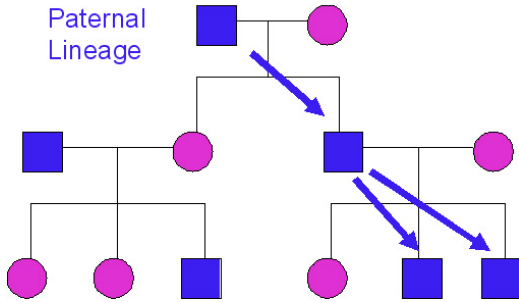


Genelex Laboratory #:29500-12

Participant: John Doe

Purpose of Y-chromosome Analysis:

A Y-chromosome DNA profile can provide unique information about the paternal lineage of a particular individual. This profile is generated when specific, individually variable regions of Y-chromosome DNA are tested using established methods. If no genetic changes (mutations) have occurred between generations, then all male descendants of a common paternal ancestor will share the same profile. When differences between individuals are identified, the likelihood of relatedness can be calculated by comparing their DNA profiles, a process commonly referred to as a Most Recent Common Ancestor Calculation (MRCA).



DNA Analysis was performed for the purpose of establishing a Y-chromosome genetic profile. Through standardized, quality techniques and analysis, 24 specific genetic markers (loci) of the Y-chromosome have been analyzed, and confirmed allele values for each are presented in your certificate. A genetic profile is established by assigning the correct allele value to each of the 24 genetic locations and combining them as a unique set. This information was then referenced with current Y-chromosome haplogroup data sets and archaeological information sources to provide a description of the origins of your paternal line.

Haplogroup Assignment: Based on close genetic matches found in a worldwide Y chromosome database, it appears that you belong to Haplogroup J, specifically subclade J1.

Haplogroup Description:

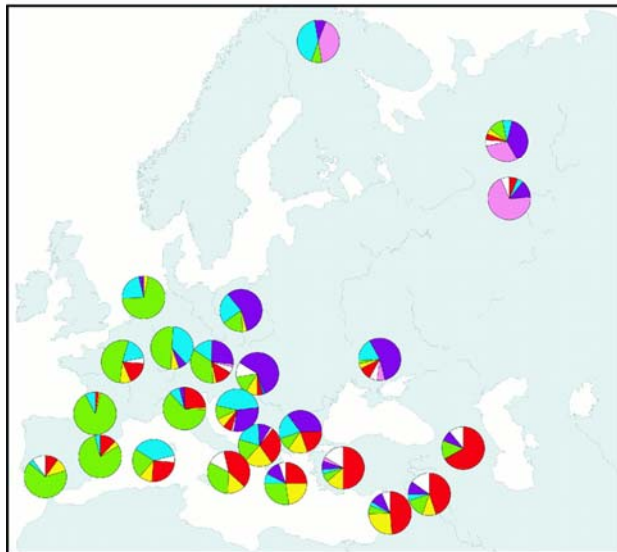
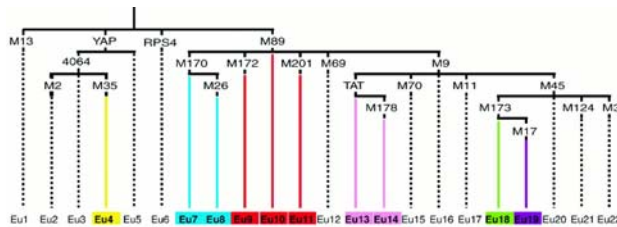


According to genetic theory, all humans descend from a man nicknamed "African Adam." This unknown man lived in Africa approximately 59,000 years ago, about 85,000 years after our common female ancestor, "African Eve." Other men of his time certainly left sons and grandsons, but African Adam was the only man in his generation whose descendants in the male line are still living today.

Geneticists divide African Adam's descendants into haplogroups popularly called "clans" to make the subject easier for lay people to understand. Different types of Y-STR patterns correspond to different haplogroups. Currently, there are 18 major haplogroups. You belong to haplogroup J.

Haplogroup J is found at highest frequencies in Middle Eastern and north-east African populations where it most likely evolved. This marker has been carried by Middle Eastern farmers and traders into Europe, central Asia, India, Pakistan and back into Africa.

Geographical clustering is influenced by the behavior of men, who are the carriers of the Y chromosomes. Approximately 70% of modern societies practice patrilocality: if a man and a woman marry but are not from the same place, it is the woman who moves rather than the man. As a consequence, most men live closer to their birthplaces than do women.



Distribution of Y Haplogroups

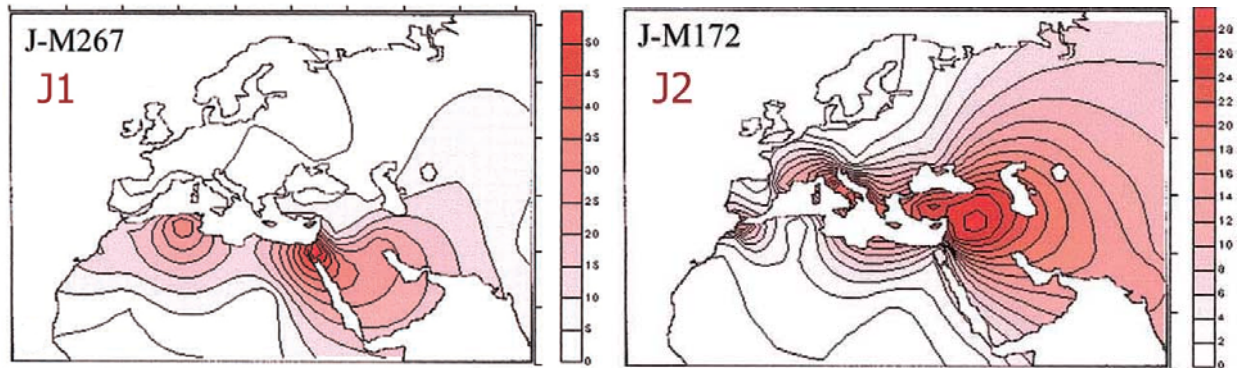
- Green = R1b
- Purple = R1a
- Blue = I
- Red = J, G
- Yellow = E3b
- Pink = N3
- White = Other

Semino et al (2000) Science 290, 1155-1159

Your ancestors are derived from Haplogroup J whose age has been estimated at about 18,000 -32,000 years. Haplogroup J (red above) is most frequent in the Near East and decreases in frequency as one moves away from it, as would be expected since it originated there. Anatolians (Turks), Caucasians (Georgians), Balkan people (Greeks, Albanians), Italians, Frenchmen, are overwhelmingly descended from the northern part of the Fertile Crescent. Iraqis, Syrians are descended significantly from the southern part, reflecting their partly Arabian origins, although not as much as the Bedouin who are almost entirely of southern origin. This marker has been carried by traders into Europe, central Asia, India and Pakistan.

Haplogroup J is defined primarily by the M172 and M267 genetic markers (also know as Eu9-10, HG9). Scientists propose that Haplogroup J originated in the Near East in descendents of men that arrived from the Africa about 45,000 -50,000 years ago. The closest predecessor for Haplogroup J is the M89, the Middle Eastern marker, whose age has been estimated at around 40,000 yrs.

Haplogroup J has been subdivided into subgroups. Two sister clades, Haplogroup J1 (defined by M267, ~24,000 years old) and J2 (defined by M172, ~18,500 years old) show different distributions within the Near East, Europe and North Africa.



*Ref: Frequency distribution of Haplogroup J and main subgroups.
Semino et al, 2004 Am. J Hum. Genet 74:1023-1034*

Y chromosome haplogroup J is associated with the expansion of the Neolithic economy from the Fertile Crescent about 8-10,000 years ago. Haplogroup J2-M172 spread north and west from southern Anatolia (Turkey) and has been associated with the spread of agriculture, Neolithic figurines and painted pottery. While both J1 and J2 are found in the Near East, Haplogroup J1-M267 is found mainly in East Africans and Arabian populations. Haplogroup J in North Africa is thought to have been introduced by Arab traders. The entry of Haplogroup J into the Mediterranean may also have been by sea, particularly in Italy.

Prehistorical History: Prehistorical times are studied in three separate periods. Since the emergence of humans until 12,000 BC, this first period is called the Palaeolithic Age (40,000 – 8,000 BC); this period is also named the Old Stone Age. The Palaeolithic Age which left only cave paintings, primitive stone tools and monuments was followed by a transitional period between 12,000 BC and 8,000 BC called the Mesolithic Age or Middle Stone Age. This period also established the foundations for systematic organization of agriculture and cities during the Neolithic Age. The Neolithic Age emerged between 8,000 and 2,700 BC It is also known as the New Stone Age. This period was not experienced at the same time throughout the world. Continental Europe did not come into the Neolithic Age until much later after Asia Minor.



The Paleolithic site "Yarimburgaz Cave" near Istanbul, appears to be the oldest evidence for human presence in Turkey. The remains of wild figs, olives and the bones of some wild animals have been found. The wall paintings in "Karain Cave" from Antalya in Mediterranean area and "Okuzini Cave" represent wild animals (Okuz means ox in Turkish).

Natufian Culture of the Middle East:



After the end of the last Ice Age, your ancestors Haplogroup J, were settled in areas where they could exploit the local species of wheat and barley, and animals such as gazelle. Most of these settlements occurred in an arc, the so-called Fertile Crescent, stretching from the southern tip of the Dead Sea north toward the Anatolian plateau, moving east to the northern Mesopotamian plains, and ending in southwestern Iran. In the eastern Mediterranean, this culture is known as Natufian and lasts more than a thousand years, from around 11,000 B.C. to about 9300 B.C., when the sites appear to be

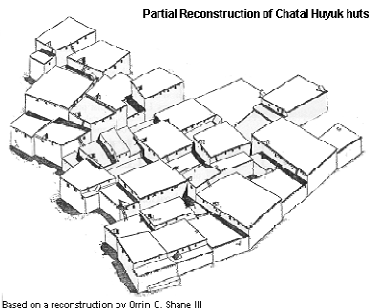
abandoned. Natufian sites include: Jericho (see picture) Tell Abu Hureya, Eynan/Ain Mallaha, Beidha, Ein Gev, Hayonim, Nahal Oren, and Shuqba. Natufian.

A sedentary life may have been made possible by abundant resources due to a favorable climate, with a culture living from hunting, fishing and gathering, including the use of wild cereals. Tools were available for making use of cereals: flint-bladed sickles for harvesting, and mortars, grinding stones, and storage pits. Settlements have been estimated to house 100-150 people.

The site of Eynan/Ain Mallaha, situated between the hills of Galilee and Lake Hula in the Levant, was inhabited from 10,000 to 8,200 BC during the Natufian period. Eynan (in Hebrew)/Ain Mallaha (in Arabic) is one of hundreds of Natufian settlements known from the eastern Mediterranean, where remains of a rich and dynamic artistic tradition have been discovered. Natufian art, while it follows some of the same representational conventions of the European Paleolithic in its naturalistic and sensitive portrayal of animals, reflects a new awareness of individual identity and social life. Natufian burials, often placed in close proximity to the homes of the living, have been found where individuals or groups are interred with elaborate jewelry made of bone, shell, and stone. These are materials found readily in the Mediterranean landscape, but were fashioned by skilled artists to mark the importance and social standing of their buried ancestors.



Neolithic Culture of the Middle East:



Neolithic site of Catal Huyuk

Beginning around 8,000 BC, many human cultures became increasingly dependent on cultivated crops and domesticated animals to secure their supply of food. By 7,000 BC sedentary agriculture was able to support towns such as Jericho and Catal Huyuk with populations of more than 1,000. Situated in the Jordan Valley, Jericho had a large stone tower, preserved to a height of almost thirty feet. Its attached

wall may have enclosed the entire site, which measured three to four hectares. Textiles (the oldest preserved) were produced at Nahal Hemar in the Judean desert. Made mainly of linen, the material includes a blue-dyed fabric decorated with beads and shells. There were several Neolithic settlements in Anatolia such as, Asikli Hoyuk, Hacilar, Yumuk Tepe, Kizil Kaya, and Fikirtepe.



The village of Chatal Huyuk in Turkey was the largest Neolithic site in the Near East covering 13 hectares. It was founded in c.7,000 BC and the settlement grew rapidly and became a prosperous and well-organized community. The principal meat source was cattle although it seems that wild animals were also important, judging from the wall paintings portraying the hunting of red deer, boar and onagers. Most raw materials had to be imported and the village became the center of a trading complex, dealing in a wide range of items

- timber, obsidian, flint, copper, shells. The craftsmen produced mainly arrowheads, daggers of flint and obsidian, stone maceheads, baked clay and carved figurines, textiles, wooden vessels and pottery. Trinkets such as copper heads and lead pendants were also produced, and copper-smelting. Houses were standardized throughout the community and served as fortifications as well as residences. Numerous religious shrines also suggest a powerful priesthood.

Approximately 4,500–3,500 BC farmers in Israel and Jordan began to cultivate olives and dates, and herders began to use milk products from domesticated animals. Specialized artisans produce exquisite wall paintings, terracotta figurines and ossuaries, finely carved ivories, and basalt bowls and sculpture. At the site of Nahal Mishmar, a hoard of 442 copper objects, made by the lost-wax method, included maceheads, crowns, and standards. At nearby En Gedi, an impressive temple with plastered and painted interior walls was built on a stone terrace.



Administrative tablet with cylinder seal impression of a male figure, hunting dogs, and boars, 3100–2900 B.C.; Mesopotamia;

Standing male worshipper, 2750–2600 B.C.; central Mesopotamia;

Gold headdress with leaf-shaped ornaments, 2600–2500 B.C.; Mesopotamia;

Standard with two long-horned bulls, 2400–2000 B.C.; North central Anatolia

Large fortified cities emerged across the region in 3,500 – 2,300 BC and a flourishing trade began with the increasingly unified Egyptian kingdom. Timber from the mountains of Lebanon, as well as silver and aromatic oils from further north and east, was transported to Egypt by sea from Byblos. Throughout the period, the southern Levant maintained contact with Egypt, while the northern Levant has strong links with Mesopotamia. At the major city-state of Ebla in north Syria, a distinctive local style developed, especially in seal carving, whereas the use of inlays, sculptural forms, and cuneiform writing reflects strong Sumerian influences. Ebla was burned, perhaps during the military campaigns of the kings of the Akkadian empire from southern Mesopotamia.

For reasons not entirely clear but perhaps in part related to climatic changes, city-states throughout the Levant were abandoned around 2,300–2,000 BC and the population adopted a pastoral way of life once again, settling in villages and encampments on the steppe.

Spread of the Neolithic Figurines and Painted Pottery from the Middle East:



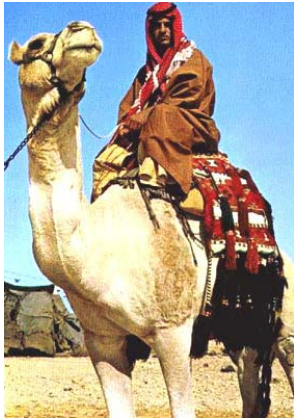
*King and Underhill, 2002
Antiquity 76: 707-14*

The spread of Haplogroup J2 in particular has been associated with the spread of Neolithic figurines (orange) and Neolithic painted pottery (hatched) probably following the spread of agriculture. During the period of the Neolithic revolution (8,000-5,000 BC), agricultural techniques of production spread from the Middle East to other areas of the globe where the climate permitted. The cultivation of wheat and barley expanded from the Middle East to India and Europe. From Egypt the cultivation of grain crops spread southward along the Nile. Africa south of the Sahara desert developed an independent agricultural system around 2,000 BC based on root and tree crops. In China, Neolithic agricultural societies developed a separate system of crops based on millet. Somewhat later, farmers of Southeast Asia began to cultivate rice. American Neolithic agricultural systems featured maize, manioc, and sweet potatoes.



Mesopotamia became the center of the Silk and Spice Route linking China in the east with Rome in the west. A vast network of strategically located trading posts enabled the exchange, distribution, and storage of goods. By the end of the first century BC in the Near East, there was a great expansion of international trade involving five contiguous powers: the Roman empire, the Parthian empire, the Kushan empire, the nomadic confederation of the Xiongnu, and the Han empire. Although travel was arduous and knowledge of geography imperfect, numerous contacts were forged as these empires expanded—spreading ideas, beliefs, and customs among heterogeneous peoples—and as valuable goods were moved over long distances through trade, exchange, gift giving, and the payment of tribute. Transport over land was accomplished using river craft and pack animals, notably the sturdy Bactrian camel. Travel by sea depended on the prevailing winds of the Indian Ocean, the monsoons, which blow from the southwest during the summer months and from the northeast in the fall.

Bedouin Culture:



Over 60% of the Bedouin belong to Haplogroup J1. The Arabs have two distinct cultures, sedentary and nomadic. The latter is what the world refers to as the Bedouin. The sedentary Arabs took advantage of oases throughout the Middle East and the Bedouin took advantage of the scarce resources by becoming nomadic herdsman. From the Arabian Peninsula both groups spread throughout the Middle East. The Bedouins migrate from oasis to oasis. As the Bedouin moved throughout the region they were surrounded on all sides, the Byzantines to the north, the Sabaeans to the south, the Romans to the west, and the Persians to the east. During this period the region had many religious influences and the main religion was a combination of Bedouin polytheism, Judaism, and Christianity. In 500 A.D. the Bedouin tribe Quraysh conquered the city of Mecca, which at the time was the major religious center.

The Bedouin live today as they have for thousands of years, traveling from one oasis to another. They use the resources in one area while the others are replenished naturally. The Bedouin travel in small bands and live in tents. The status of men and women is clearly different, the men have a separate part of the tent called a mag'ad and the women have an area called a maharama. Music, poetry, and dance are major parts of the Bedouin life where they still fashion their own instruments. The most recognized item in the Bedouin culture is clothing. The wardrobe starts with a long hooded robe, the jalabiyya. The men wear a headcloth called a kufiyya which is secured with a rope called an 'agal. The women are required to have all hair covered, but married women place a wrap around the forehead called an 'asaba.



This information is meant to give you a plausible snapshot of what life was like when and where your paternal line originated. It combines the results of ongoing archaeological, linguistic and genetic research. Because the study of human pre-history is not exact and must rely on assumptions, scientists may disagree about the best interpretation of existing knowledge. As additional research results become available our assumptions may be updated or change completely. Your paternal inheritance is a small part of your overall inheritance but provides you with the clearest view possible of your pre-historic ancestry. It's like finding an especially beautiful and informative artifact in the remains of an ancient village or campsite. Testing was done in association with Sorenson Genomics. Genelex hopes that this information

has been exciting and informative to you. We are honored to have played a role in your search for your genetic ancestry.

J1 Haplogroup frequencies:

Arab (Morocco) - 10.2%	Muslin Kurd – 11.6%	Albanian – 3.6%
Berber (Morocco) – 6.3%	Palestinian Arab – 62.5%	Italian (Calabria) – 1.8%
Saharawish (N. Africa) – 17.2%	Bedoin – 62.5%	Italian (Apulia) – 2.3%
Algerian – 35%	Ashkenazim Jewish – 14.6%	Italian (Sicily) – 7.1
Tunisian - 30.1%	Sephardim Jewish – 11.9%	Hunza (Pakistan) – 2.6%
Ethiopian (Amhara) – 33.3%	Turkish – Istanbul – 6.9%	Pakistan-India – 7.9%
Iraqi – 28.2%	Georgian – 6.6%	Central Asia – 9.7%
Lebanese – 12.5%	Greek – 2.2%	

*Ref: Frequency distribution of Haplogroup J and main subgroups.
Semino et al, 2004 Am. J Hum. Genet 74:1023-1034*

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