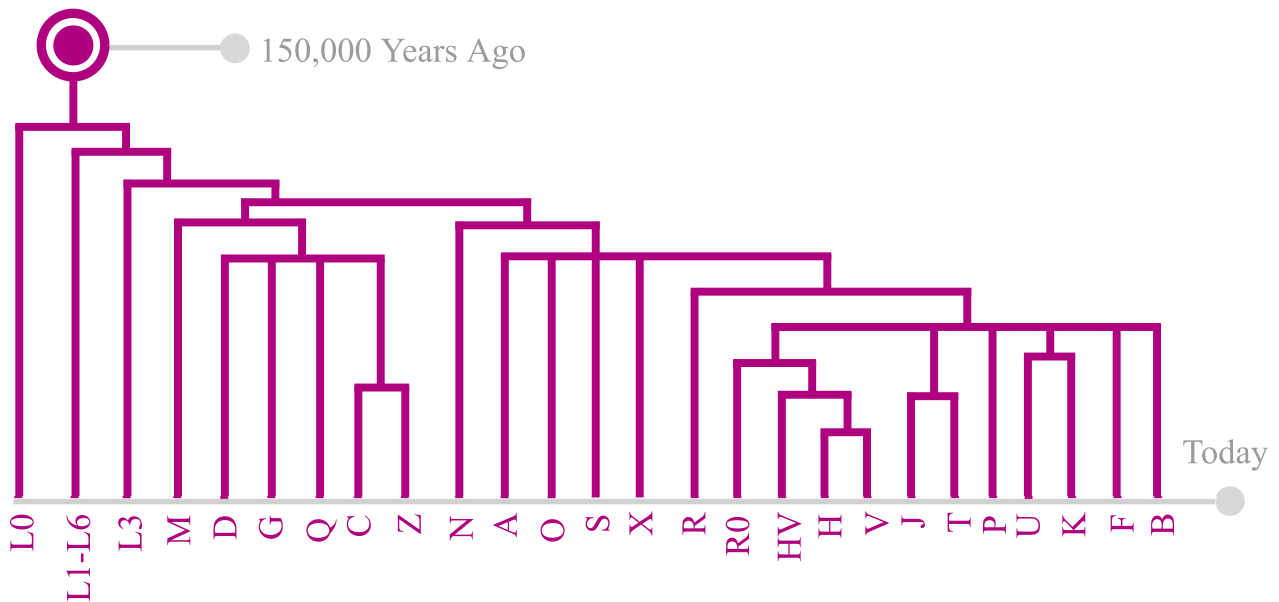


Maternal Haplogroup Tree

By comparing the mtDNA patterns from around the world, researchers identify families of maternal lines. All the lines within each family trace back to a single common ancestor, and share a set of mtDNA variants that they inherited from her.

In fact, when we look very far back in time, all the maternal lines around the world trace back to one woman! Along with her ancestors, she forms the root of a great tree that shows how all maternal lines are related. Each sub-family in this tree is called a "haplogroup" and named with a sequence of letters and numbers that reflect its location in the tree.

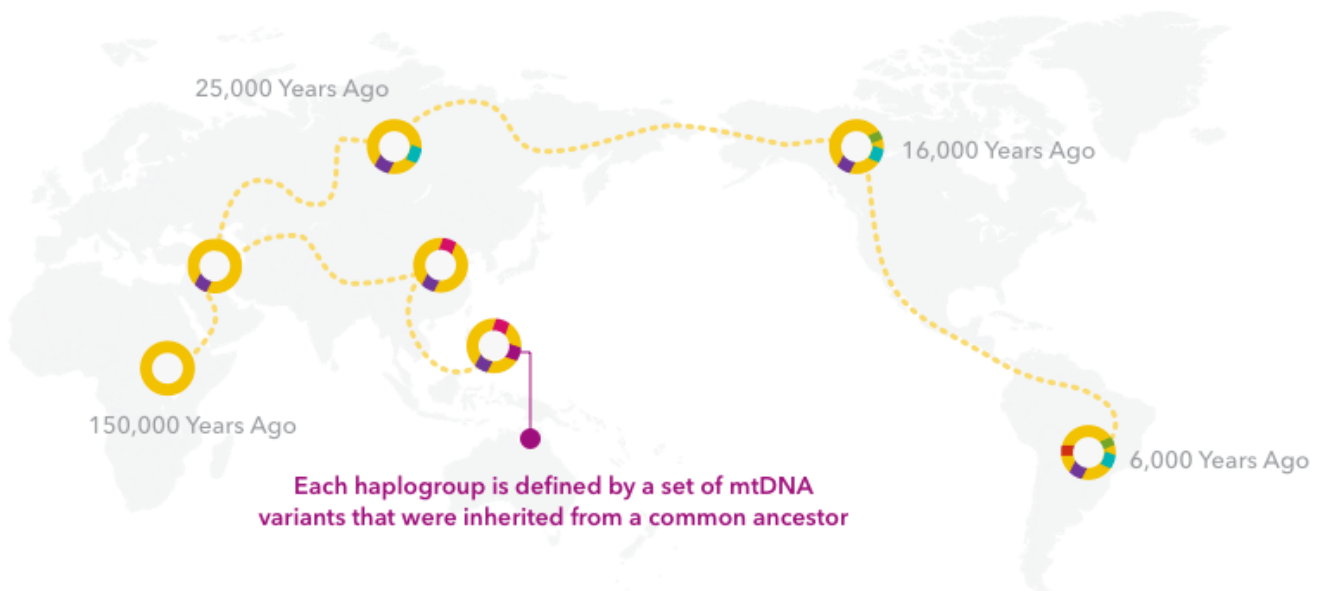
See your line in the tree of all maternal haplogroups.



Tracing Female Migrations

Next, geneticists study the relationships between haplogroups and compare them with the distribution of each group around the world. Because closely related haplogroups tend to share geographic roots, researchers can play a sophisticated version of connect-the-dots to estimate the origins and migration patterns of particular haplogroups.

Finally, combining this genetic evidence with data from other fields of study helps researchers place the story of each maternal line within the broader context of human history.



Do more with your Haplogroup results.

- Contribute to research and help us understand patterns of genetic variation around the world.
- Visit DNA Relatives to identify relatives that may be on your maternal line.
- Visit the Forums to meet other customers interested in discussing haplogroups.

Scientific Details

Your haplogroup is determined by your mitochondrial DNA.

Each generation, mothers pass down copies of their mitochondrial DNA (mtDNA) to their children. While most of your genome exists in 23 pairs of chromosomes that exchange pieces between generations in a process called recombination, mtDNA is transmitted unshuffled. Because of this unusual pattern of inheritance, mtDNA contains rich information about maternal lineages.

A small number of DNA changes, called mutations, generally occur from one generation to the next. Because mtDNA does not recombine between generations, these mutations accumulate in patterns that uniquely mark individual lineages. Scientists can compare the sequence differences that result by constructing a tree. This tree shows how maternal lineages relate to one another, including the observation that they all share a most recent common ancestor approximately 150,000 to 200,000 years ago.

The term "haplogroup" refers to a family of lineages that share a common ancestor and, therefore, a particular set of mutations. We identify your haplogroup by determining which branches of the mtDNA tree correspond to your DNA. Because more closely related lineages tend to share geographic roots, your haplogroup can provide insight into the origins of some of your ancient maternal-line ancestors.

Maternal haplogroups are named with sequences of letters and numbers that reflect the structure of the tree and how the branches relate to one another.

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Change Log

Your report may occasionally be updated based on new information. This Change Log describes updates and revisions to this report.

Date	Change
May 8, 2017	The standalone Maternal Haplogroup report was created, featuring new design elements and content.
Oct. 21, 2015	Haplogroups report created.

Tobias Kredel's Report, printed on 2019-06-28 UTC



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