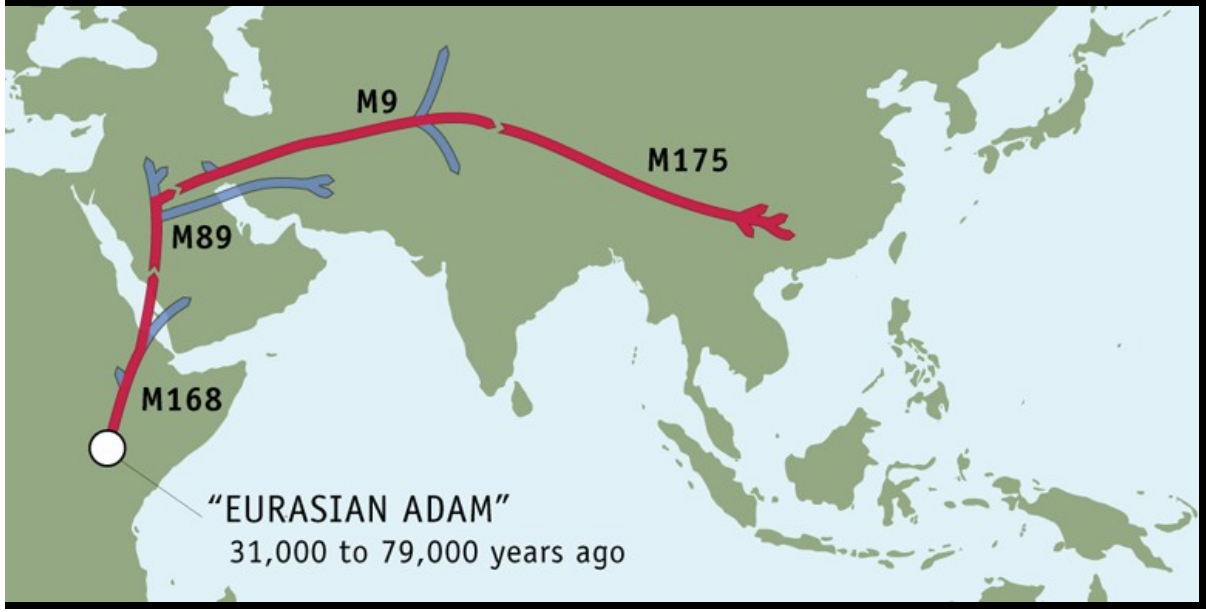


YOUR GENETIC SEQUENCE

Type: Y-Chromosome
Haplogroup: O (M175)

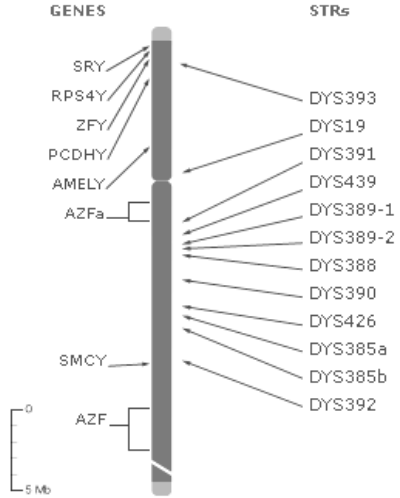
Your STRs

DYS393: 12	DYS439: 12	DYS388: 12	DYS385a: 14
DYS19: 14	DYS389-1: 13	DYS390: 14	DYS385b: 14
DYS391: 11	DYS389-2: 16	DYS426: 12	DYS392: 13

How to Interpret Your Results

Above are results from the laboratory analysis of your Y-chromosome. Your DNA was analyzed for Short Tandem Repeats (STRs), which are repeating segments of your genome that have a high mutation rate. The location on the Y chromosome of each of these markers is depicted in the image, with

the number of repeats for each of your STRs presented to the right of the marker. For example, DYS19 is a repeat of TAGA, so if your DNA repeated that sequence 12 times at that location, it would appear: DYS19 12. Studying the combination of these STR lengths in your Y Chromosome allows researchers to place you in a haplogroup, which reveals the complex migratory journeys of your ancestors. Y-SNP: In the event that the analysis of your STRs was inconclusive, your Y chromosome was also tested for the presence of an informative Single Nucleotide Polymorphism (SNP). These are mutational changes in a single nucleotide base, and allow researchers to definitively place you in a genetic haplogroup.



YOUR GENETIC HISTORY

Your Y-chromosome results identify you as a member of **haplogroup *O***.

The genetic markers that define your ancestral history reach back roughly 60,000 years to the first common marker of all non-African men, *M168*, and follow your lineage to present day, ending with *M175*, the defining marker of haplogroup *O*.

If you look at the map highlighting your ancestors' route, you will see that members of haplogroup *O* carry the following Y-chromosome markers:

M168 > M89 > M9 > M175

Today, more than half of all Chinese males carry the genetic marker *M175*, which is also widespread throughout East Asia and found in lower frequencies in Tahiti and Indonesia.

What's a haplogroup, and why do geneticists concentrate on the Y-chromosome in their search for markers? For that matter, what's 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. One exception is the Y-chromosome, which is passed directly from father to son, unchanged, from generation to generation.

Unchanged, that is 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 from the man in whom it occurred to his sons, their sons, and every male in his family for thousands of years.

In some instances there may be more than one mutational event that defines a particular branch on the tree. What this means is that any of these markers can be used to determine your particular haplogroup, since every individual who has one of these markers also has the others.

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.

A haplogroup is defined by a series of markers that are shared by other men who carry the same random mutations. The markers trace the path your ancestors took as they moved out of Africa. It's difficult to know how many men worldwide belong to any particular haplogroup, or even how many haplogroups there are, because scientists simply don't have enough data yet.

One of the goals of the five-year Genographic Project is to build a large enough database of anthropological genetic data to answer some of these questions. To achieve this, project team members are traveling to all corners of the world to collect more than 100,000 DNA samples from indigenous populations. In addition, we encourage you to contribute your anonymous results to the project database, helping our geneticists reveal more of the answers to our ancient past.

Keep checking these pages; as more information is received, more may be learned about your own genetic history.

Your Ancestral Journey: What We Know Now

***M168*: Your Earliest Ancestor**

Fast Facts

Time of Emergence: Roughly 50,000 years ago

Place of Origin: Africa

Climate: Temporary retreat of Ice Age; Africa moves from drought to warmer temperatures and moister conditions

Estimated Number of *Homo sapiens*: Approximately 10,000

Tools and Skills: Stone tools; earliest evidence of art and advanced conceptual skills

Skeletal and archaeological evidence suggest that anatomically modern humans evolved in Africa around 200,000 years ago, and began moving out of Africa to colonize the rest of the world around 60,000 years ago.

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, some 31,000 to 79,000 years ago. Scientists put the most likely date for when he lived at around 50,000 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? 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. It was around 50,000 years ago that 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 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.

***M89*: Moving Through the Middle East**

Fast Facts

Time of Emergence: 45,000 years ago

Place: Northern Africa or the Middle East

Climate: Middle East: Semi-arid grass plains

Estimated Number of *Homo sapiens*: Tens of thousands

Tools and Skills: Stone, ivory, wood tools

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 45,000 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 buffalo, antelope, woolly mammoths, and other 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.

***M9*: The Eurasian Clan Spreads Wide and Far**

Fast Facts

Time of Emergence: 40,000 years ago

Place: Iran or southern Central Asia

Estimated Number of *Homo sapiens*: Tens of thousands

Tools and Skills: Upper Paleolithic

Your next ancestor, a man born around 40,000 years ago in Iran or southern Central Asia, gave rise to a genetic marker known as M9, which marked a new lineage diverging from the *M89* Middle Eastern Clan. His descendants, of which you are one, spent the next 30,000 years populating much of the planet.

This large lineage, known as the Eurasian Clan, dispersed gradually over thousands of years. Seasoned hunters followed the herds ever eastward, along the vast super highway of Eurasian steppe. Eventually their path was blocked by the massive mountain ranges of south Central Asia—the Hindu Kush, the Tian Shan, and the Himalayas.

The three mountain ranges meet in a region known as the "Pamir Knot," located in present-day Tajikistan. Here the tribes of hunters split into two groups. Some moved north into Central Asia, others moved south into what is now Pakistan and the Indian subcontinent.

These different migration routes through the Pamir Knot region gave rise to separate lineages.

Most people native to the Northern Hemisphere trace their roots to the Eurasian Clan. Nearly all North Americans and East Asians are descended from the man described above, as are most Europeans and many Indians.

***M175*: The East Asian Clan**

Fast Facts

Time of Emergence: 35,000 years ago

Place of Origin: Central or East Asia

Climate: Ice Age

Estimated Number of *Homo sapiens*: Approximately 100,000

Tools and Skills: Upper Paleolithic

Your genetic trail ends with an ancestor carrying marker *M175* who was born around 35,000 years ago in Central or East Asia. This ancestor was part of the *M9* Eurasian clan that, encountering impassable mountain ranges, migrated to the north and east.

These early Siberian hunters continued to travel east along the great steppes, gradually crossing southern Siberia. Some of them, perhaps taking advantage of the Dzhungarian Gap used thousands of years later by Genghis Khan to invade Central Asia, made it into present-day China.

East Asia had been home to *Homo erectus* for nearly a million years, but traces of occupation disappear from the archaeological record around 100,000 years ago. The earlier hominids may have abandoned the region or died off due to a steadily deteriorating climate.

By the time your ancestors arrived in China and East Asia, the Ice Age was once again advancing toward glacial maximum. Encroaching ice sheets and Central Asia's enormous mountain ranges effectively corralled them in East Asia. There they evolved in isolation over the millennia.

Today, some 80 to 90 percent of all people living east of Central Asia's great mountain ranges are members of haplogroup *O,* the East Asian Clan. The marker *M175* is nearly non-existent in western Asia and Europe.

There were actually two waves of migration into this region. While your ancestors populated the region from the north, another group approached from the south. Descendants of the Coastal Clan—people who left Africa perhaps 60,000 years ago and headed along the coastline toward Australia—may have reached East Asia by 50,000 years ago.

The Coastal lineage is found at a frequency of 50 percent in Mongolia, and is common throughout northeast Asia.

The present composition of East Asia still shows evidence of this ancient north-south divide, showing a clear distinction in genetic heritage between northern and southern Chinese.

This is where your genetic trail, as we know it today, ends. However, be sure to revisit these pages. As additional data are collected and analyzed, more will be learned about your place in the history of the men and women who first populated the Earth. We will be updating these stories throughout the life of the project.

HELP US TELL THE STORY

Help the Genographic Project by including your results in the anonymous global database. Just answer 12 quick questions about your background to share your part of humankind's ancestral story.

CONTRIBUTE YOUR RESULTS

PRINT YOUR DOCUMENTS

Journey Highlights Map
Participation Certificate

WHAT ELSE CAN I DO WITH MY RESULTS?

By participating in the Genographic Project you have learned about your deep ancestry. With your results, however, you can continue to explore! Click on the link below to learn how Family Tree DNA, our testing partner, can help you apply your results from the Genographic Project to research your family genealogy. **Learn more >**