Genetics and the Neolithic of Europe

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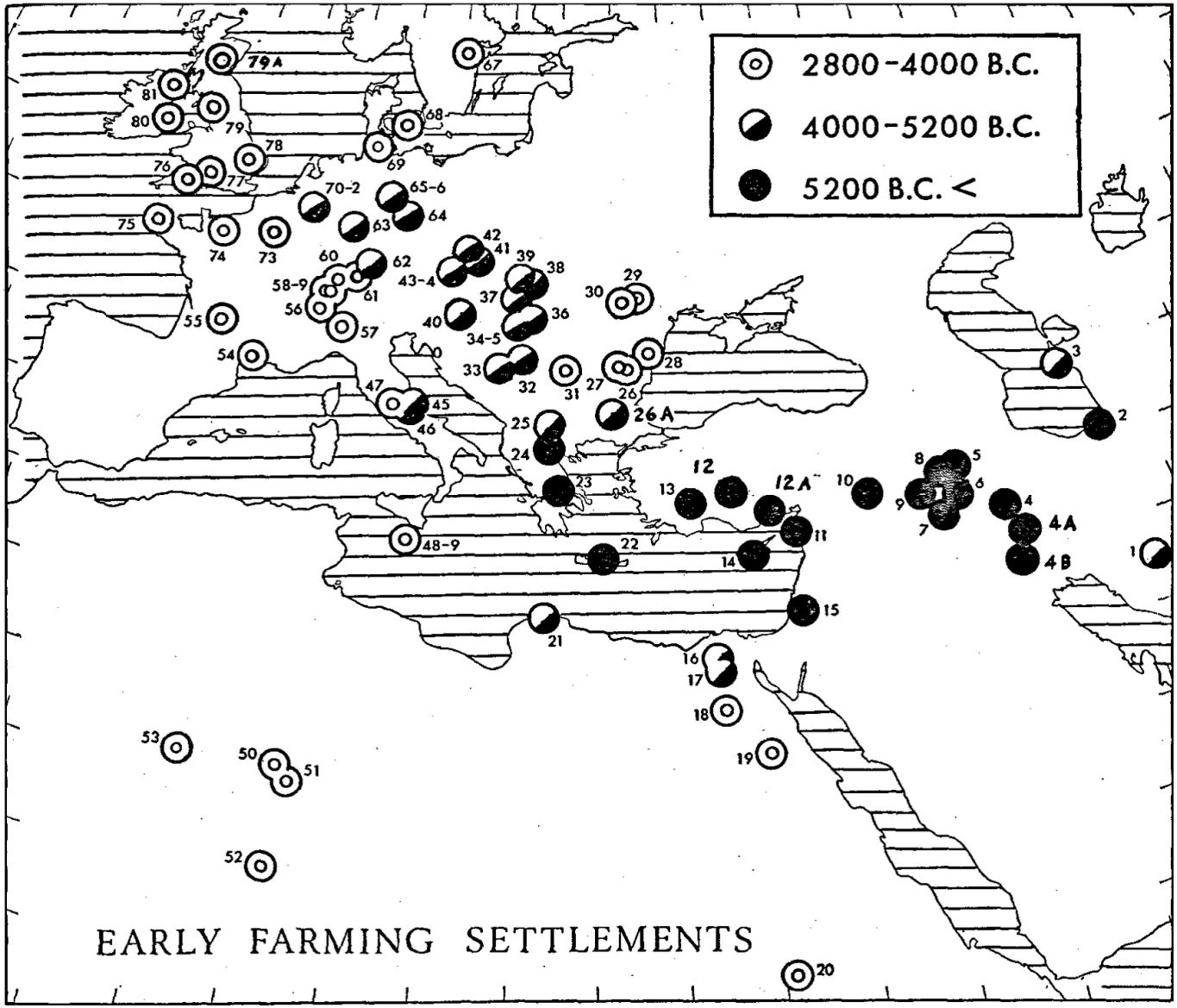
Outline

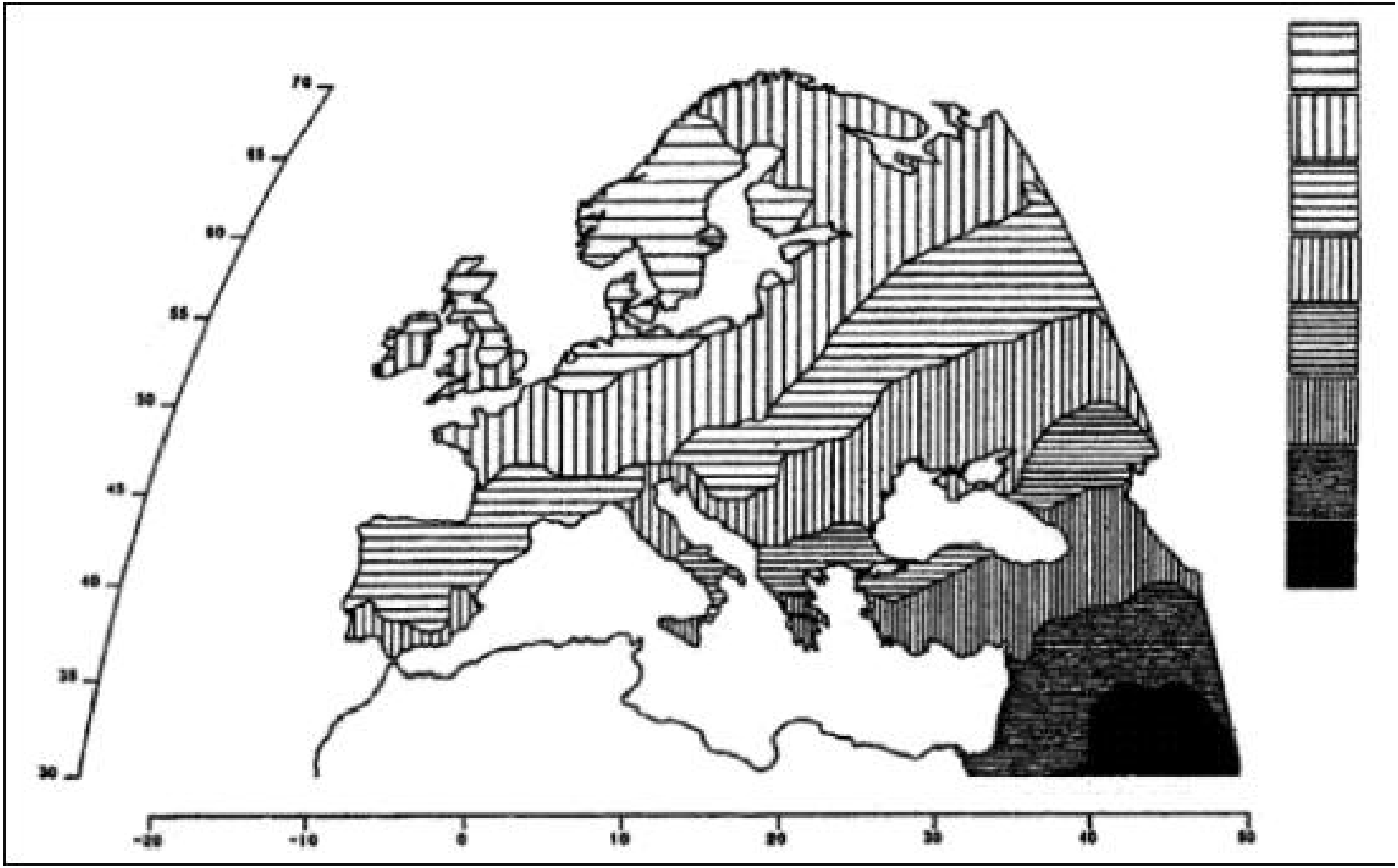
- The European Neolithic: a movement of peoples or of technology?
- Linkage disequilibrium (LD)
- How LD responds to changes in population size.
- The history of European population size.

Spread of farming across Europe



(Grahame Clark, 1965, *Proc. Prehist. Soc.*)

Major axis of genetic variation in Europe



95 genes (Cavalli-Sforza, 1994, p. 292)

Movement of people or of technology?

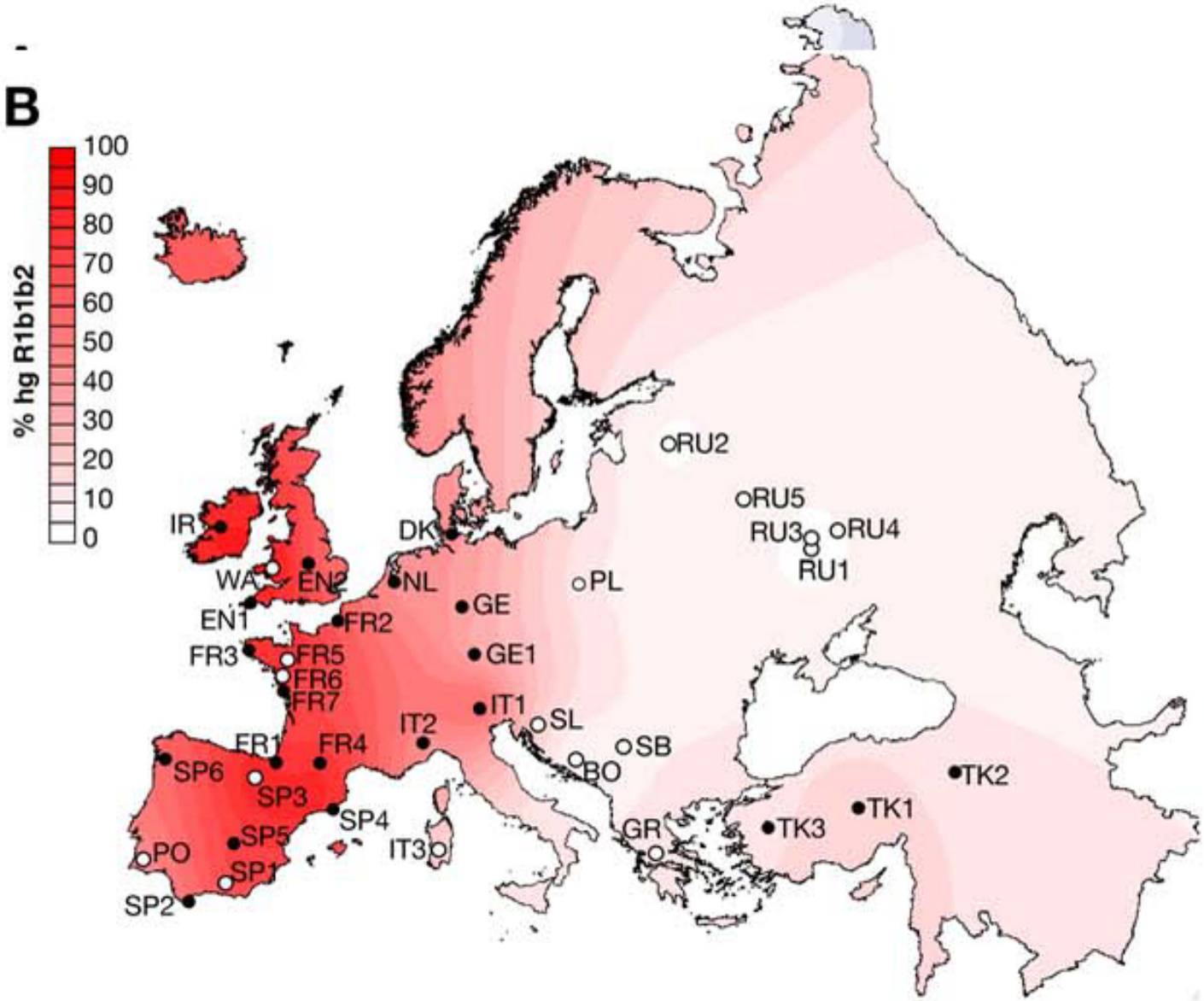
Local hunter-gatherers contributed less than 30% in the original settlements. This finding leads us to reject a predominantly cultural transmission of agriculture.

(Lounès Chikhi et al. 2002)

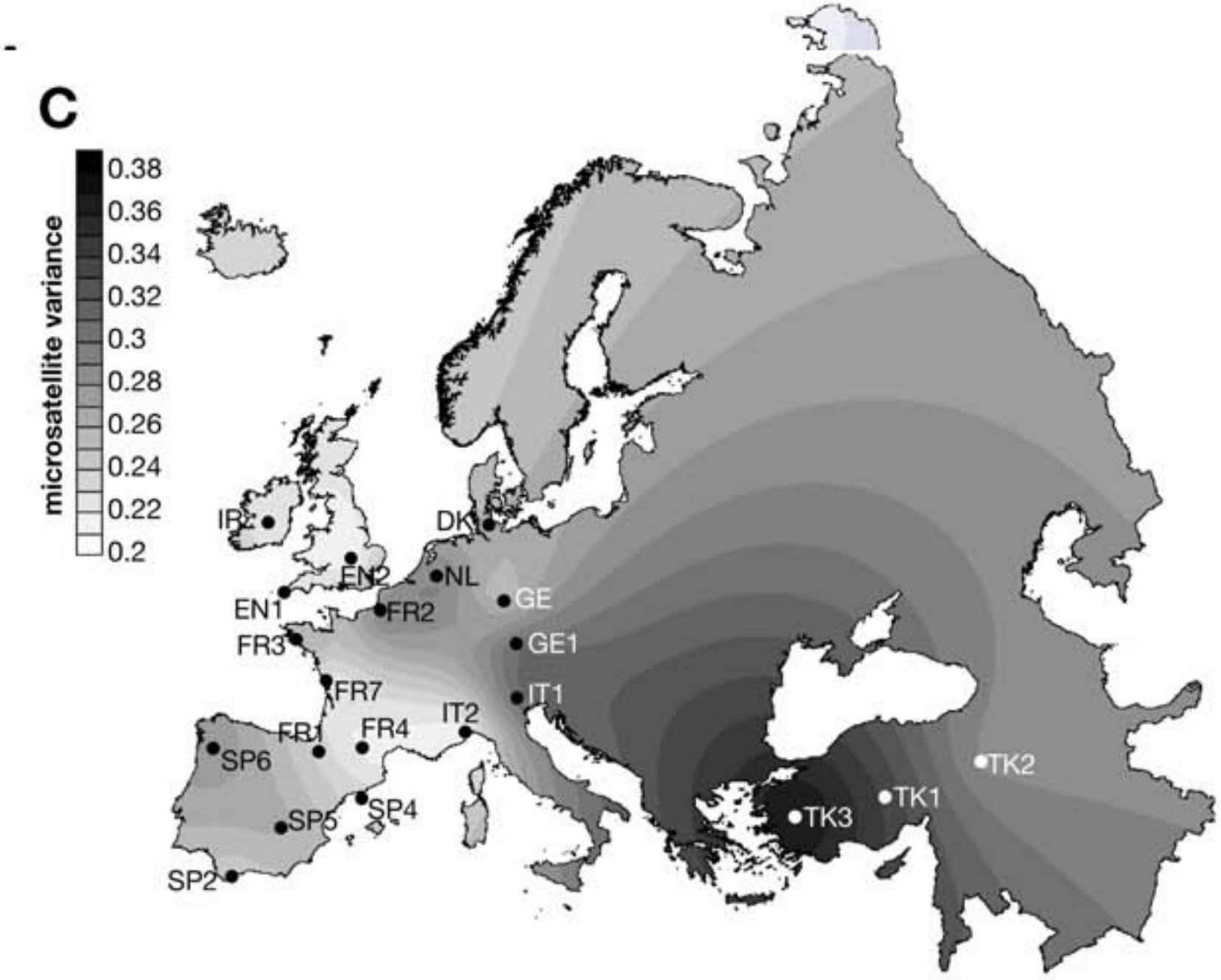
Both mitochondrial DNA and Y chromosome analyses have indicated a contribution of Neolithic Near Eastern lineages to the gene pool of modern Europeans of around a quarter or less. This suggests that dispersals bringing the Neolithic to Europe may have been demographically minor.

(Martin Richards 2003)

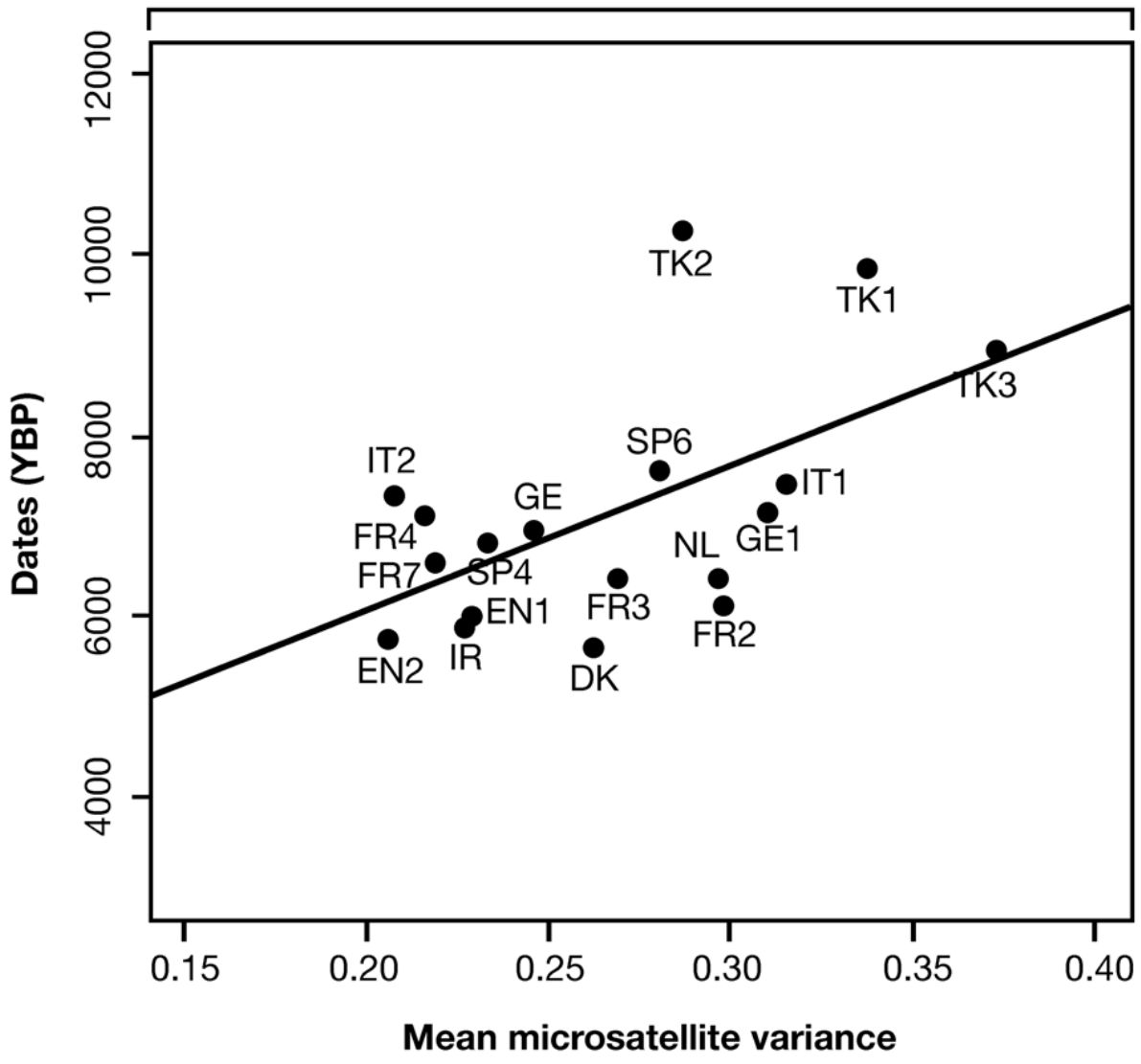
Y haplogroup R1b1b2 most common in Ireland: Mesolithic origin?



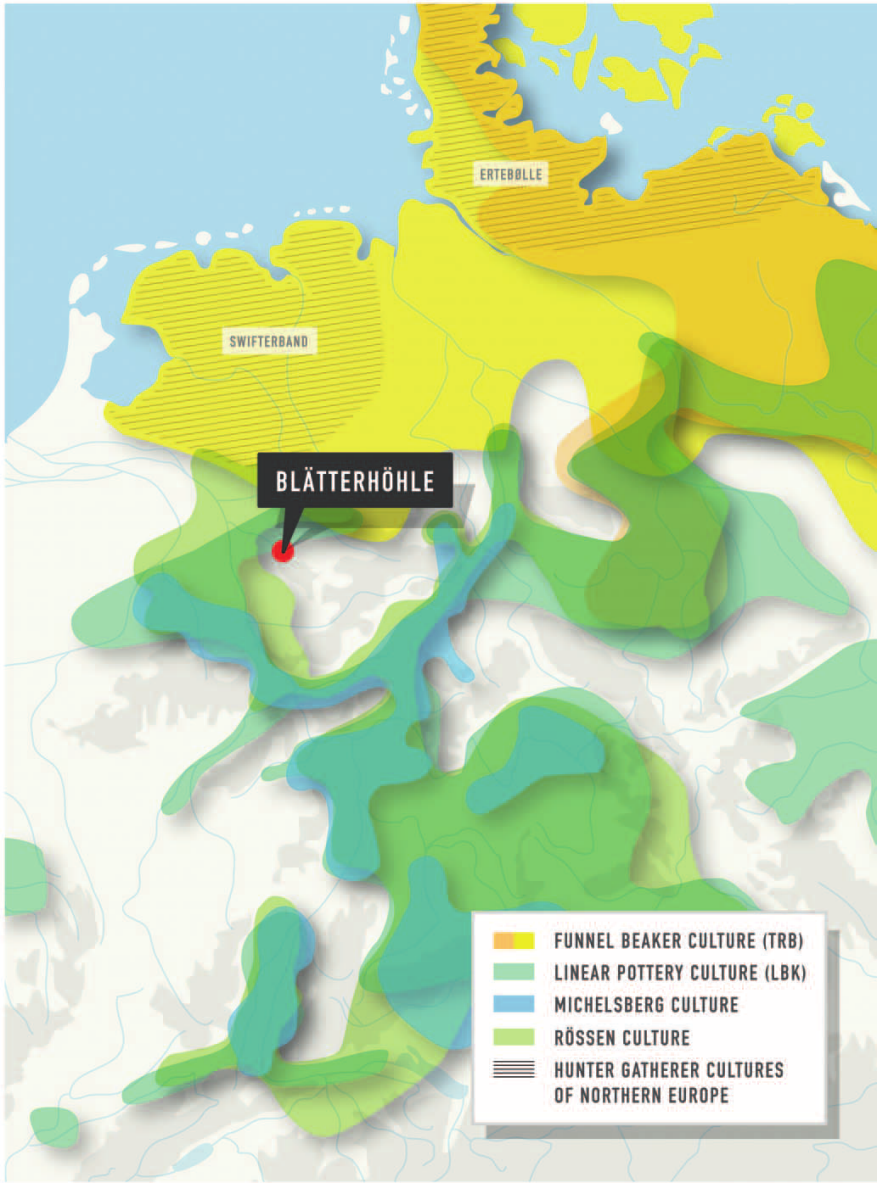
No: it originated in Turkey



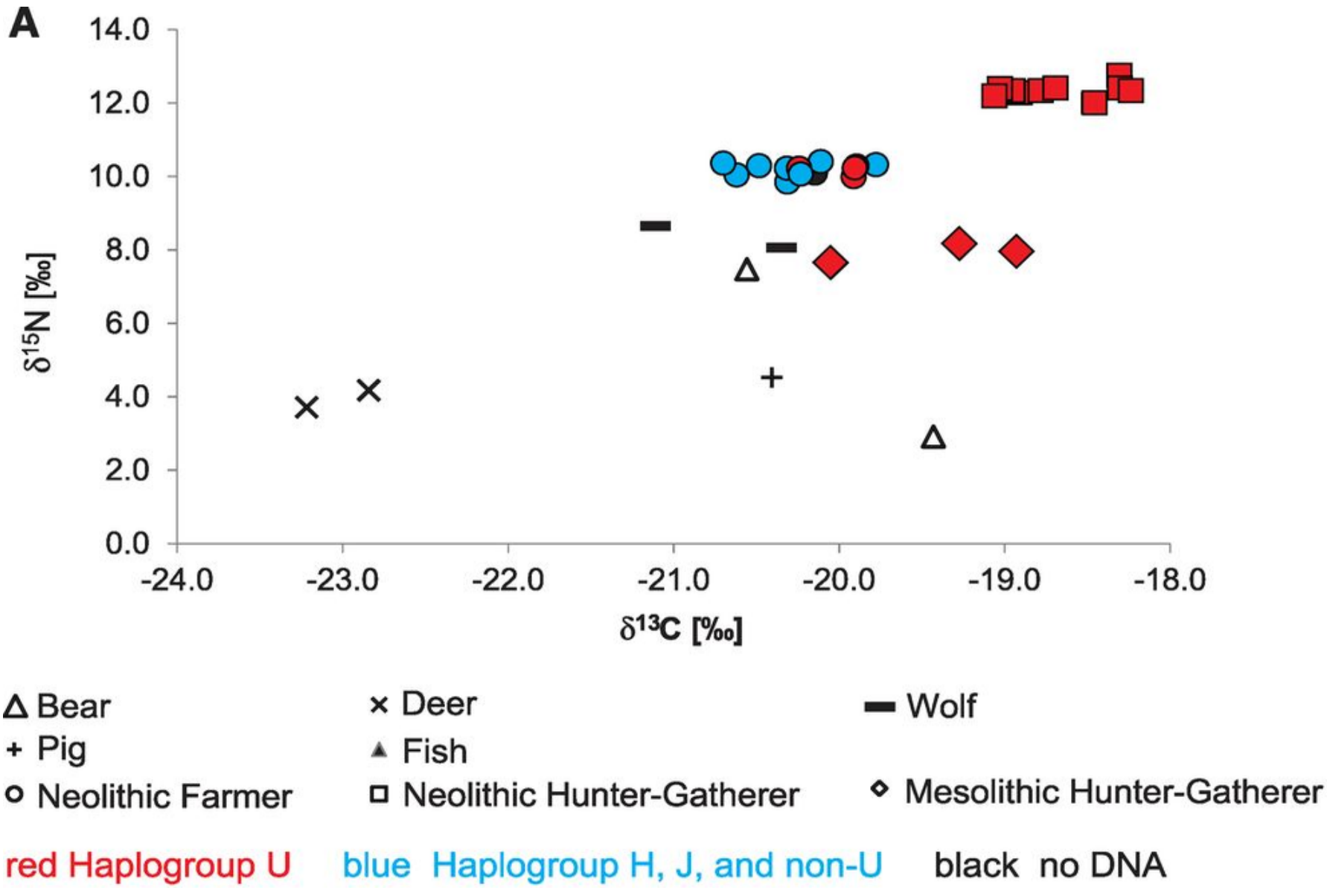
Microsatellite variance vs. earliest Neolithic dates



The Blätterhöhle site in Germany

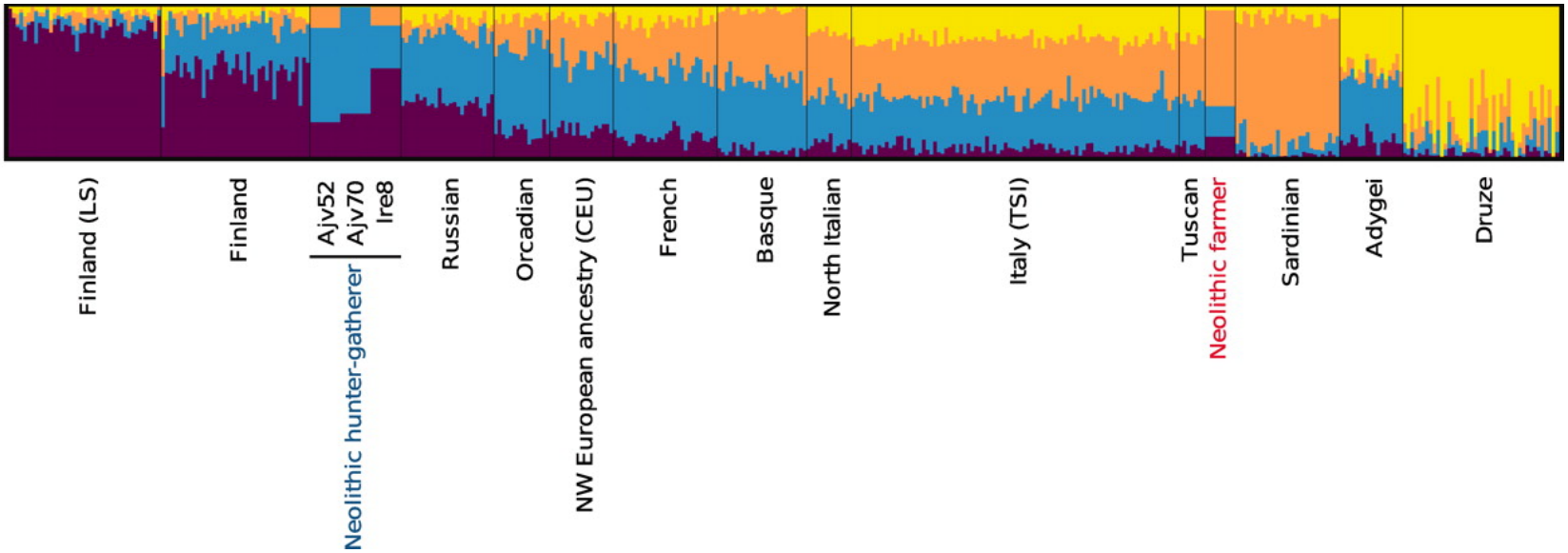


mtDNA of Neolithic farmers and foragers



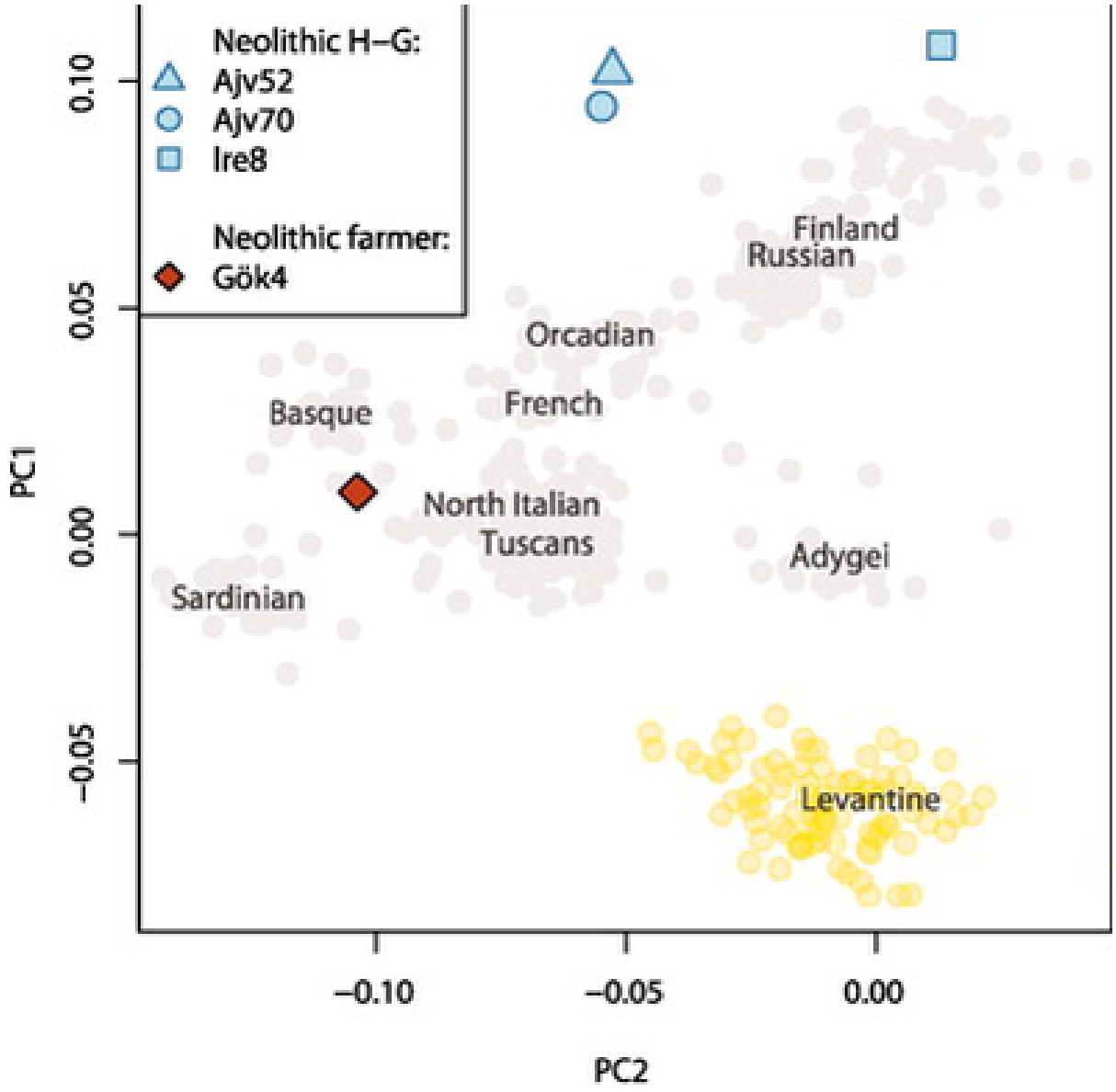
(Bollongino et al, Oct 2013)

Nuclear genes of Neolithic farmers and foragers



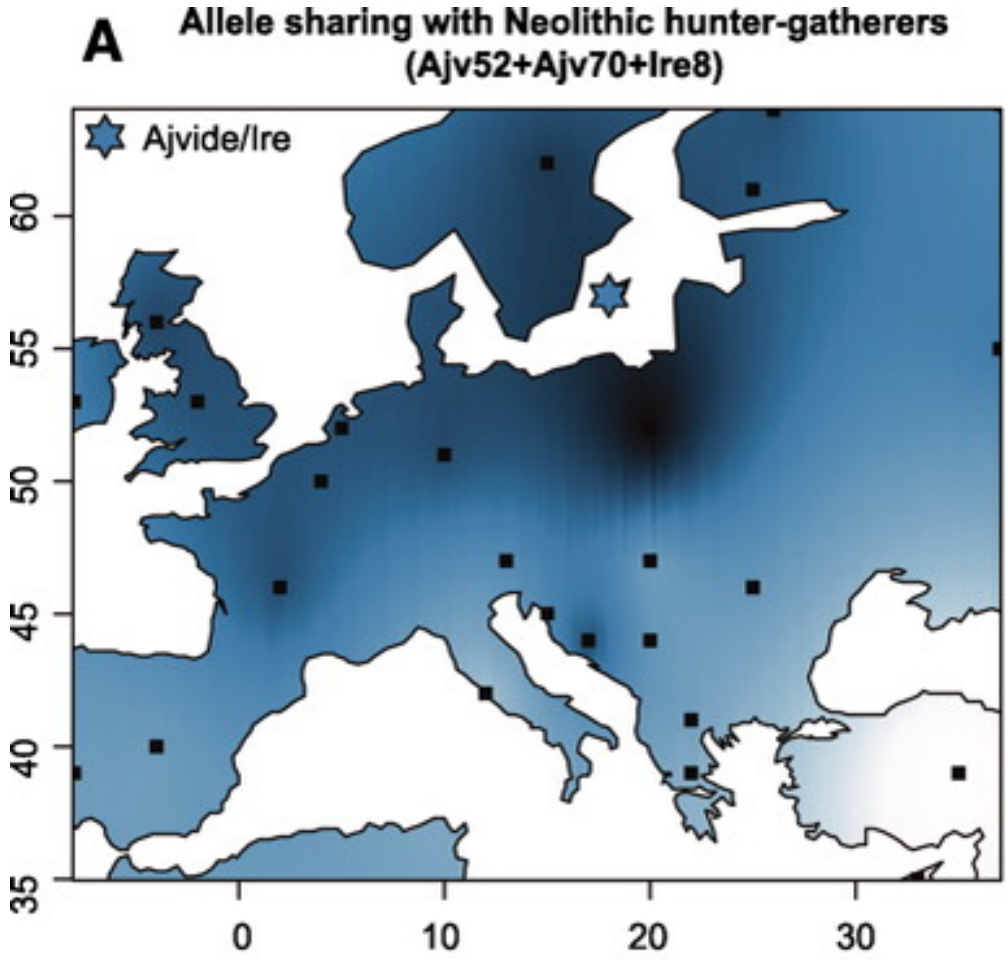
(Skoglund et al, 2012)

Nuclear genes of Neolithic farmers and foragers



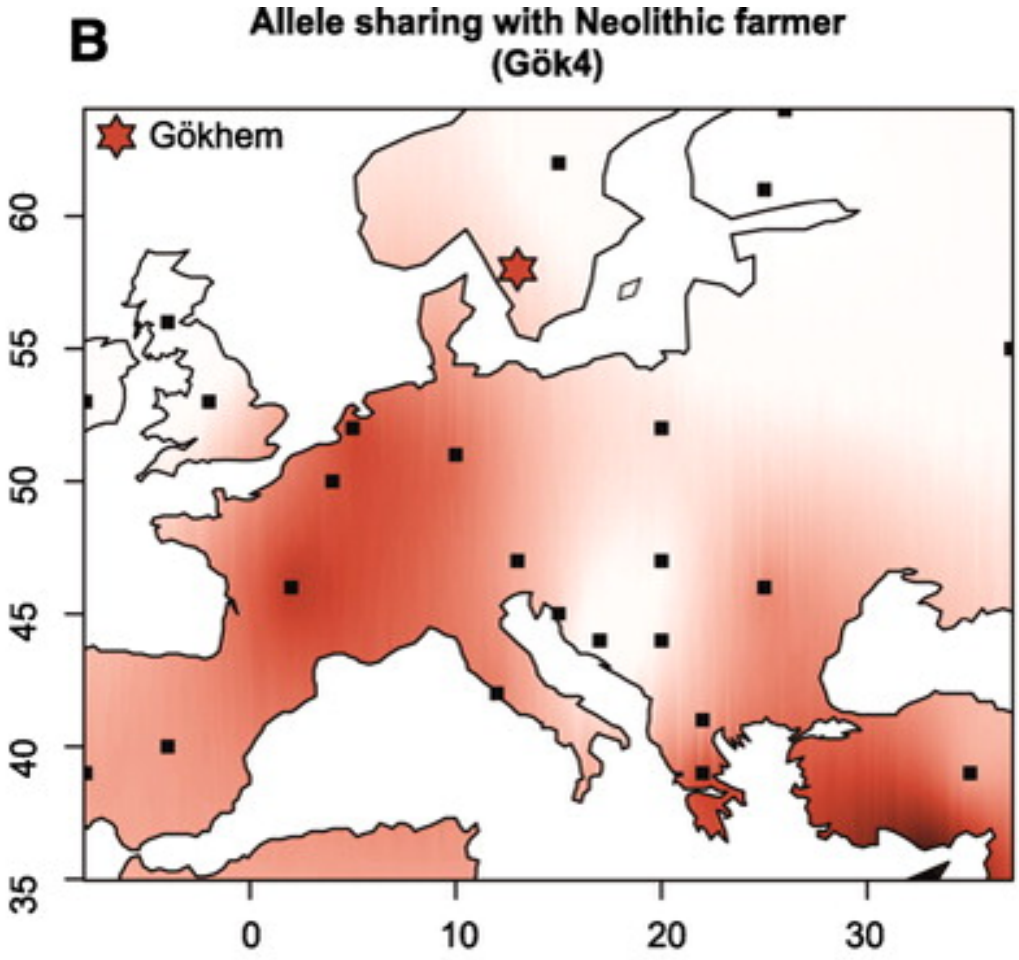
(Skoglund et al, 2012)

Northern Europeans resemble Neolithic foragers



(Skoglund et al, 2012)

Southern Europeans resemble Neolithic farmers



(Skoglund et al, 2012)