

Your Ancestral Journey

The origin of our species lies in Africa: It's where we first evolved and where we've spent the majority of our time on Earth. We have since migrated to every corner of the globe, a journey that is written in our DNA.

With the sample you sent us, we ran a comprehensive analysis to identify thousands of genetic markers—breadcrumbs—in your DNA, which are passed down from generation to generation. By looking at the order in which these markers occurred over time, we can trace the journey of your ancestors out of Africa. Furthermore, with these markers we have created a human family tree. Everyone alive today falls on a particular branch of this family tree. We have examined your markers to determine which branch you belong to. The results of our analysis—your personal journey—are outlined below.

Your Genius Matches (Present - 120,000 Years Ago)

We determine your Genius Matches through the analysis of either mitochondrial or Y-chromosome DNA, two parts of the DNA which are inherited directly, without mixing, from one ancestor in any given generation. Furthermore, if you go back 150,000 years, all seven billion humans share one single, common maternal ancestor: A **Mitochondrial Eve**. Her male counterpart was **Y-chromosome Adam**. Actually, any two individual people that ever lived may share a match (an Eve or an Adam) at a more recent point in time. First maternal cousins, for example, share a match at the grandmother level. Although it's true that every two living people share a common ancestor, in reality we share multiple ancestors. Some of these common ancestors lived centuries ago, while others lived and migrated across the earth millennia ago. Here we estimate when in time you shared a **direct female** or **direct male** ancestor with a famous historical genius. Learn about your own Genius Matches below.

0 Matches

12,000 - 0
Years Ago

No results for this time frame.

6 Matches

25,000 - 12,000
Years Ago

Queen Victoria

1819-1901

Royal Genius



MATERNAL MATCH



Victoria was the longest serving monarch of the British Empire, and oversaw some of the greatest advances scientifically, industrially, and across various aspects of society during an age of great advancement and development: The Victorian Era. Her tenure not only changed Great Britain, but had linguistic and societal impacts across the globe that are still lasting today.

Nicolas Copernicus

1473-1543

Mathematical Genius



MATERNAL MATCH



Copernicus was one of the greatest mathematicians and astronomers of all time. He established that the Sun, rather than the Earth, was the center of the Solar System. This concept set the foundation for the modern day understanding of our place in the universe.

Copernicus could also speak multiple languages, and he dabbled in economics and politics as well.

Benjamin Franklin

1706-1790

Multi-faceted Genius



MATERNAL MATCH



Not only was Benjamin Franklin one of the founding fathers of the United States of America, but he was also a writer, publisher, physicist, naturalist, and economist, and his name is synonymous with wealth (a Benjamin is a \$100 bill). Franklin is also credited with the idea of harnessing the power of electricity, a concept that completely altered the world as we know it.

Marie Antoinette

1755-1783

Historical Genius



MATERNAL MATCH



Marie Antoinette is one of the most famous leaders, turned villains of recent history. To this day she is remembered for her staunch conservatism and displays of wealth. She is attributed with the infamous phrase, "let them eat cake," supposedly uttered in response to the poverty in France. She is ultimately remembered for her death by guillotine in the center of Paris.

Napoleon

1769-1821

Military Genius



MATERNAL MATCH



Napoleon was a political and military leader that rose to power in the late 18th century during the French Revolution. Under his rule, France rose to the position of European super power. Napoleon was later captured, tried, and found guilty. He eventually died in confinement in St. Helena island in the South Atlantic. His military tactics are still studied today, while his liberal political leanings continue to influence Europe and the world.

Maria Theresa

1717-1780

Royal Genius



MATERNAL MATCH



Maria Theresa was a queen among queens. Her titles continuously changed as the geography of continental Europe evolved as nations merged then split apart during the heart of the 18th century. Maria was at one time Holy Roman Empress, Queen of Bohemia, and Archduchess of Austria. She was mother to sixteen children, the most famous of which was her youngest daughter, Maria Antonia, also known as Marie Antoinette.

0 Matches

45,000 - 25,000
Years Ago

No results for this time frame.

2 Matches

65,000 - 45,000
Years Ago

Petrarch
1304-1374
Poetic Genius



Francesco Petrarca was an Italian scholar, poet, and humanist whose 14th century writings arguably ushered in the Renaissance movement across Italy, and eventually throughout Europe. Because of his drive to revisit the scholarly classics of the past and his ever inquisitive thirst for knowledge, he was regarded as one of the greatest scholars of his age.

Abraham Lincoln
1809-1865
Political Genius



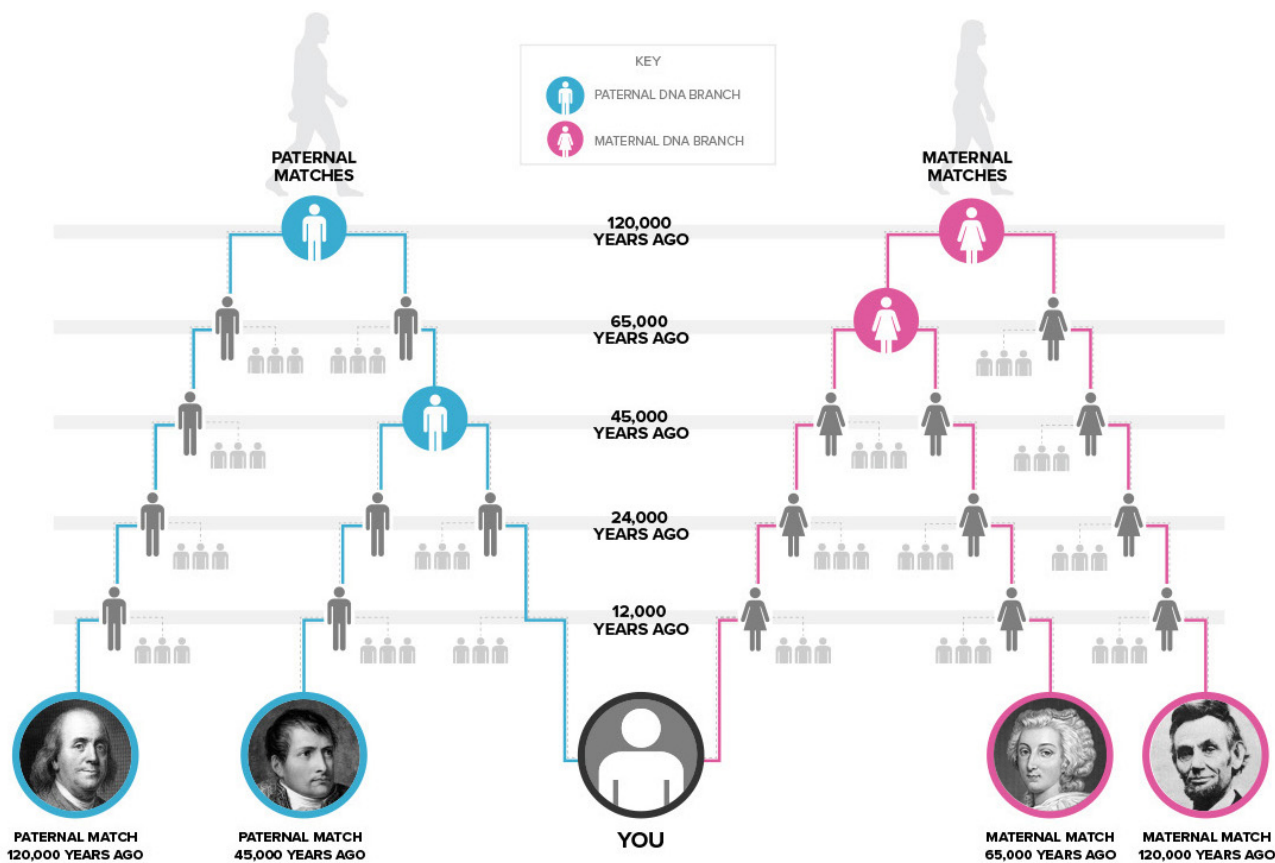
Most historians consider Lincoln the greatest of all U.S. Presidents. He was a gifted politician, and astute at bringing people together in mutual understanding and consensus. This 16th American President kept the young country from splintering during some of the darkest days in American history, the U.S. Civil War.

0 Matches

120,000 - 65,000
Years Ago

No results for this time frame.

The Science Behind Your Matches



The diagram above is illustrative and depicts both paternal and maternal branching to help you understand how the science behind matching works. In this example, the matches show when in ancient history your maternal and/or paternal line diverged or “branched” from that of a famous Genius (For example, Lincoln, 60,000 years ago). Male participants can get both paternal and maternal matches, whereas female participants can only get maternal matches.

Have a question?

-How did NG define Genius?

National Geographic is very liberal in its definition of genius. Since we are looking predominantly at historical figures, our definition of genius is that of “remarkable” or “historic” figure. But, you know, we are all truly geniuses in our own ways.

-Can my DNA tell me if I’m a genius?

Although there are genes associated with the ability to learn and intelligence, we are not currently analyzing those genes or DNA markers with Genographic.

-Why do I see men in my maternal matches?

Since we all have mothers, we all carry mitochondrial DNA, which is inherited strictly through the mother’s line. So, just like you and your brother have the same mother, you and your first male cousin have the same maternal-grandmother, and you and your male second cousin have the same maternal great-grandmother, you all share a direct maternal ancestor in the past, even if one or both of you are male. The same logic applies for your genius matches.

-Why do I see zero matches for some timeframes?

We compare your maternal and paternal DNA to a limited number of “geniuses,” so it’s quite likely that you don’t have a match that falls into one of our specifically designated time blocks. That is all.

-Why don’t I have any recent matches (12,000 – 0 years)?

In some cases your lineages may not have a match in the last 12,000 years. That doesn’t mean that you don’t share an ancestor with any of those people in that shorter time frame. It just means that you don’t share a direct maternal or direct paternal match within the last 12,000 years.

-My closest match is 45,000 years ago, what does that mean?

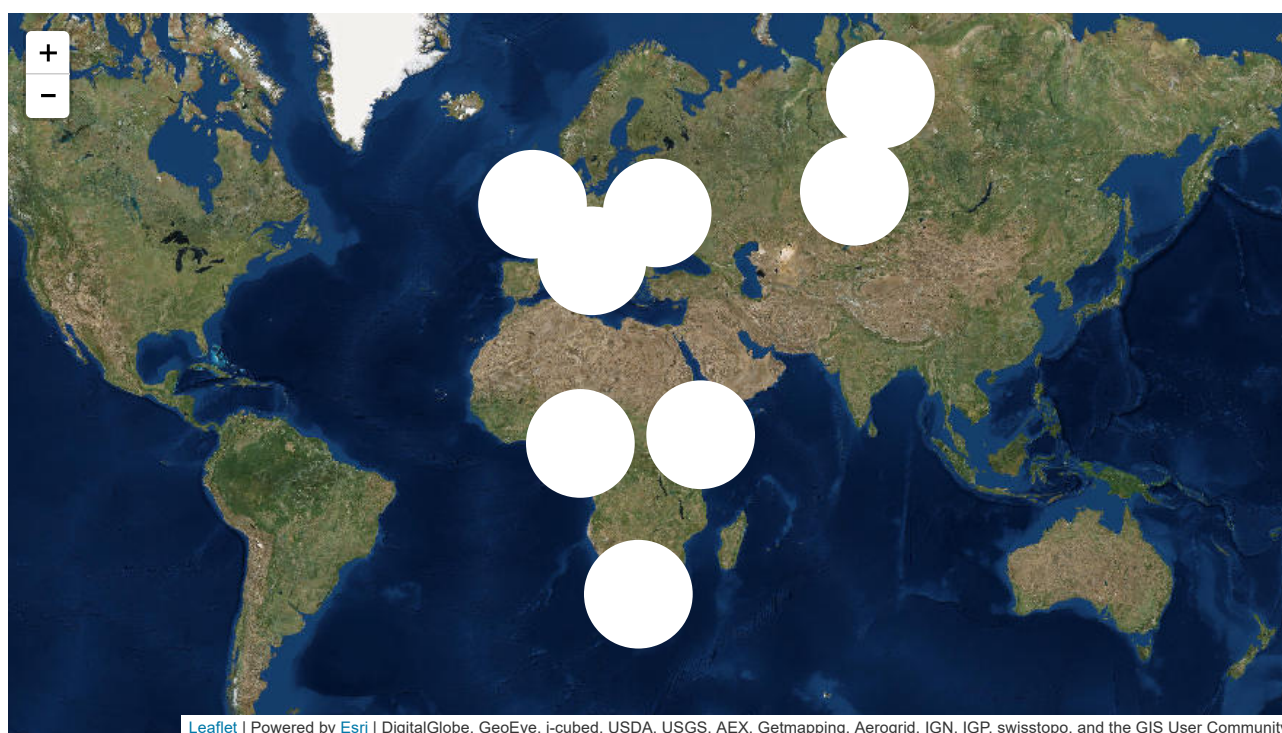
Although you likely shared common ancestors with many geniuses in more recent times, we only track your direct maternal (mother’s mother’s mother...) and direct paternal (father’s father’s father...) line for both you and the genius. In your case, your most recent genius match on one of those two lines was 45,000 years ago.

Your Regional Ancestry

(500 Years to 10,000 Years Ago)

We are all more than the sum of our parts, but the results below offer some of the most fascinating and newest information possible with your Geno 2.0 Next Generation test. In this section, we display your affiliations with a set of eighteen world regions. This information is determined from your entire genome, so we're able to see both parents' information, going back six generations, or more. Your percentages reflect both recent influences and ancient genetic patterns in your DNA due to how groups migrated to and from different regions, mixing for hundreds or even thousands of years. Your ancestors may have also mixed with ancient, now extinct hominid cousins, like Neanderthals. If you or your parents have an admixed background, this pattern can get complicated very quickly! Use the reference population matches below to help understand your results.

Your Results



REGIONS

Western and Central Africa: 43%



This component of your ancestry is associated with the region that extends from Senegal in West Africa south and east through Nigeria to Congo and Angola. It covers more than half of sub-Saharan Africa, more specifically the regions that border the Atlantic Ocean. Prehistorically, this part of the world is one of the first reached by modern humans some 100,000 years ago, after our species first arose just to the south and east. Historically, West and central Africa saw the rise and fall of many empires and cultures, some associated with the trade of ivory and exotic animals, and in the past several centuries, those associated with the transatlantic slave trade. From the 16th through the 19th centuries, tens of millions of people were captured and forcibly removed from this region and made to work as slaves. This led to arguably the largest exodus in human history. Through forced mass migration, this component of genetic ancestry was spread throughout the world, most heavily throughout the Americas.

Today, this ancestral component is seen in people of West African ancestry, including Senegalese, Ghanaians, and Nigerians; and

people of central African ancestry like the Congolese, Cameroonians, and Angolans. This component is also seen throughout the Americas and is highest among people of African-American, Afro-Caribbean, and Afro-Brazilian ancestry.

Great Britain and Ireland: 34%



This component of your ancestry is associated with the western European islands of Great Britain and Ireland, but traces can also be found along the northern and western coasts of continental Europe. As modern humans first entered Europe, this part of the world was uninhabitable and covered in ice sheets. As the ice sheets retreated, settlers moved to the islands. The earliest settlers likely survived on fishing, but farming eventually reached the islands in the past several thousand years. Stone monuments (e.g., Stonehenge) are associated with some of the islands' earliest cultures. Historically, these islands were populated by Celts and later marked the farthest reaches of the Roman Empire, thus genetic connections still exist between these regions. Yet it was Britain's global empire during the 18th and 19th centuries that helped spread this component, as well as the English language, throughout the world.

Today, this ancestral component is seen in people of British and Irish descent, including those throughout the United States, Canada, Australia, and most other former British colonies.

Southern Europe: 7%



This component of your ancestry originates along the northern Mediterranean coast. For millennia this part of the world was a hub for the movement of trading goods as well as ideas, and thus much of modern Western culture and thought can trace its origins to here. Your ancestors may have been some of the first farmers to migrate to Europe from the Middle East thousands of years ago. Historically, this region was the home to the vast Roman Empire, which brought with it great infrastructure, cities, and cultural development, but consequently led to homogenization of its peoples.

Today, this ancestral component is most common in people of Spanish, Portuguese, Italian, and Greek descent, among other Mediterranean groups. This component is also found in people of French and British ancestry, as well as people from northern Africa. It is also a large component for people of Hispanic-American ancestry.

Finland and Siberia: 5%



This component of your ancestry is associated with the polar regions of Eurasia, stretching from Finland to eastern Siberia in Russia. Similar to other northern regions, this region of Eurasia was settled late and primarily by hunter-gatherers who could survive on the edges of the receding icesheets, and did not take on agriculture until very recently. Although this area may appear distant on a map, members of this population eventually expanded as far east as Alaska, Canada, and North America, and their genetic legacy is still seen in Inuit populations as far east as Canada and Greenland, but also Sami populations as far west as Finland and Sweden. Your ancestors were true circumpolar settlers.

Today, this genetic component of your ancestry is seen in Finnish, Russian, Alaska, and Canadian populations, and in low frequencies among some Native American groups farther south.

Eastern Europe: 4%



This component of your ancestry originates in the plains that extend from the Danube River and the Black Sea north to the Baltic Sea and east to the Volga River and the Ural Mountains of Russia. Your ancestors who lived in this region thousands of years ago were likely hunters and gatherers who gradually adopted agriculture from their neighbors to the south and west. Some scientists believe that it was in this region of the world where horses were first domesticated.

Today, this part of the world is associated with Slavic and Baltic cultures, as well as Russian, Polish, Ukrainian, Romanian, Bulgarian, Czech, Slovak, and German peoples.

Eastern Africa: 3%



This component of your ancestry is associated with the birthplace of modern humans, as well as the departure point for humankind's first migration out of Africa. The region includes the area south of the Sahara desert, east of the Congo rain forests and Africa's Great Rift Valley and west of the Indian Ocean. Some of the most important human ancestor fossils were discovered here, including the infamous Lucy, the *Australopithecus afarensis*, as well as some of the oldest anatomically modern human fossils dating back some 200,000 years. East Africa is home of some of the most ancient mitochondrial DNA lineages, suggesting that it is here where it all began. Historically, this region saw an influx of Bantu speakers and the eventual conversion to pastoralists, a population well adapted to the wide-open savannas.

Today, the ancestral component occurs at highest frequency in people from Sudan, Ethiopia, Kenya, Somalia, Uganda, and Tanzania.

Southern Africa: 2%



This component of your ancestry is associated with the southern regions of Africa south of the Zambezi River, in and around the Kalahari Desert. It likely represents some of the oldest human lineages and those that split earliest in the human population in Africa some 150,000 years ago. These early southern Africans were once more widespread, accounting for the low frequency of this component in other African groups to the west, central, and eastern parts of the continent.

Today, this component is found at highest frequency in the Khoisan people of southern Africa—the famous Bushmen of the Kalahari. It is also seen among others groups from South Africa, Namibia, Botswana, Zimbabwe, and Mozambique.

Central Asia: 2%



This component of your ancestry is associated with the region east of the Ural Mountains and the Caspian Sea, northeast of the Himalayan highlands, and west of Tibet. This part of the world saw the movement of cold-adapted migrants for tens of thousands of years. Its predominantly flat terrain allowed for faster migration east and west and thus became the major thoroughfare for the historic Silk Road.

Today, Central Asia is home to dozens of ethnic groups, many of which were associated with the break-up of the Soviet Union several decades ago. It includes the countries of Kazakhstan, Uzbekistan, Afghanistan, Turkmenistan, Mongolia, and the Chinese region of Tibet.

What Your Results Mean

We compared your DNA results to the reference populations we currently have in our database and estimated which of these populations were most similar to you in terms of the genetic markers you carry. This doesn't necessarily mean that you belong to these groups, but that these groups were a similar genetic match, and can therefore be used as a guide to help determine why you have a certain result. Remember, this is a mixture of recent (past six generations) and ancient patterns established over thousands of years, so you may see surprising matches. Read each of the population descriptions below to better interpret your particular results.

Your First Reference Population: Bermudian

This population is based on samples collected from mixed populations living in Bermuda. The percentages shown here reflect Bermuda's vast racial diversity, including Africans brought during the slave-trading era (West and central Africa, as well as Southern Africa) and European and Asian colonists and workers (Great Britain and Ireland, Western and Central Europe, and Southern Asia). In addition, some Native Americans were sent as slaves to Bermuda in the 17th century, accounting for the small Native American ancestry. Bermuda had no indigenous inhabitants when Europeans first arrived in the 16th century.

BERMUDIAN

Western and Central Africa: 66%

Great Britain and Ireland: 8%

Native American: 7%

Southern Africa: 6%

Southern Asia: 4%

Eastern Europe: 2%

Northern Africa: 2%

Western and Central Europe: 2%

YOU

Western and Central Africa: 43%

Great Britain and Ireland: 34%

Southern Europe: 7%

Finland and Siberia: 5%

Eastern Europe: 4%

Eastern Africa: 3%

Southern Africa: 2%

Central Asia: 2%

Your Second Reference Population: Haitian

The reference population is associated with groups living in Haiti, the western half of the Caribbean island of Hispaniola. The large Western and Central African component is indicative of the influence of the forced migration of African groups to the Americas during

the transatlantic slave trade, which is most evident in former French and English Caribbean colonies. The Native American component is a genetic remnant of some of the earliest settlers of Hispaniola, the Tainos, while the European components are remnants from the centuries-long European control of the region.

HAITIAN

Western and Central Africa: 71%

Southern Africa: 9%

Native American: 9%

Western and Central Europe: 8%

Southern Europe: 3%

YOU

Western and Central Africa: 43%

Great Britain and Ireland: 34%

Southern Europe: 7%

Finland and Siberia: 5%

Eastern Europe: 4%

Eastern Africa: 3%

Southern Africa: 2%

Central Asia: 2%

Your Deep Ancestry (1,000 Years - 100,000 Years Ago)

Introduction to Your Story

We will now take you back through the stories of your distant ancestors and show how the movements of their descendants gave rise to your lineage.

Each segment on the map above represents the migratory path of successive groups that eventually coalesced to form your branch of the tree. We start with the marker for your oldest ancestor, and walk forward to more recent times, showing at each step the line of your ancestors who lived up to that point.

What is a marker? Each of us carries DNA that is a combination of genes passed from both our mother and father, giving us traits that range from eye color and height to athleticism and disease susceptibility. As part of this process, the Y-chromosome is passed directly from father to son, unchanged, from generation to generation down a purely male line. Mitochondrial DNA, on the other hand, is passed from mothers to their children, but only their daughters pass it on to the next generation. It traces a purely maternal line.

The DNA is passed on unchanged, unless a mutation—a random, naturally occurring, usually harmless change—occurs. The mutation, known as a marker, acts as a beacon; it can be mapped through generations because it will be passed down for thousands of years.

When geneticists identify such a marker, they try to figure out when it first occurred, and in which geographic region of the world. Each marker is essentially the beginning of a new lineage on the family tree of the human race. Tracking the lineages provides a picture of how small tribes of modern humans in Africa tens of thousands of years ago diversified and spread to populate the world.

By looking at the markers you carry, we can trace your lineage, ancestor by ancestor, to reveal the path they traveled as they moved out of Africa. Our story begins with your earliest ancestor. Who were they, where did they live, and what is their story? Click "Next" to begin.



Photograph by Claudia Wiens, Alamy

Branch: L3

Age: 67,000 Years Ago

Location of Origin: East Africa

This woman's descendants would eventually account for both out-of-Africa maternal lineages, significant population migrations in Africa, and even take part in the Atlantic Slave Trade related dispersals from Africa.

The common direct maternal ancestor to all women alive today was born in East Africa around 180,000 years ago. Dubbed "Mitochondrial Eve" by the popular press, she represents the root of the human family tree. Eve gave rise to two descendant lineages known as L0 and L1'2'3'4'5'6, characterized by a different set of genetic mutations their members carry.

Current genetic data indicates that indigenous people belonging to these groups are found exclusively in Africa. This means that, because all humans have a common female ancestor, and because the genetic data shows that Africans are the oldest groups on the planet, we know our species originated there.

Eventually, L1'2'3'4'5'6 gave rise to L3 in East Africa. It is a similar story: an individual underwent a mutation to her mitochondrial DNA, which was passed onto her children. The children were successful, and their descendants ultimately broke away from L1'2'3'4'5'6, eventually separating into a new group called L3.

While L3 individuals are found all over Africa, L3 is important for its movements north. Your L3 ancestors were significant because they are the first modern humans to have left Africa, representing the deepest branches of the tree found outside of that continent.

From there, members of this group went in a few different directions. Many stayed on in Africa, dispersing to the west and south. Some L3 lineages are predominant in many Bantu-speaking groups who originated in west-central Africa, later dispersing throughout the continent and spreading this L3 lineage from Mali to South Africa. Today, L3 is also found in many African-Americans.

Other L3 individuals, your ancestors, kept moving northward, eventually leaving the African continent completely. These people gave rise to two important macro-haplogroups (M and N) that went on to populate the rest of the world.

Why would humans have first ventured out of the familiar African hunting grounds and into unexplored lands? It is likely that a fluctuation in climate may have provided the impetus for your ancestors' exodus out of Africa.

The African Ice Age was characterized by drought rather than by cold. Around 50,000 years ago the ice sheets of northern Europe began to melt, introducing a period of warmer temperatures and moister climate in Africa. Parts of the inhospitable Sahara briefly became habitable. As the drought-ridden desert changed to savanna, the animals your ancestors hunted expanded their range and began moving through the newly emerging green corridor of grasslands. Your nomadic ancestors followed the good weather and plentiful game northward across this Saharan Gateway, although the exact route they followed remains to be determined.

Point of Interest

The L branch is shared by all women alive today, both in Africa and around the world. The L3 branch is the major maternal branch from which all mitochondrial DNA lineages outside of Africa arose.



Photograph by Helene Rogers, Alamy

Branch: N

Age: About 60,000 Years Ago

Location of Origin: East Africa or Asia

Your next ancestor is the woman whose descendants formed haplogroup N. Haplogroup N comprises one of two groups that were created by the descendants of L3.

One of these two groups of individuals moved north rather than east and left the African continent across the Sinai Peninsula, in present-day Egypt. Also faced with the harsh desert conditions of the Sahara, these people likely followed the Nile basin, which would have proved a reliable water and food supply in spite of the surrounding desert and its frequent sandstorms.

Descendants of these migrants eventually formed haplogroup N. Early members of this group lived in the eastern Mediterranean region and western Asia, where they likely coexisted for a time with other hominids such as Neanderthals. Excavations in Israel's Kebara Cave (Mount Carmel) have unearthed Neanderthal skeletons as recent as 60,000 years old, indicating that there was both geographic and temporal overlap of these two hominids. This likely accounts for the presence of Neanderthal DNA in people living outside of Africa.

Some members bearing mutations specific to haplogroup N formed many groups of their own which went on to populate much of the rest of the globe. These descendants are found throughout Asia, Europe, India, and the Americas. However, because almost all of the mitochondrial lineages found in the Near East and Europe descend from N, it is considered a western Eurasian haplogroup.

After several thousand years in the Near East, members of your group began moving into unexplored nearby territories, following large herds of migrating game across vast plains. These groups broke into several directions and made their way into territories surrounding the Near East.

Today, haplogroup N individuals who headed west are prevalent in Turkey and the eastern Mediterranean, they are found further east in parts of Central Asia and the Indus Valley of Pakistan and India. And members of your haplogroup who headed north out of the Levant across the Caucasus Mountains have remained in southeastern Europe and the Balkans. Importantly, descendants of these people eventually went on to populate the rest of Europe, and today comprise the most frequent mitochondrial lineages found there.

Point of Interest

This line and its sister lineage are the only two founding lineages to expand out of Africa.

Notable People

Ann Curry of the Today Show belongs to this lineage.



Photograph by Chris Willson, Alamy

Branch: R

Age: About 55,000 Years Ago

Location of Origin: West Asia

After several thousand years in the Near East, individuals belonging to a new group called haplogroup R began to move out and explore the surrounding areas. Some moved south, migrating back into northern Africa. Others went west across Anatolia (present-day Turkey) and north across the Caucasus Mountains of Georgia and southern Russia. Still others headed east into the Middle East, and on to Central Asia. All of these individuals had one thing in common: they shared a female ancestor from the N clan, a recent descendant of the migration out of Africa.

The story of haplogroup R is complicated, however, because these individuals can be found almost everywhere, and because their origin is quite ancient. In fact, the ancestor of haplogroup R lived relatively soon after humans moved out of Africa during the second wave, and her descendants undertook many of the same migrations as her own group, N.

Because the two groups lived side by side for thousands of years, it is likely that the migrations radiating out from the Near East comprised individuals from both of these groups. They simply moved together, bringing their N and R lineages to the same places around the same times. The tapestry of genetic lines became quickly entangled, and geneticists are currently working to unravel the different stories of haplogroups N and R, since they are found in many of the same far-reaching places.

Point of Interest

Descendants of this line dominate the European maternal landscape, making up 75 to 95 percent of the lineages there.



Photograph by Peter Essick, Aurora / Getty Images

Branch: R0

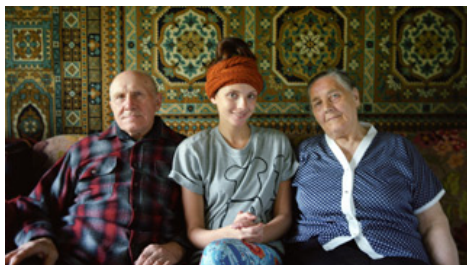
Age: About 41,000 Years Ago

Location of Origin: West Asia

Some individuals moved across West Asia into Central Asia and then the Indus Valley. Others moved south, heading back into the African homeland from where their ancestors had recently departed.

Later, members of this lineage moved north across the Caucasus Mountains and west across Anatolia into Europe. These were Cro-Magnon. Their arrival in Europe heralded the end of the era of the Neanderthals.

Today, members of this lineage are present around the Red Sea and widely throughout the region. While this genetic lineage is common in Ethiopia and Somalia, individuals from this group are present at highest frequency in Arabia. Those living in East Africa are the likely result of more recent migrations back into the continent.



Photograph by Nikolay Titov, Getty Images

Branch: HV

Age: 22,350 ± 7,745 Years Ago

Location of Origin: West Asia

Descending from haplogroup R were a group of individuals who formed a western Eurasian lineage. The descendants of pre-HV live in high frequencies in the Anatolian-Caucasus region and Iran. While members of this group can also be found in the Indus Valley near the Pakistan-India border, their presence is considered the result of a subsequent migration eastward of individuals out of the Near East.

Individuals in haplogroup pre-HV can be found all around the Red Sea and widely throughout the Near East. While this genetic lineage is common in Ethiopia and Somalia, individuals from this group are found at highest frequency in Arabia. Because of their close genetic and geographic proximity to other western Eurasian clusters, members of this group living in eastern Africa are the likely result of more recent migrations back into the continent.

As we have seen from haplogroups N and R, descendants from these western Eurasian lineages used the Near East as a home base of sorts, radiating from that region to populate much of the rest of the world. Their descendants comprise all of the western Eurasian genetic lineages, and about half of the eastern Eurasian mtDNA gene pool. Some individuals moved across the Middle East into Central Asia and the Indus Valley near western India. Some moved south, heading back into the African homeland from where their ancestors had recently departed.

Haplogroup pre-HV is of particular importance because over the course of several thousand years, its descendants split off and formed their own group, called HV. This group—thanks in large part to a brutal cold spell that was about to set in—gave rise to the two most prevalent female lineages found in Western Europe.

While some descendants of these ancestral lineages moved out across Central Asia, the Indus Valley, and even back into Africa, your ancestors remained in the Near East. Descending from haplogroup pre-HV, they formed a new group, characterized by a unique set of mutations, called haplogroup HV.

Haplogroup HV is a west Eurasian haplogroup found throughout the Near East, including Anatolia (present-day Turkey) and the Caucasus Mountains of southern Russia and the republic of Georgia. It is also found in parts of East Africa, particularly in Ethiopia, where its presence there indicates recent Near Eastern gene flow, likely the result of the Arab slave trade over the last two millennia.

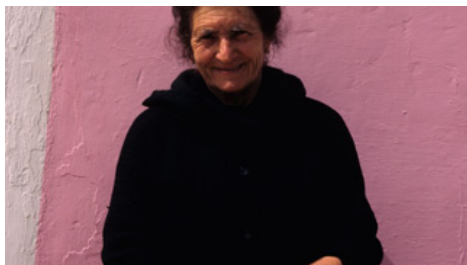
Much earlier, around 30,000 years ago, some members of HV moved north across the Caucasus Mountains and west across Anatolia, their lineages being carried into Europe for the first time by the Cro-Magnon. Their arrival in Europe heralded the end of the era of the Neanderthals, a hominid species that inhabited Europe and parts of western Asia from about 230,000 to 29,000 years ago. Better communication skills, weapons, and resourcefulness probably enabled them to outcompete Neanderthals for scarce resources. Importantly, some descendants of HV had already broken off and formed their own group, haplogroup H, and continued the push into Western Europe.

Today, members of this line are part of the populations of Europe, West Asia (including Anatolia), and the Caucasus Mountains of South Russia and the Republic of Georgia.

This lineage accounts for around 21 percent of maternal lineages in Armenia. It is about 8 percent of those in Turkey and about 5 percent of those in Croatia. Across much of Europe, this line is present at low frequencies of around 1 percent. This lineage accounts for about 7 percent of the population of both India in South Asia and the United Arab Emirates in West Asia.

Point of Interest

Some descendant branches that are now part of the populations of East Africa were introduced by the Arab slave trade of the last two millennia.



Photograph by Marion Bull, Alamy

Branch: H

Age: About 28,000 Years Ago

Location of Origin: West Asia

This wave of migration into western Europe marked the appearance and spread of what archaeologists call the Aurignacian culture, a culture distinguished by significant innovations in methods of manufacturing tools, standardization of tools, and use of a broader set of tool types, such as end-scrapers for preparing animal skins and tools for woodworking.

Around 15,000 to 20,000 years ago, colder temperatures and a drier global climate locked much of the world's fresh water at the polar ice caps, making living conditions near impossible for much of the northern hemisphere. Early Europeans retreated to the warmer climates of the Iberian Peninsula, Italy, and the Balkans, where they waited out the cold spell. Their population sizes were drastically reduced, and much of the genetic diversity that had previously existed in Europe was lost.

Beginning about 15,000 years ago—after the ice sheets had begun their retreat—humans moved north again and recolonized western Europe. By far the most frequent mitochondrial lineage carried by these expanding groups was haplogroup H. Because of the population growth that quickly followed this expansion, your haplogroup now dominates the European female landscape.

Today haplogroup H comprises 40 to 60 percent of the gene pool of most European populations. In Rome and Athens, for example, the frequency of H is around 40 percent of the entire population, and it exhibits similar frequencies throughout western Europe. Moving eastward the frequencies of H gradually decreases, clearly illustrating the migratory path these settlers followed as they left the Iberian Peninsula after the ice sheets had receded. Haplogroup H is found at around 25 percent in Turkey and around 20 percent in the Caucasus Mountains.

While haplogroup H is considered the Western European lineage due to its high frequency there, it is also found much further east. Today it comprises around 20 percent of southwest Asian lineages, about 15 percent of people living in Central Asia, and around five percent in northern Asia.

Importantly, the age of haplogroup H lineages differs quite substantially between those seen in the West compared with those found in the East. In Europe its age is estimated at 10,000 to 15,000 years old, and while H made it into Europe substantially earlier (30,000 years ago), reduced population sizes resulting from the glacial maximum significantly reduced its diversity there, and thus its estimated age. In Central and East Asia, however, its age is estimated at around 30,000 years old, meaning your lineage made it into those areas during some of the earlier migrations out of the Near East.

Haplogroup H is a great example of the effect that population dynamics such as bottleneck events, founder effect, genetic drift, and rapid population growth, have on the genetic diversity of resulting populations.

Later migrations, such as those during the Neolithic Revolution and those triggered by the Bronze Age, brought additional groups containing different descendant branches of this line to Europe.

Point of Interest

The highest percentage of this line in Europe is in Ireland, where it makes up 61 percent of the population.

Notable People

French queen Marie Antoinette and Renaissance astronomer Nicholas Copernicus were members of this lineage.

Heatmap for H

This next step in your journey is a map showing the frequency of your haplogroup (or the closest haplogroup in your path that we have frequency information for) in indigenous populations from around the world, providing a more detailed look at where some of your more recent ancestors settled in their migratory journey. What do we mean by recent? It's difficult to say, as it could vary from a few hundred years ago to a few thousand years ago depending on how much scientists currently know about your particular haplogroup. As we test more individuals and receive more information worldwide, this information will grow and change.

The colors on the map represent the percentage frequency of your haplogroup in populations from different geographic regions—red indicates high concentrations and light yellow and grey indicate low concentrations. The geographic region with the highest frequency isn't necessarily the place where the haplogroup originated, although this is sometimes the case.

The map for H shows that it is widespread in western Eurasia and North Africa with a peak frequency in north-Central Africa and Europe. H is the most common mitochondrial haplogroup in western Eurasia.

Does this mean you're related to people in the areas highlighted on your map? Distantly, yes! We are all connected through our ancient ancestry. In order for us to learn more ancestry information about where haplogroups settled in more recent times, please choose to contribute your results to science (check the checkbox during Login or from the Account Settings tab of your Profile), and fill out your ancestry information in the Profile section of the site. Also be sure to tell your own story in the Our Story section.

Your Hominin Ancestry (50,000 Years Ago and Older)

Your Hominin Ancestry

When our ancestors first migrated out of Africa around 60,000 years ago, they were not alone. At that time other species of hominin—our evolutionary cousins—walked the Eurasian landmass. One of these cousins was the Neanderthals. As our modern human ancestors migrated throughout Eurasia, they encountered these hominins and interbred, resulting in a small amount of Neanderthal DNA, for example, being introduced into the modern human gene pool.

Most non-Africans are about 1.1 percent Neanderthal. This percentage is calculated using a sophisticated analytical method that looks at parts of your DNA that you share with these hominin populations, as well as your complete regional ancestral components. The science around this calculation is new, and it is thanks to participation from citizens like you, that we continue to learn more and improve on this method. For this reason, your hominin result may change slightly over time as our accuracy and understanding improves.

NEANDERTHAL

*Out of a maximum of 5%

