

# JOHN SMITH'S DNA ANCESTORS - MITOCHONDRIAL HAPLOTYP E H

Using the latest advances in genetic research and studies in anthropology and archaeology, DNA SOLUTIONS is able to trace John Smith's ancestry back approximately 150,000 years. Every living humans DNA all converges back to a single female ancestor, an African woman, known as "Mitochondrial Eve". We have sequenced and analysed important areas of John Smith's mitochondrial DNA and can see the key markers that have been passed down from generation to generation, allowing us to trace John's ancestors and reveal their epic journeys and events that have shaped the world we know today.

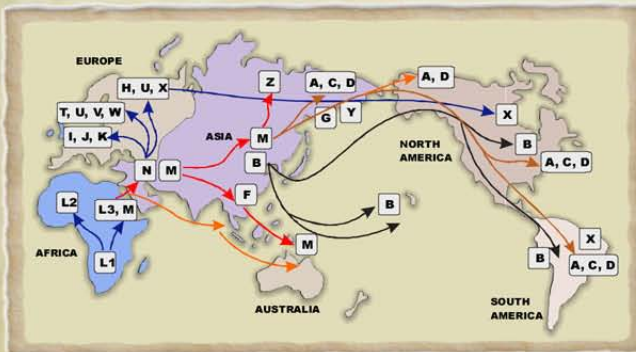
## The children of Mitochondrial Eve

From Mitochondrial Eve there were 4 initial descendants, one (L0) is known to be extinct and is no longer found on the planet. We can see from specific markers that you have that you have descended from a branch known as L3. The markers that designate L3 first appeared around 78,000 to 103,000 years ago and today L3 individuals are found in high frequencies in North Africa.

## Leaving Africa

Some L3 descendants were the first to travel out of Africa, heading north into the Middle East, and eventually leading to branches from L3 that populated the rest of the world. DNA markers that you have show that your ancestors were part of a group that branched off from the L3, known as haplogroup N. Type N first appeared 60,000 years ago, and skeletons excavated in Israel (Kebara Cave, Mount Carmel), show that your ancestors co-existed with Neanderthals. Today individuals with type N (of those descendants who headed west) are found in Turkey and Eastern Mediterranean.

The migration of all the various haplogroups can be seen from the world map on the side.



## Into Europe

Your genetic sequence shows us that your ancestors diverged from the N clan after several thousand years, forming a new group; haplotype R. While some of the R type individuals moved south, migrating back into northern Africa, and others headed east, into the Middle East and on to Central Asia, your ancestors went west across Anatolia (present-day Turkey) and north across the Caucasus Mountains of Georgia and southern Russia. Arriving in Europe around 35,000 years ago signaled the beginning of the end for the Neanderthals, who were out competed by your R type ancestors who had better weapons and communications during the a time when resources were scarce.

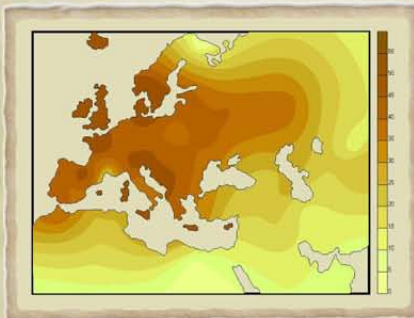
## Settled in Western Europe

Coming from the near east you belong to a group of people who merged from the R group, forming the HV and then the H haplogroup.

During the ice-age 15,000 to 20,000 years ago people were forced out of Northern Europe, and retreated to the warmer climates in Spain, Italy and the Balkans. During this harsh time population numbers plummeted and a lot of genetic diversity in Europe was lost forever.

As the ice sheets began to thaw the H-haplotypes moved north again and recolonized western Europe, also known as Clan Helena (as named by Bryan Sykes in his popular book, The Seven Daughters of Eve), today the H Haplogroup is the most common haplogroup in Western Europe.

A study published in the American Journal of Human Genetics in 2004 found the highest frequency of type H in Northern Spain (52%), Sicily (49%), Albania (48%), France (47%), Italy (47%), Austria (45%), and the Greek Islands, Southern Spain, Croatia, Estonia, all with 44%.



Moving eastward the frequencies of H gradually decreases, allowing us to determine the migratory path these settlers followed after they left the Iberian Peninsula in Spain. Haplogroup H is was found to be 26% in Turkey, 20% in Iraq and 11% in Central 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 this lineage made it into those areas during some of the earlier migrations out of the Near East.

The concentration of H type persons in Europe today is illustrated (left).

## YOUR MITOCHONDRIAL PROFILE (HSV1 and HSV2)

To determine your haplotype two critical areas of DNA were sequenced, these areas (Hypervariable region 1 and 2) give us a profile, which is very unique to family groups. You can use this profile for genealogy and future research.

Your Mitochondrial DNA profile is: 16293G, 16311C, 195C, 263G, 315.1C