

# 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.

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## Your Hominin Ancestry

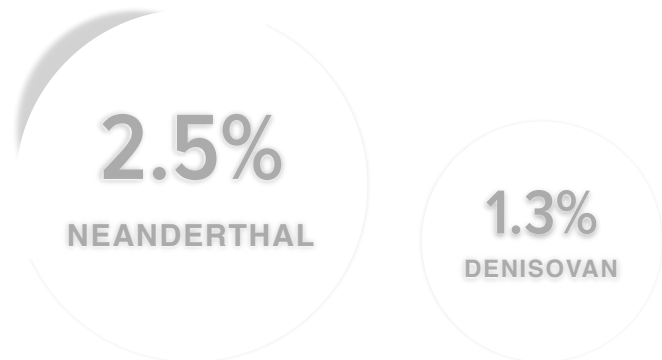
(60,000 Years Ago and Older)

### Your Hominid Ancestry

When our ancestors first migrated out of Africa around 60,000 years ago, they were not alone. At that time, at least two other species of hominin—our cousins—walked the Eurasian landmass:

Neanderthals and Denisovans. As our modern human ancestors migrated through Eurasia, they encountered these hominin cousins and interbred, resulting in a small amount of Neanderthal and Denisovan DNA being introduced into the modern human gene pool.

Most non-Africans are about 2 percent Neanderthal and slightly less than 2 percent Denisovan. Both percentages are calculated using a sophisticated analytical method that looks at parts of your DNA that you share with these hominin populations. The science around this calculation is very new. Thanks to participation from citizens like you, we continue to learn more and refine this method. For this reason, your result may change slightly over time as our accuracy and understanding improves.



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## 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 James P. Blair, National Geographic

## Branch: U

Age: Around 47,000 Years Ago

Location of Origin: West Asia

Descending from the R group, a woman gave rise to people who now constitute haplogroup U. Because of the great genetic diversity found in haplogroup U, it is likely that this woman lived around 47,000 years ago.

Her descendants gave rise to several different subgroups, some of which exhibit very specific geographic homelands. The very old age of these subgroups has led to a wide distribution; today they harbor specific European, northern African, and Indian components, and are found in Arabia, the northern Caucasus Mountains, and throughout the Near East.

One interesting subgroup is U6, which branched off from haplogroup R while still in the Middle East, moved southward, and today is found in parts of northern Africa. Today, U6 individuals are found in around ten percent of people living in North Africa.

Other members of the larger haplogroup U descend from a group that moved northward out of the Near East. These women crossed

the rugged Caucasus Mountains in southern Russia, and moved on to the steppes of the Black Sea. These individuals represent movements from the Black Sea steppes west into regions that comprise the present-day Baltic States and western Eurasia. This grassland then served as the home base for subsequent movements north and west.

Today, this line is part of populations in Europe, West Asia (including Arabia), North Africa, India, and the North Caucasus Mountains. In Europe, this lineage averages 7 percent of the population. In Scandinavian countries (Norway, Sweden, the Netherlands, etc.) it is between 9 and 16 percent of the population. In England, it is about 12 percent of the population. Toward the Mediterranean, this line is between 10 and 12 percent of the population in Croatia and Greece.

### Point of Interest

A subtype of this lineage links the Saami people in Scandinavia to Berber populations in North Africa.



*Photograph by Magnus Fond, Johner Images / Alamy*

## Branch: U5

Age: 30,000 Years Ago

Location of Origin: West Asia or Europe

The most recent common ancestor for all U5 individuals broke off from the rest of the group and headed north into Scandinavia. Even though U5 is descended from an ancestor in haplogroup U, it is also ancient, estimated to be around 30,000 years old.

U5 is quite restricted in its variation to Scandinavia, and particularly to Finland. This is likely the result of the significant geographical, linguistic, and cultural isolation of the Finnish populations, which would have restricted geographic distribution of this subgroup and kept it fairly isolated genetically. The Saami, reindeer hunters who follow the herds from Siberia to Scandinavia each season, have the U5 lineage at a very high frequency of around 50 percent, indicating that it may have been introduced during their movements into these northern territories.

The U5 lineage is found outside of Scandinavia, though at much lower frequencies and at lower genetic diversity. Interestingly, the U5 lineage found in the Saami has also been found in some North African Berber populations in Morocco, Senegal, and Algeria. Finding similar genetic lineages in populations living thousands of miles apart is certainly unexpected, and is likely the result of re-expansions that occurred after the last glacial maximum around 15,000 years ago. Humans who had been confined to narrow patches in southern Europe began to move outward again, recolonizing ancient territories and bringing new genetic lineages with them.

In addition to being present in some parts of North Africa, U5 individuals also live sporadically in the Near East at two percent—about one-fifth as frequent as in parts of Europe—and are completely absent from Arabia. Their distribution in the Near East is largely confined to surrounding populations, such as Turks, Kurds, Armenians, and Egyptians. Because these individuals contain lineages that first evolved in Europe, their presence in the Near East is the result of a back-migration of people who left northern Europe and headed south, as though retracing the migratory paths of their own ancestors.

### Point of Interest

This line is represented in the Neolithic Bell Beaker site in Germany.

## Branch: U5a

Age: 22,400 ± 4,920 Years Ago

Location of Origin: West Asia

Some from this line traveled west to Europe while others moved north and east to South Asia.

Today, this lineage has its highest frequencies in Europe: Slovenia (17 percent), Bulgaria (13 percent), and Luxembourg (9 percent). It is present in West Asia in Lebanon (9 percent). It is a significant part of Indian maternal lineages, being about 5 percent of those lines. It and a subtype are represented in the Ashkenazi Jewish population.

**Note:** This branch is not accompanied by a major movement on the map, and research on this branch is continuing.

## Heatmap for U5a

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 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 of U5a shows that it is widespread in western Eurasia. This spread began with the expansion of haplogroup U5a-bearing populations out of West Asia during the Upper Paleolithic, prior to 12,000 years ago. Like other branches of U, it reached Europe during the Paleolithic, and despite later waves of migrants from other lineages, it remains common there.

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.



Photograph by Pere Fernandez, My Shot

## Branch: M42

Age: About 75,000 Years Ago

Location of Origin: Africa

The common direct paternal ancestor of all men alive today was born in Africa around 140,000 years ago. Dubbed “Y-chromosome Adam” by the popular press, he was neither the first human male nor the only man alive in his time. He was, though, the only male whose Y-chromosome lineage is still around today. All men, including your direct paternal ancestors, trace their ancestry to one of this man's descendants. The oldest Y-chromosome lineages in existence, belonging to the A branch of the tree, are found only in African populations.



Around 75,000 years ago, the BT branch of the Y-chromosome tree was born, defined by many genetic markers, including M42. The common ancestor of most men living today, some of this man's descendants would begin the journey out of Africa, to India and the Middle East. Small groups would eventually reach the Americas. Others would settle in Europe, and some from this line remained near their ancestral homeland in Africa.

Individuals from this line in Africa often practice cultural traditions that resemble those of their distant ancestors. For example, they often live in traditional hunter-gatherer societies. These include the Mbuti and Biaka Pygmies of central Africa, as well as Tanzania's Hadza.

As M42-bearing populations migrated around the globe, they picked up additional markers on their Y-chromosomes. Today, there are no known BT individuals without these additional markers.

### Point of Interest

The M42 branch is shared by almost all men alive today, both in Africa and around the world.



*Photograph by Ali Talan, My Shot*

## Branch: M168

Age: About 70,000 years ago

Location of Origin: Africa/Asia

As humans left Africa, they migrated across the globe in a web of paths that spread out like the branches of a tree, each limb of migration identifiable by a marker in our DNA. For male lineages, the M168 branch was one of the first to leave the African homeland.

Moving outward from Africa and along the coastline, members of this lineage were some of the earliest settlers in Asia, Southeast Asia, and Australia. Some from this line would even travel over the land bridge to reach the Americas.

The man who gave rise to the first genetic marker in your lineage probably lived in northeast Africa in the region of the Rift Valley, perhaps in present-day Ethiopia, Kenya, or Tanzania. Scientists put the most likely date for when he lived at around 70,000 years ago. His descendants became the only lineage to survive outside of Africa, making him the common ancestor of every non-African man living today.

But why would man have first ventured out of the familiar African hunting grounds and into unexplored lands? The first migrants likely ventured across the Bab-al Mandeb strait, a narrow body of water at the southern end of the Red Sea, crossing into the Arabian Peninsula soon after M168 originated—perhaps 65,000 years ago. These beachcombers would make their way rapidly to India and Southeast Asia, following the coastline in a gradual march eastward. By 50,000 years ago, they had reached Australia. These were the ancestors of today's Australian Aborigines.

It is also likely that a fluctuation in climate may have contributed to your ancestors' exodus out of Africa. The African ice age was characterized by drought rather than by cold. Around 50,000 years ago, though, the ice sheets of the northern hemisphere began to melt, introducing a short period of warmer temperatures and moister climate in Africa and the Middle East. Parts of the inhospitable Sahara briefly became habitable. As the drought-ridden desert changed to a savanna, the animals hunted by your ancestors expanded their range and began moving through the newly emerging green corridor of grasslands.

Your nomadic ancestors followed the good weather and the animals they hunted, although the exact route they followed remains to be determined. In addition to a favorable change in climate, around this same time there was a great leap forward in modern humans' intellectual capacity. Many scientists believe that the emergence of language gave us a huge advantage over other early human species. Improved tools and weapons, the ability to plan ahead and cooperate with one another, and an increased capacity to exploit resources in ways we hadn't been able to earlier, all allowed modern humans to rapidly migrate to new territories, exploit new resources, and replace other hominids such as the Neanderthals.

## Point of Interest

This male branch is one of the first to leave the African homeland.



Photograph by Ciaran Clancy, My Shot

## Branch: M89

Age: Around 50,000 Years Ago

Location of Origin: South Asia or West Asia

The next male ancestor in your ancestral lineage is the man who gave rise to M89, a marker found in 90 to 95 percent of all non-Africans. This man was born around 50,000 years ago in northern Africa or the Middle East.

The first people to leave Africa likely followed a coastal route that eventually ended in Australia. Your ancestors followed the expanding grasslands and plentiful game to the Middle East and beyond, and were part of the second great wave of migration out of Africa.

Beginning about 40,000 years ago, the climate shifted once again and became colder and more arid. Drought hit Africa and the grasslands reverted to desert, and for the next 20,000 years, the Saharan Gateway was effectively closed. With the desert impassable, your ancestors had two options: remain in the Middle East, or move on. Retreat back to the home continent was not an option.

While many of the descendants of M89 remained in the Middle East, others continued to follow the great herds of wild game through what is now modern-day Iran to the vast steppes of Central Asia.

These semi-arid grass-covered plains formed an ancient “superhighway” stretching from eastern France to Korea. Your ancestors, having migrated north out of Africa into the Middle East, then traveled both east and west along this Central Asian superhighway. A smaller group continued moving north from the Middle East to Anatolia and the Balkans, trading familiar grasslands for forests and high country.

Today, geneticists have found the lineage in 1 to 2 percent of Pakistani and Indian populations. However, it is about 4 percent of some Austro-Asiatic-language-family-speaking groups in India. It is about 9 percent of some Dravidian-language-family-speaking groups in India, and it is 9 to 10 percent of male lineages in Sri Lanka. In Borneo, it is about 5 percent of the population. In Malaysia, it is about 6 percent of the population.



Photograph by Georgii Chechin, My Shot

## Branch: P128

Age: About 45,000 years ago

Location of Origin: South Asia

The next male ancestor in your ancestral lineage is the man who gave rise to P128, a marker found in more than half of all non-Africans alive today. This man was born around 45,000 years ago in the Middle East or Central Asia.

The descendants of P128 migrated to the east and north, picking up additional markers on their Y-chromosomes. This lineage is the parent of several major branches on the Y-chromosome tree: O, the most common lineage in East Asia; R, the major European Y-chromosome lineage; and Q, the major Y-chromosome lineage in the Americas. These descendant branches went on to settle the rest



of Asia, the Americas, and Europe; many others traveled to Southeast Asia.

Today, P128 individuals lacking these additional markers are rare in most populations, and are most commonly seen in Oceanian and Australian Aboriginal populations.



Photograph by Andrew McConnell, Alamy

## Branch: M45

Age: Around 35,000 Years Ago

Location of Origin: Central Asia or South Asia

This paternal ancestor traveled with groups in the open savannas between Central and South Asia during the Paleolithic. These big game hunters were the parents to two of the most widespread male lineages in modern populations, one that is responsible for the majority of pre-Columbian lineages in the Americas (haplogroup Q) and many others from Asia and Europe. Another one that spread farther into Asia produced the highest frequency lineages in European populations (haplogroup R).

Today, members of this lineage who do not belong to a descendant branch are rare, and geneticists have found them most often in India. These populations include such diverse groups as the Saora (23 percent), the Bhumij (13 percent), and Muslims from Manipur (33 percent).

### Point of Interest

Known as the Central Asian Clan, this branch gave rise to many distinct lineages that spent the next 30,000 years gradually populating much of the planet.



Photograph by Inayat Shah, My Shot

## Branch: M207

Age: About 30,000 Years Ago

Location of Origin: Central Asia

M207 was born in Central Asia around 30,000 years ago. His descendants would go on to settle in Europe, South Asia and the Middle East over the following 20,000 years. Today, most western European men belong to one branch—R-M342—that descended from this lineage. While it appears to have been one of the earliest lineages to settle in Europe more than 25,000 years ago, more recent population expansions associated with the post-glacial repopulation of northern Europe after the end of the last ice age, as well as the spread of agriculture during the Neolithic, also contributed to its high frequency in Ireland, the UK, France and Spain.

One descendant lineage—R-L62—is common in Eastern Europe and India, and was likely spread in part through the migration of Indo-European steppe nomads over the past 5,000 years.



Photograph by Tomek Matiak, My Shot

## Branch: P231

Age: 25,000 – 30,000 Years Ago

Location of Origin: Central Asia

The Paleolithic ancestor who founded this lineage lived a nomadic lifestyle. His descendants include two major descendant branches that today account for most European men and many others from Central Asia, West Asia, and South Asia.



Photograph by Nauman Arshad, My Shot

## Branch: M343

Age: 17,000 – 22,000 Years Ago

Location of Origin: South Asia or West Asia

The first members of this lineage lived as hunter-gatherers on the open savannas that stretched from Korea to Central Europe. They took part in the advances in hunting technology that allowed for population growth and expansions.

When the Earth entered a cooling phase, most from this line sheltered in refugia to the southeast of Europe and in West Asia. It was from these refugia that their populations rapidly expanded when the ice once more receded. Some traveled west across Europe. Others moved back toward their distant ancestors' homelands in Africa, passing through the Levant region. Through these movements and the population boom triggered by the Neolithic Revolution, this lineage and its descendant lineages came to dominate Europe.

Today, it has a wide distribution. In Africa, geneticists have found this lineage in Northern Africa (6 percent) and central Sahel (23 percent). Its frequency in Europe is at times high and at other times moderate. It represents about 7 percent of Russian male lineages, about 13 percent of male lineages in the Balkans, about 21 percent of Eastern European male lineages, 55 to 58 percent of Western European lineages, and about 43 percent of Central European male lineages. In Asia, most men of this lineage are found in West Asia (6 percent) and South Asia (5 percent). However, trace frequencies of around half a percent from this lineage are present in East Asia.

### Notable People

Russian Emperor Nicholas II belonged to this lineage.

## Branch: L278

Age: To Be Determined

Location of Origin: West Asia

While some from this group traveled west into Central Asia, others moved south toward the Levant region. Today, they are present in trace frequencies of less than 1 percent in Italy, the Ukraine, and the region of the Pannonian Basin.

**Note:** This branch is not accompanied by a major movement on the map, and research on this branch is continuing.

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## Point of Interest

Those who belong to this lineage but do not belong to a descendant branch are rare.

## Branch: P310

Age: To Be Determined

Location of Origin: West Asia

Members of this lineage have traveled to Central Asia, Europe, and the Levant region. One descendant branch has the highest frequency of any male line in Western Europe. However, rather than a single movement across Europe, this lineage's branches may represent many simultaneous and successive waves of migration.

Today, it is 48 to 52 percent of male lineages in Ireland. It is 45 percent of those in France. It is about 38 percent of the male population in Spain. It is about 8 percent of male lineages in Italy. It is about 5 percent of male lineages in Oman. It is 1 to 2 percent of the male population in Iraq and Lebanon. It is also 1 to 2 percent of the male population in Kazakhstan.

**Note:** This branch is not accompanied by a major movement on the map, and research on this branch is continuing.

## Branch: U106

Age: 4,250 – 14,000 Years Ago

Location of Origin: Europe

Members of this lineage have expanded into the rest of Europe and back into parts of West Asia in the last 10,000 years.

Today, geneticists have found it and its descendant branches at moderate to high frequencies throughout Europe and occasionally in West Asia. The highest frequencies are in the Netherlands (14 percent), Luxembourg (13 percent), and Belgium (12 percent). In the British Isles, it is between 6 and 9 percent of the male population. It is about 5 percent of male lineages in Oman. It is 4 to 5 percent of the male population in Cyprus. It is 1 to 2 percent of male lineages in Italy and Spain.

**Note:** This branch is not accompanied by a major movement on the map, and research on this branch is continuing.

## Heatmap for U106

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 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 of U106 shows a distribution in Europe that peaks in Western Europe where it experienced successful expansions, particularly after the end of the last ice age with the recolonization of northern Europe.

Are you 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.

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## Your Regional Ancestry

### (5,000 Years - 10,000 Years Ago)

We are all more than the sum of our parts, but the results below offer some of the most dramatic and fascinating information in your Geno 2.0 test. In this section, we display your affiliations with a set of nine world regions. This information is determined from your entire genome so we're able to see both parents' information, going back six generations. Your percentages reflect both recent influences and ancient genetic patterns in your DNA due to migrations as groups from different regions mixed over thousands of years. Your ancestors also mixed with ancient, now extinct hominid cousins like Neanderthals in Europe and the Middle East or the Denisovans in Asia. If you have a very mixed background, the pattern can get complicated quickly! Use the reference population matches below to help understand your particular result.

## Your Results

Northern European

45%

Mediterranean

36%

Southwest Asian

19%



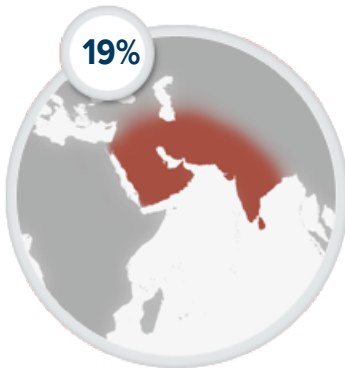
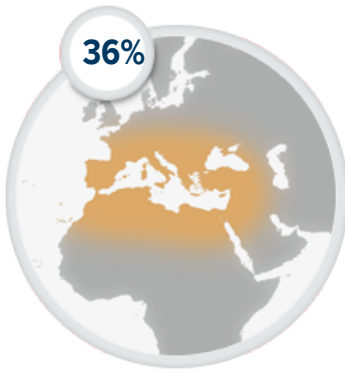
### Northern European

This component of your ancestry is found at highest frequency in northern European populations—people from the UK, Denmark, Finland, Russia and Germany in our reference populations. While not limited to these groups, it is found at lower frequencies throughout the rest of Europe. This component is likely the signal of the earliest hunter-gatherer inhabitants of Europe, who were the last to make the transition to agriculture as it moved in from the Middle East during the Neolithic period around 8,000 years ago.

### Mediterranean

This component of your ancestry is found at highest frequencies in southern Europe and the Levant—people from Sardinia, Italy, Greece, Lebanon, Egypt and Tunisia in our reference populations. While not limited to these groups, it is found at lower frequencies throughout the rest of Europe, the Middle East, Central and South Asia. This component is likely the signal of the Neolithic population

expansion from the Middle East, beginning around 8,000 years ago, likely from the western part of the Fertile Crescent.



### Southwest Asian

This component of your ancestry is found at highest frequencies in India and neighboring populations, including Tajikistan and Iran in our reference dataset. It is also found at lower frequencies in Europe and North Africa. As with the Mediterranean component, it was likely spread during the Neolithic expansion, perhaps from the eastern part of the Fertile Crescent. Individuals with heavy European influence in their ancestry will show traces of this because all Europeans have mixed with people from Southwest Asia over tens of thousands of years.

**Note:** In some cases regional percentages may not total 100%.

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## What Your Results Mean

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

### Your First Reference Population: British (United Kingdom)

This reference population is based on samples collected from populations in the United Kingdom. The dominant 49% Northern European component likely reflects the earliest settlers in Europe, hunter-gatherers who arrived there more than 35,000 years ago. The 33% Mediterranean and 17% Southwest Asian percentages arrived later, with the spread of agriculture from the Fertile Crescent in the Middle East, over the past 10,000 years. As these early farmers moved into Europe, they spread their genetic patterns as well. Today, northern European populations retain their links to both the earliest Europeans and these later migrants from the Middle East.

Northern European

Mediterranean

Southwest Asian



## Your Second Reference Population: German

This reference population is based on samples collected from people native to Germany. The dominant 46% Northern European component likely reflects the earliest settlers in Europe, hunter-gatherers who arrived there more than 35,000 years ago. The 36% Mediterranean and 17% Southwest Asian percentages probably arrived later, with the spread of agriculture from the Fertile Crescent in the Middle East over the past 10,000 years. As these early farmers moved into Europe, they spread their genetic patterns as well. Today, northern and central European populations retain links to both the earliest Europeans and these later migrants from the Middle East.

