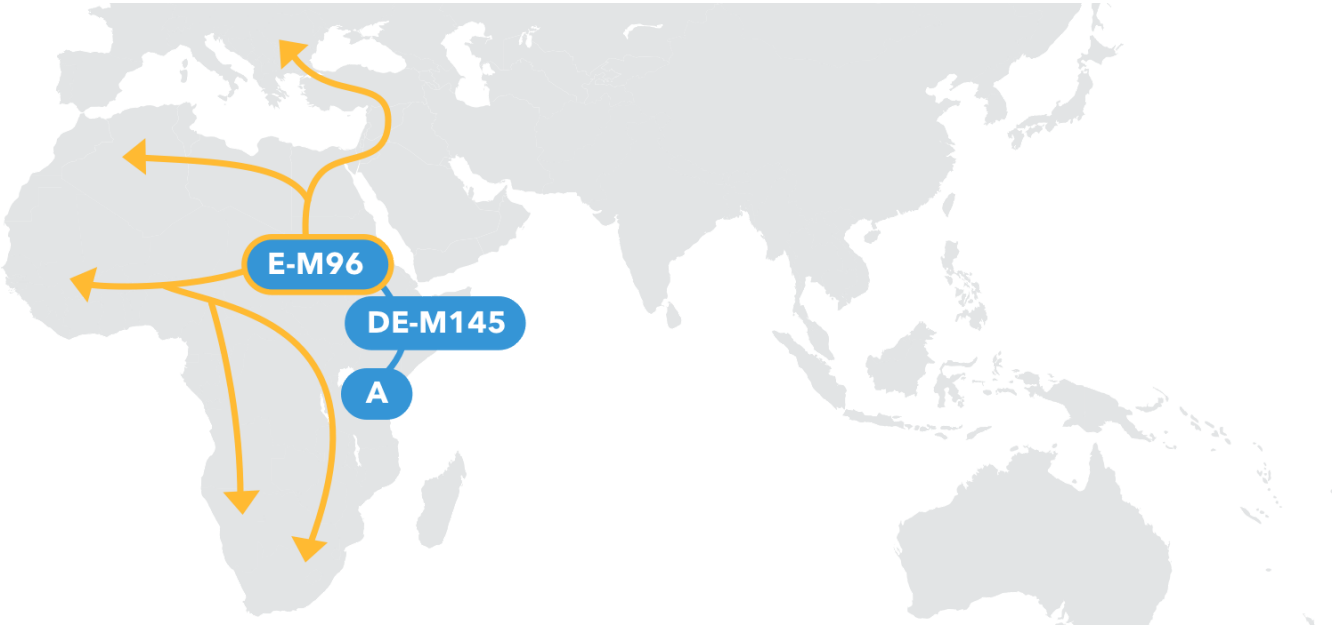
Paternal Haplogroup

You descend from a long line of men that can be traced back to eastern Africa over 275,000 years ago. These are the men of your paternal line, and your paternal haplogroup sheds light on their story.

William, your paternal haplogroup is E-M183.

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 paternal haplogroup can reveal the path followed by the men of your paternal line.

Migrations of Your Paternal Line



275,000 Years Ago

Haplogroup A

The stories of all of our paternal lines can be traced back over 275,000 years to just one man: the common ancestor of haplogroup A. Current evidence suggests he was one of thousands of men who lived in eastern Africa at the time. However, while his male-line descendants passed down their Y chromosomes generation after generation, the lineages from the other men died out. Over time his lineage alone gave rise to all other haplogroups that exist today.

76,000 Years Ago

Haplogroup DE-M145

The first steps of your paternal-line ancestors lead from eastern Africa north towards the Red Sea and haplogroup DE-M145. The DE lineage branched away from its brothers around 65,000 years ago, among the first of our ancestors to cross out of Africa into the Arabian Peninsula. Most descendants of the DE lineage belong to one of its two branches, D and E. Men carrying D moved east into Asia and those with E moved west through Africa and into Europe.

73,000 Years Ago

Haplogroup E-M96

Your path branched off again over 60,000 years ago with the rise of haplogroup E-M96, also simply called haplogroup E. The common ancestor of E-M96 may have lived in northeastern Africa or in the Arabian Peninsula. Since then, his descendants have carried it throughout the African continent and into neighboring regions of Europe and the Middle East.

48,000 Years Ago

Origin and Migrations of Haplogroup E-M215

Your paternal line stems from the common ancestor of haplogroup E-M215, a man who likely lived nearly 48,000 years ago in northern Africa. His descendants migrated throughout the region above the Sahara Desert over thousands of years. Some of them journeyed even farther,

leaving Africa for the Middle East, the crossroads of Africa, Asia, and Europe. It was there, soon after the Ice Age drew to a close around 12,500 years ago, that humans first learned to domesticate cereals and livestock and completely transformed their way of life. In fact, farming was such a successful strategy that populations boomed, sparking waves of migration into southeastern Europe nearly 8,000 years ago. Some of these migrating farmers bore the E-M215 haplogroup, and as they moved they brought not only their technology and culture, but also the paternal lineage. Over time, their sons and many generations that followed continued to migrate and diverge, giving rise to many new subgroups of E-M215. Today, these branches are seen in populations throughout northern and eastern Africa, as well as the Middle East and eastern Europe.

E-M183

24,000 Years Ago

Your paternal haplogroup, E-M183, traces back to a man who lived approximately 24,000 years ago.

That's nearly 960 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 paternal line.

Today

E-M183 is relatively common among 23andMe customers.

Today, you share your haplogroup with all the paternal-line descendants of the common ancestor of E-M183, including other 23andMe customers.

1 in 197

23andMe customers share your haplogroup assignment.

You share a paternal-line ancestor with men who migrated to Spain more than 1,300 years ago.

Many members of your haplogroup have been found in Spain. There are several possible explanations for your haplogroup's presence in this area. One possibility is that Berber troops belonging to E-V257 were migrating during

the Islamic expansion into the Iberian Peninsula in 711 AD. A second possibility is that North African people were migrating to the Iberian Peninsula before the founding of Islam, perhaps driven by Roman and Phoenician commerce that involved Northwest Africa and Iberia.

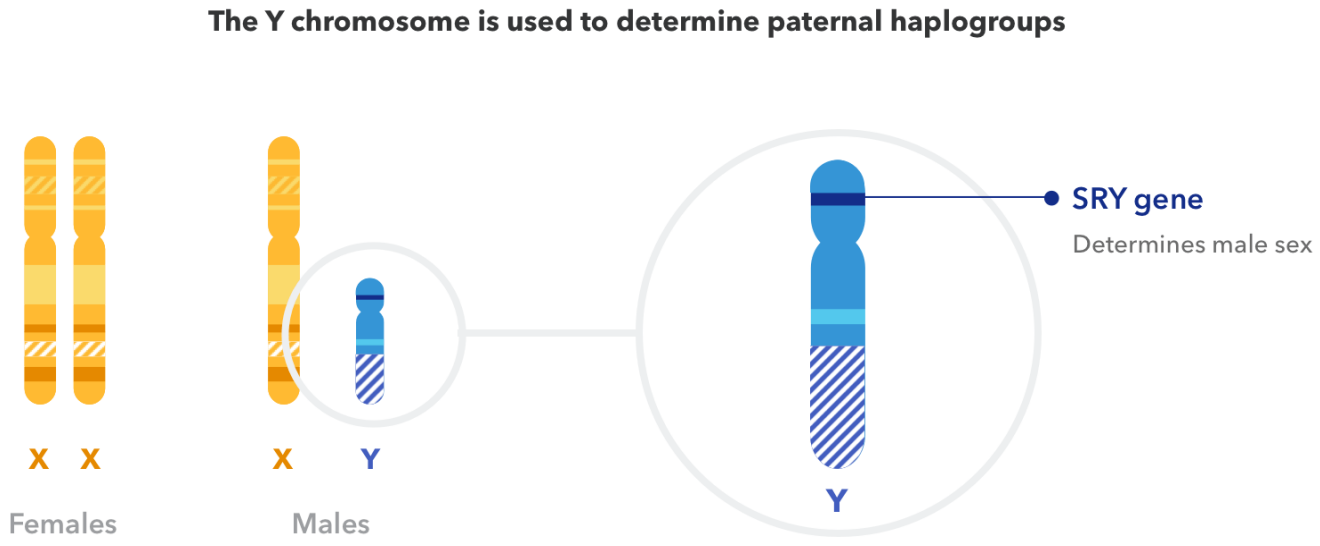
The Genetics of Paternal Haplogroups

The Y Chromosome

Most of the DNA in your body is packaged into 23 pairs of chromosomes. The first 22 pairs are matching, meaning that they contain roughly the same DNA inherited from both parents. The 23rd pair is different because in men, the pair does not match. The chromosomes in this pair are known as "sex" chromosomes and they have different names: X and Y. Typically, women have two X chromosomes and men have one X and one Y.

Your genetic sex is determined by which sex chromosome you inherited from your father. If you are genetically male, you received a copy of your father's Y chromosome along

with a gene known as SRY (short for *sex-determining region Y*) that is important for male sexual development. If you are genetically female, you received a copy of the X chromosome from both of your parents.

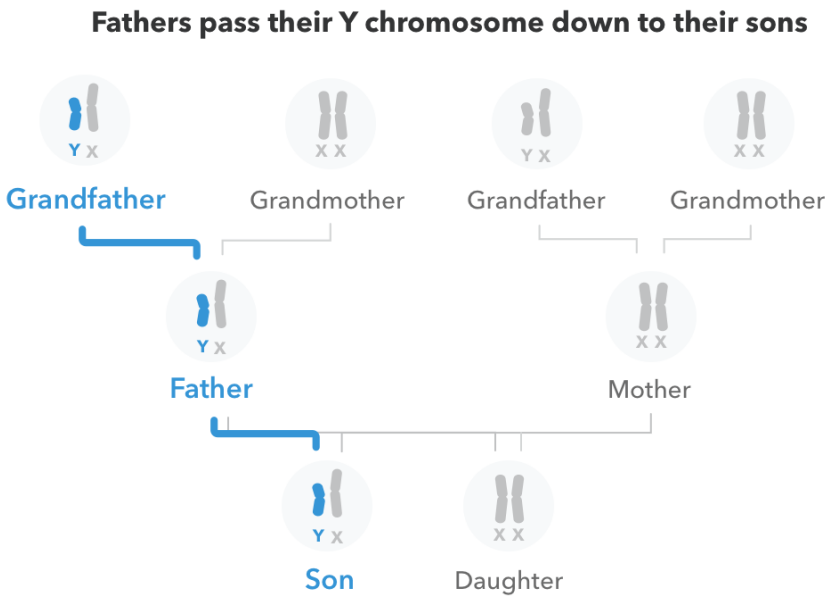


Paternal Inheritance

Each generation, fathers pass down copies of their Y chromosomes to their sons essentially unchanged. Between generations, the matching chromosomes in the other 22 pairs make contact and exchange segments of DNA. This process shuffles the genetic information that is passed down from parent to child, making it difficult to trace genealogy

over many generations. Except for two tiny sections at the chromosome's tips, however, the Y skips this step. Instead, a nearly identical copy is handed down each time.

But, every so often, small changes to the DNA sequence do occur. These changes, called mutations, create new genetic variants on the Y chromosome. Because the Y does not recombine between generations, these variants collect in patterns that uniquely mark individual paternal lineages.



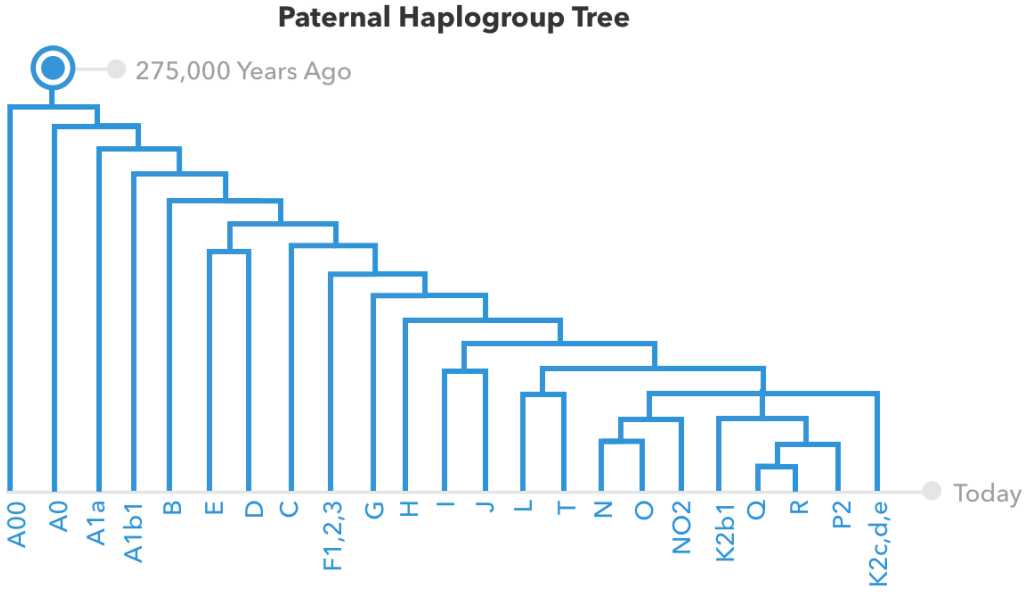
Paternal Haplogroup Tree

To trace the genetic history of paternal lineages, researchers compare the variants found in Y-DNA sequences from around the world. The result is a tree of Y chromosomes that

shows how all paternal lines are related.

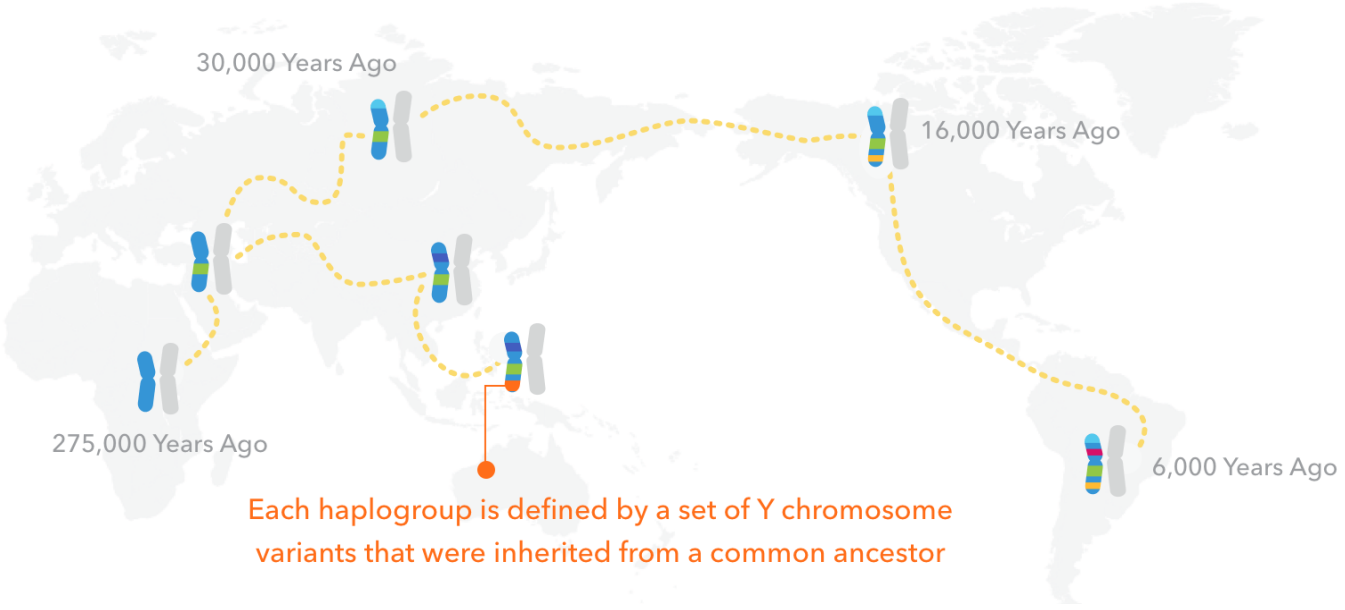
A paternal haplogroup is a cluster of branches on the tree that stem from a common male ancestor and share a particular set of variants. To keep track of all the branches, the major sections of the tree are named with one or more capital letters. Each haplogroup name starts with the letter of the major branch from which it stems and ends with the name of a variant that identifies a particular subgroup.

Visit the scientific details to see your lineage in the tree of all paternal haplogroups.



Tracing Male Migrations

Because closely related haplogroups tend to share geographic roots, researchers can use the modern distributions of haplogroups around the world to trace major migrations, from the voyage to Australia over 40,000 years ago to the peopling of North and South America in the last 19,000 years.



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 paternal line.
- Visit the Forums to meet other customers interested in discussing haplogroups.

Scientific Details

Your haplogroup can tell you about your paternal line.

Each generation, fathers pass copies of their Y chromosomes on to their sons. Whereas most of the genome exists in two copies that exchange pieces between generations in a process called recombination, the Y chromosome is transmitted unshuffled. Because of this unusual pattern of inheritance, the Y contains rich information about paternal lineages.

A small number of DNA changes, called mutations, generally occur from one generation to the next. Because the Y chromosome does not recombine between generations, these mutations accumulate in patterns that uniquely mark individual lineages, and scientists can compare the resulting sequence differences by constructing a tree. This tree shows how paternal lineages relate to one another, including the observations that all human paternal lineages share a most recent common ancestor approximately 275,000 years ago.

The term "haplogroup" refers to a family of lineages that share a common ancestor and, therefore, a particular set of mutations. Each paternal haplogroup is named with a letter indicating the major cluster of branches to which it belongs, followed by the name of a mutation that is shared by a subset of the major cluster.

We identify your haplogroups by determining which branches of the Y-chromosome 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 ancestors.

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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
Sept. 7, 2017	For customers in certain branches of R1, an outdated story about the possible origins of one paternal lineage in the Ashkenazi Jewish population has been removed.
Aug. 4, 2017	The standalone Paternal Haplogroup report was created, featuring new design elements and content.
May 23, 2017	Certain customers in the E and J branches received updated paternal haplogroup results due to improvements in our assignment algorithm. Additional changes were made to naming conventions used in certain assignments in the K and R branches.
Nov. 15, 2016	The algorithm and naming convention used for assigning paternal haplogroups was updated.
Oct. 21, 2015	Haplogroups report created.