THE GENOGRAPHIC PROJECT

Certificate of Y-chromosome DNA testing

In recognition of your participation in the Genographic Project, we hereby certify that

Salim Samir AbiEzzi

belongs to:

Haplogroup J2 (M172)

The designations for all twelve loci examined for this purpose are listed here, along with the Short Tandem Repeats (STRs) outcome for each.

393	19	391	439	389-1	389-2	388	390	426	385a	385b	392
12	16	11	12	12	16 28	15	24	11	14	18	11

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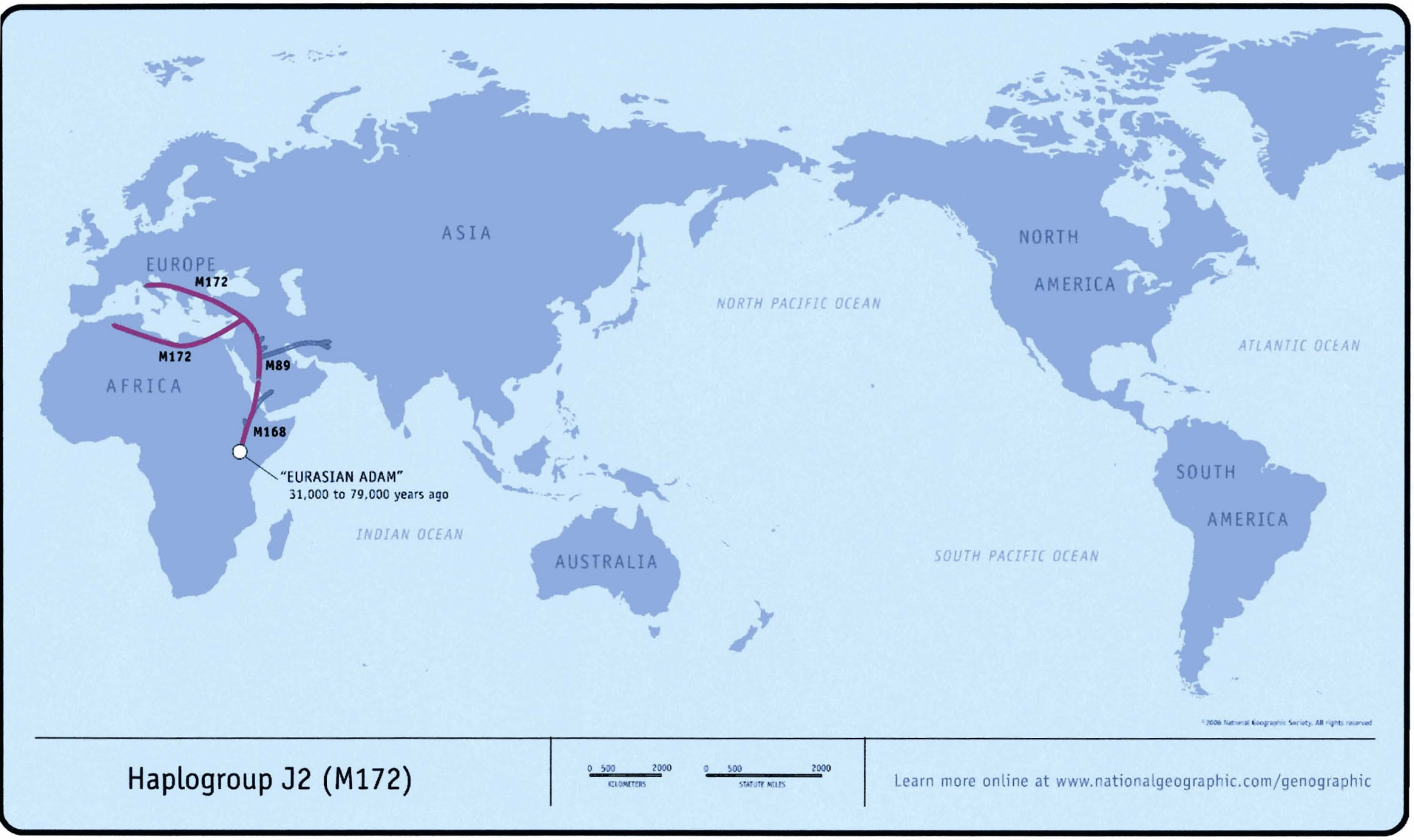

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Haplogroup J2 (M172)

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HAPLOGROUP J2 (M172)

Your Y-chromosome results identify you as a member of **haplogroup** *J2*.

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 *M172*, the defining marker of haplogroup *J2*.

If you look at the map highlighting your ancestors' route, you will see that members of haplogroup *J2* carry the following Y-chromosome markers:

M168 > M89 > M304 > M172

Today, descendants of this line appear in the highest frequencies in the Middle East, North Africa, and Ethiopia, and at a much lower frequency in Europe, where it is observed exclusively in the Mediterranean area. Approximately 20 percent of the males in southern Italy carry the marker, along with ten percent of men in southern Spain.

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.

M304: **The Spread of Agriculture**

Fast Facts

Time of Emergence:15,000 to 10,000 years ago

Place of origin: Fertile Crescent

Climate: Ice Age ending

Estimated Number of *Homo sapiens*: Millions

Language: Unknown earliest evidence of modern language families

Tools and Skills: Neolithic Revolution

The patriarch of haplogroup *J2* was a descendant of the *M89* Middle Eastern Clan. He was born between 15,000 to 10,000 years ago in the Fertile Crescent, a region that extends from the Mediterranean Sea to the Persian Gulf where the Euphrates and Tigris rivers form an extremely rich floodplain. Today the region includes all or part of Israel, the West Bank, Jordan, Lebanon, Syria, and Iraq.

The descendants of this man played a crucial role in modern human development. They pioneered the first Neolithic Revolution, the point at which humans changed from nomadic hunter-gatherers to settled agriculturists. The end of the last ice age around 10,000 years ago, and the subsequent shift in climate to one more conducive to plant production, probably helped spur the discovery of how to grow food.

Control over their food supply marks a major turning point for the human species: the beginning of civilization. Occupying a single territory required more complex social organization, moving from the kinship ties of a small tribe to the more elaborate relations of a larger community. It spurred trade, writing, and calendars, and pioneered the rise of modern sedentary communities and cities.

The *M304* marker appears at its highest frequencies in the Middle East, North Africa, and Ethiopia. In Europe, it is seen only in the Mediterranean region.

An important subgroup of haplogroup *J* includes the descendants of another man from the *M89* Middle Eastern Clan born in the Fertile Crescent at about the same time, carrying the marker *M172*. This related haplogroup is called *J2*.

The early farming successes of these lineages spawned population booms and encouraged migration throughout much of the Mediterranean world.

M172: **Toward the Mediterranean**

Fast Facts

Time of Emergence: 10,000 years ago

Place of Origin: Fertile Crescent

Climate: Ice Age ending

Estimated Number of *Homo sapiens*: A few million

Language: Unknown

Tools and Skills: Neolithic

Your ancestors left a physical footprint that matches their genetic journey. Artifacts from ancient towns such as Jericho, also known as Tell el-Sultan, a site close to present day Jerusalem, provide evidence of permanent human settlements to around 8500 B.C. The sites also suggest the transition from hunter-gatherer to settled life occurred relatively suddenly.

The *M172* marker defines a major subset of haplogroup *J*, which arose from the *M89* lineage. It is found today in North Africa, the Middle East, and southern Europe. In southern Italy it occurs at frequencies of 20 percent, and in southern Spain, 10 percent of the population carries this marker. Both haplogroup *J* and its subgroup *J2* are found at a combined frequency of around 30 percent amongst Jewish individuals.

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.