Deep Ancestry of the Morkels

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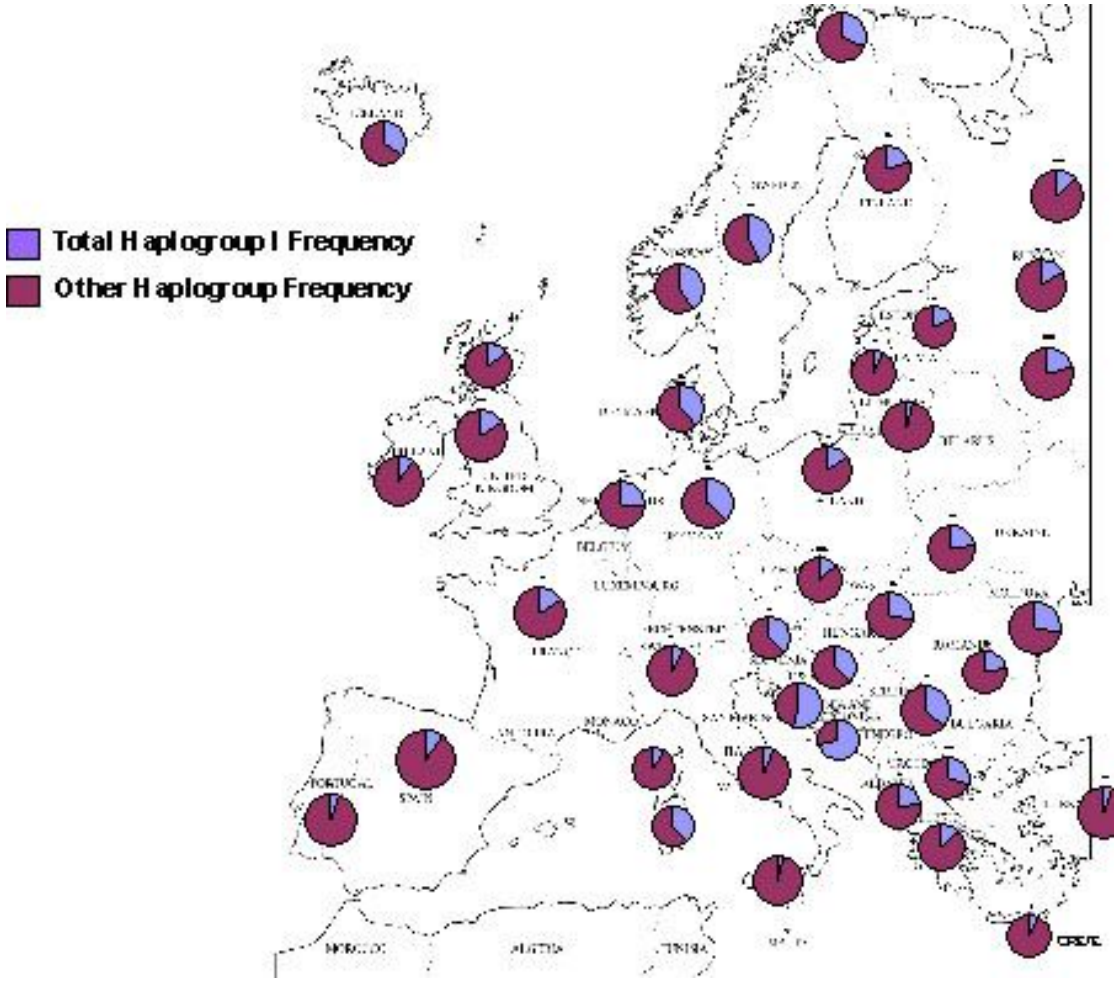
My DNA tests show (1):

Paternal y-DNA: haplogroup I
Maternal mt-DNA: haplogroup H

The y-DNA chromosones are handed down from father to son, and my Y-DNA haplogroup I would be common to the whole Morkel family.

My maternal mt-DNA marker is haplogroup H, and is from my Theron Mother's side. Mitochondrial haplogroup H is a predominantly European haplogroup that participated in a population expansion beginning approximately 20,000 years ago. Today, about 30% of all mitochondrial lineages in Europe, spread fairly uniformly, are classified as haplogroup H (2).

In this story we focus on the haplogroup I, also called "Europe's Native sons" (1), of which we are part.

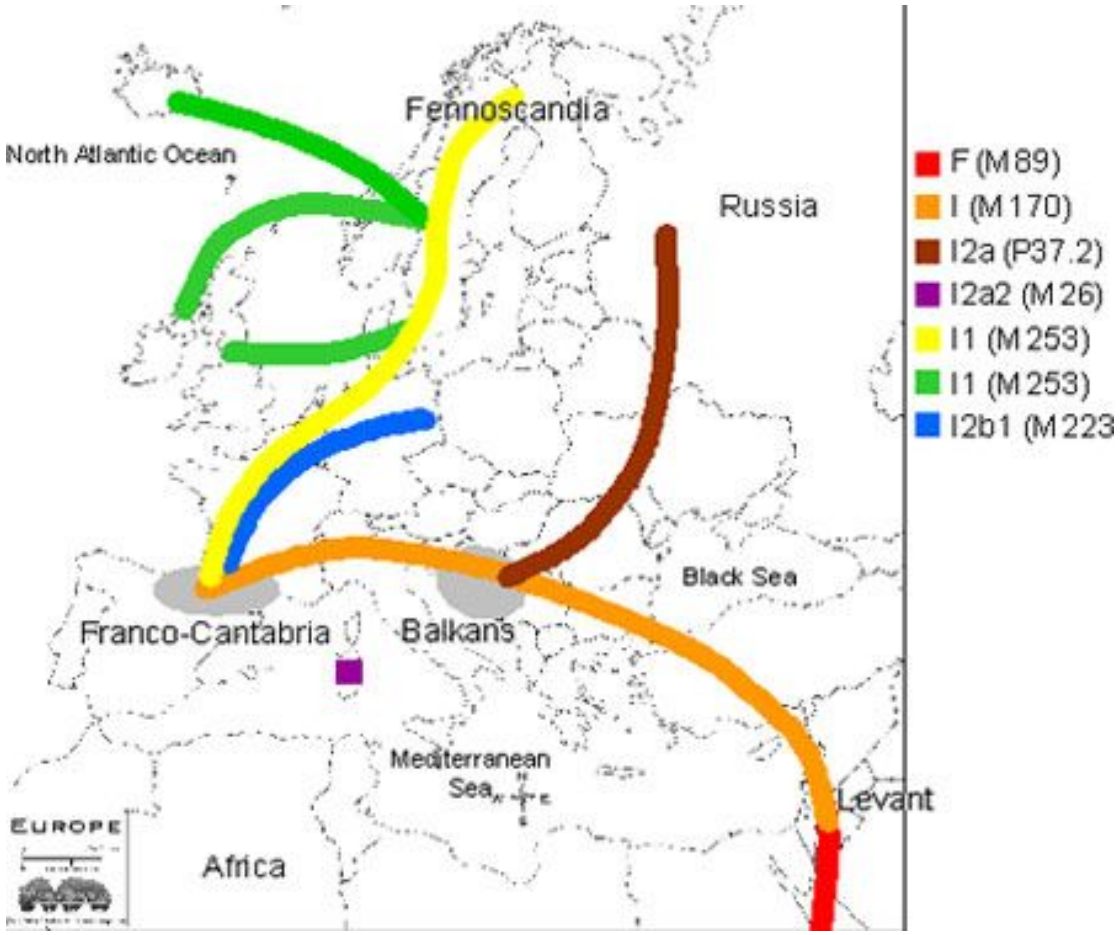


A map illustrating the phylogeography of Y-chromosome haplogroup I in Europe. The frequency of haplogroup I is shown as the blue portion of the pie charts distributed over different locations. It is clear that there is a higher frequency around the Balkans and Scandinavia. Another abundant pocket of haplogroup I is located on the island of Sardinia, west of Italy. (1)

There are two main concentrations of I – Scandinavia/Germany/Netherlands (Fennoscandia) for subclade I1, and Balkans (Bosnia and neighbouring countries) for sublade I2a, and a small pocket in Sardinia for subclade I2a2.

A distinguishing feature of haplogroup I is its almost complete absence outside of Europe (apart from modern migrations to the Americas, Africa and Australia over the past 300 to 400 years). Haplogroup I is not found in Africa and at marginal levels in regions of the Middle East and Asia, with borders juxtaposed to Europe.

Early origins (1)



Proposed scenario of the movements of human populations bearing haplogroup I. The figure shows likely origin of haplogroup I from the Middle East via the Levantine corridor and its residence in two pockets (gray ovals) during the last glacial maximum in Europe. Subclades of haplogroup I are color coded and corresponding SNPs listed in the legend. The routes and locations are based on evidence from several studies of Y-DNA I haplogroups and haplotypes. (1)

Timeline for Haplogroup I .

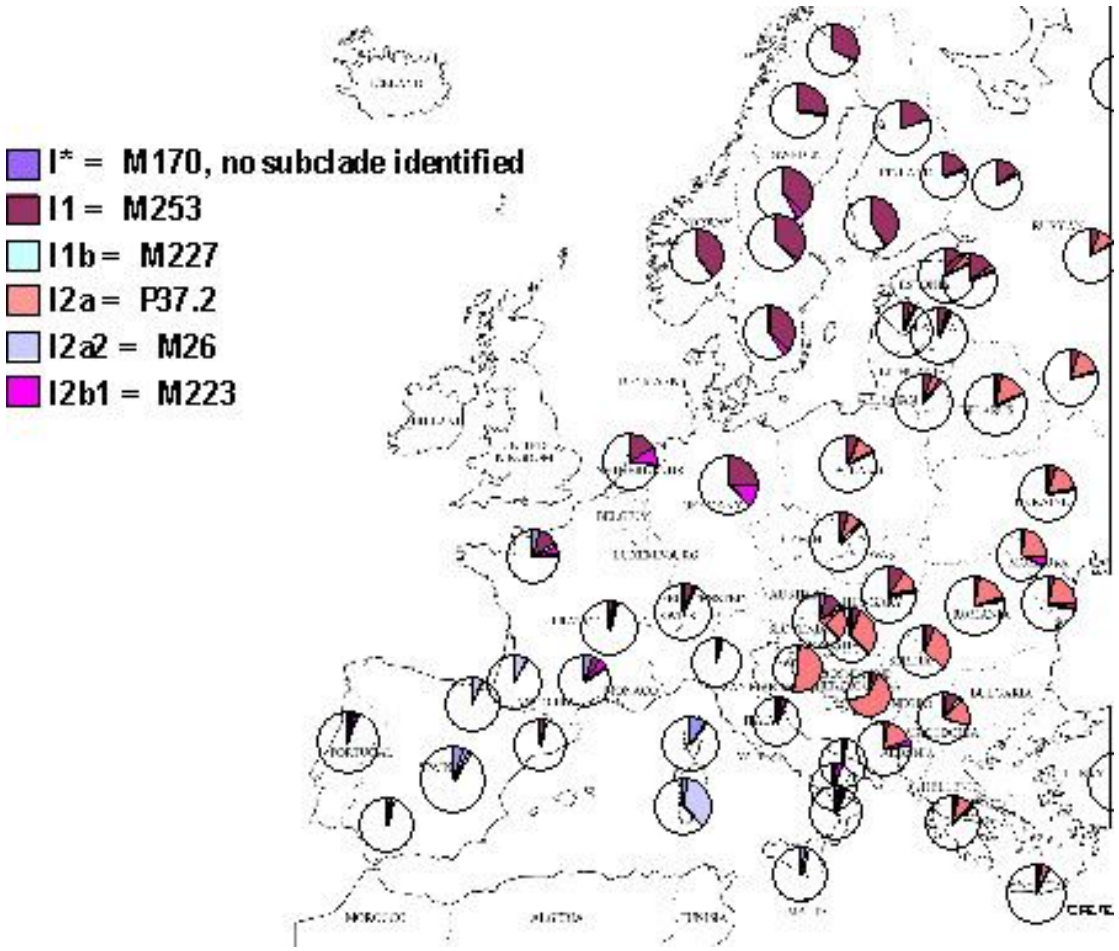
50kya	**Migration ex Africa.** About 50,000 years ago, a second and later human migration of suprahaplogroup F out of Africa to the Levant (1)
28 - 24kya	**Haplogroup I spins off.** About 24 to 28,000 years ago the haplogroup I is formed as a distinct group on its own and spreads into southern Europe. It is associated with Gravettian and Aurignacian culture (1). It is a phase of the European Upper Paleolithic that is characterized by a stone-tool industry with small pointed blades used for big-game hunting of bison, horse, reindeer and mammoth. People in the Gravettian period also used nets to hunt small game (3).
20-18kya	**Ice sheets and glaciers.** About 18 to 20,000 years ago was a period of extreme cold during the Late Glacial Maximum, with ice sheets and glaciers spreading over northern Europe. Two significant pockets of refuge from the glacial reach existed, one associated with subclade I2a in the Balkans, and one associated with I1 and I2b1 in the Franco-Cantabria region both sides of the Pyrenees (1). Haplogroup R co-existed with I in these refuge areas.
16kya	**Climate warming**. Northwards migration into central Europe (4).
13-11.5kya	**Younger Dryas Big Freeze.** About 13,000 years ago the climate changed abruptly with intense freezing weather for about 1,300 years, causing hardship and interrupting human progress. (5)
11kya	**Holocene warming commences.** Shrinking ice sheets and glaciers allow human migration northwards eventually reaching Scandinavia. Mesolithic stone tools used (6). Human civilization begins with a transition from hunter-gathering to farming and settlements (7).
4kya	**Bronze age** tools introduced into Europe (8). Megaliths 6kya – 3kya.
3kya	**Iron age** in Europe (9).

It is somewhat surreal to think of our ancestors using stone tools and hunting bison and mammoth, but that is what they did.

La Gravette Point from Gavaudun, France – ca 22,000 years ago. Three views of the same tool. (10)

Mesolithic Flint Knife. ca 8,000 years ago (11)

I did not take further tests to establish subclades of I. It is reasonable that we are either I1 or I2b1. Contributions from other Morkels about haplogroups will be most welcome.



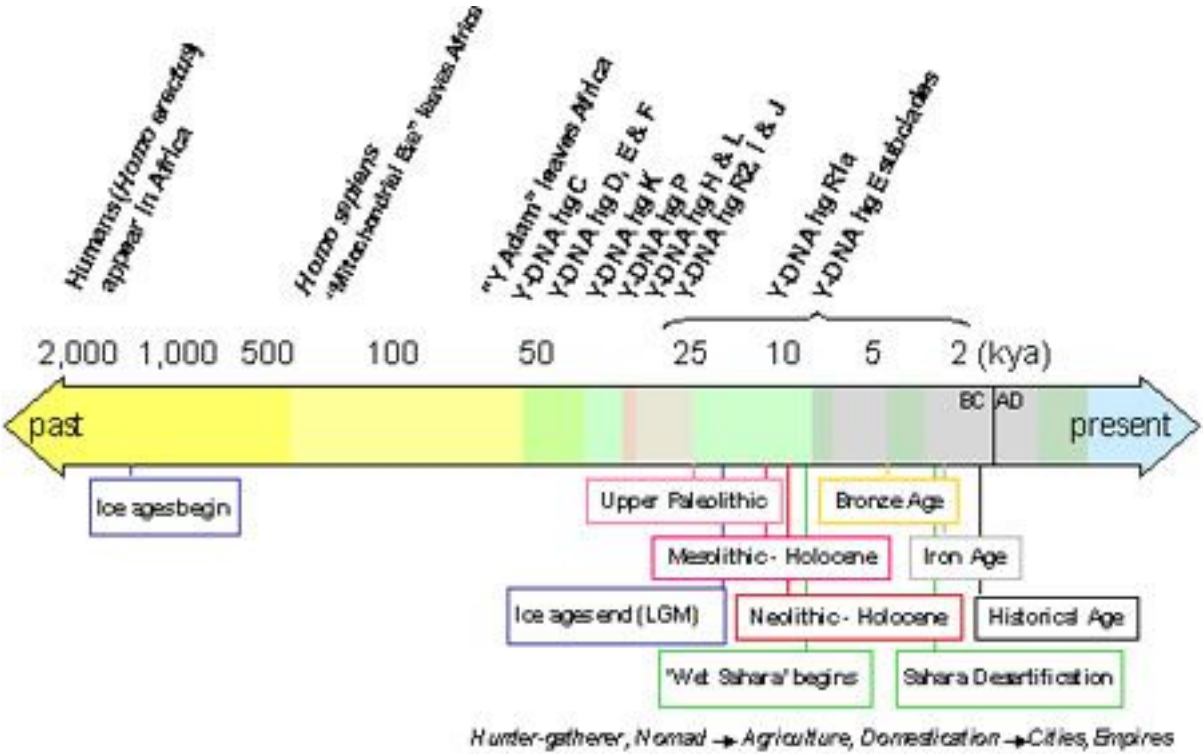
A map illustrating the phylogeography of the subclades of haplogroup I in Europe. The frequency of six different subclades is shown by color in the pie charts. No color indicates the portion of haplogroups other than I observed for each location. The results illustrate a peak of subclade I1 around Scandinavia and I2 around Southeastern Europe. Note also the unique peak of subclade I2a2 in Sardinia. Subclades not currently identified: I1a, I1b1, I2a2a, I2b1a and I2b1b. (1)

Sources and Notes:

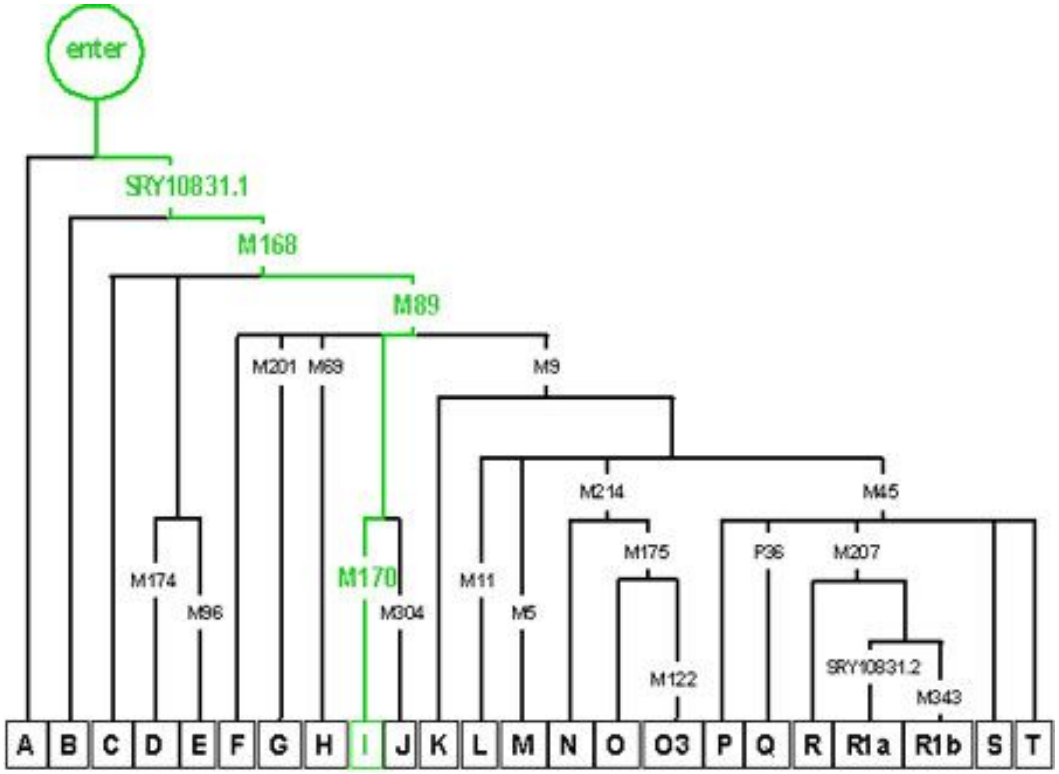
1. Learn about Y-chromosome Haplogroup I. *Genebase Tutorials*. Retrieved July 19, 2011, from http://www.genebase.com/learning/article/12
2. http://www.kerchner.com/haplogroups-mtdna.htm
3. http://en.wikipedia.org/wiki/Gravettian
4. http://en.wikipedia.org/wiki/Late_Glacial_Maximum
5. http://en.wikipedia.org/wiki/Younger_Dryas
6. http://www.stoneagetools.co.uk/mesolithic-gallery.htm
7. http://www.wisegeek.com/what-is-the-holocene.htm
8. http://www.unr.edu/sb204/geology/europe.html
9. http://en.wikipedia.org/wiki/Iron_Age
10. http://en.wikipedia.org/wiki/Gravettian
11. http://www.stoneagetools.co.uk/mesolithic-gallery.htm
12. http://www.scs.illinois.edu/~mcdonald/worldmtdnamap.pdf
13. http://www.eupedia.com/europe/neolithic_europe_map.shtml

Appendix

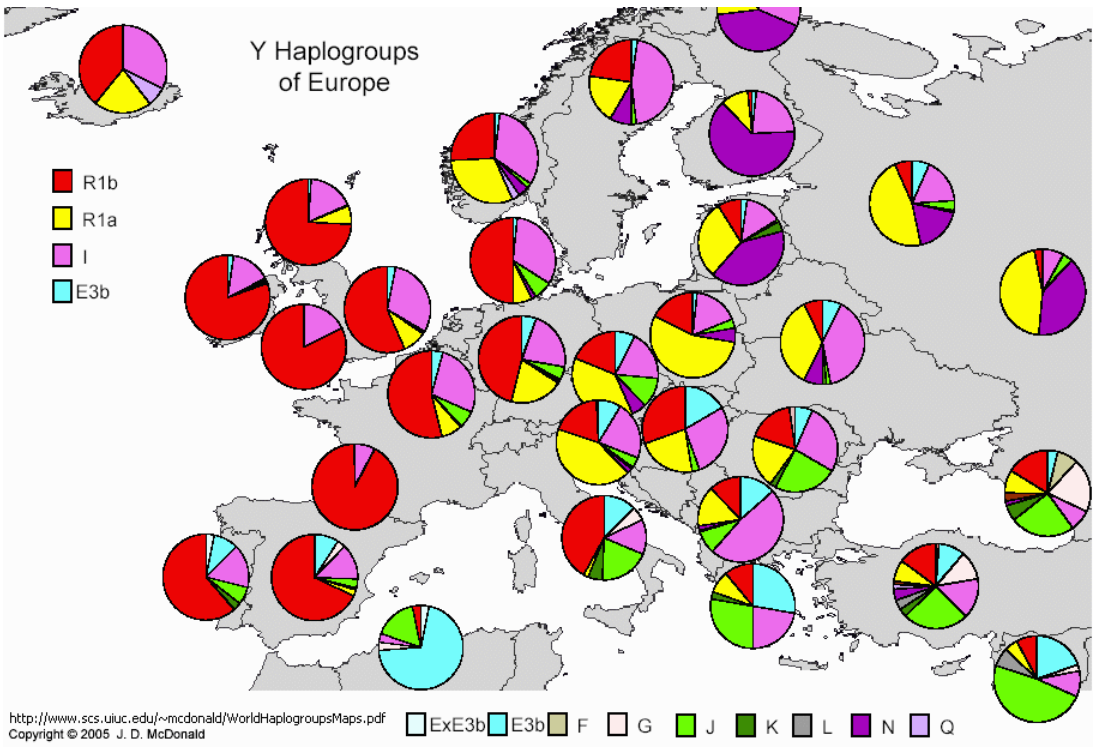
Most Europeans are either I or R haplogroups. It seems that the R group came somewhat later to Europe than I. About 25,000 years ago the R group were in the area of present day Iran and spread into Northern and Western Europe around 5,000 to 3,000 years ago(13). This contradicts another source (1) that have them sharing with the in the refuges mentioned during the late glaciation period of 20,000 to 18,000 years ago.



The emergence of modern humans. A schematic timeline is shown with the approximate appearance of Homo sapiens, with particular attention to the estimated origins of different ancestral Y-chromosomal haplogroups. Below the timeline is shown key geological and anthropological events. Kya = thousand years ago, hg = haplogroup, LGM = last glacial maximum (1).



This phylogenetic tree of the Y-DNA haplogroups is presented in a more typical inverted fashion below, with the A-T haplogroups defined by SNP markers as they branch from the root. In order to identify your personal haplogroup, simply follow the branches from the 'enter' point with the SNPs identified, here exemplified for haplogroup I with the green highlighting (1).



Y-Haplogroups in Europe (12)