

Insights from the genetic analysis of the Yamnaya population

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The historical period of Bronze Age (3000-1000 BC), was an extremely crucial period for the development of human history. This era is characterized by huge cultural changes, large-scale human migrations as well as replacements of some populations. All these processes contributed to the demographic structure of modern-day Europe and Asia. In this study we investigate the genetic structure of the Yamnaya people in comparison to the modern Greek population. The Yamnaya lived in the Pontic-Caspian steppe during the Bronze Age. It is believed that this culture replaced the Neolithic farming cultures in temperate Eastern Europe. We examined 15 samples of Yamnaya people merging genomewide data from two different studies. For comparison, we analyzed data from various Greek populations, including islands as well as mainland Greece. Using the SAMtools software package we were able to manipulate alignments in the SAM/BAM format. The genomic variation of the Yamnaya is then compared to 152 samples from Greek populations. The 62 samples have been genotyped with the ILLUMINA HumanOmni2.5 genotyping chip while the 90 samples have been genotyped with the ILLUMINA OMNI1-QUAD. Investigating the genetic polymorphisms that are present in the Yamnaya genome in comparison to the Greek genome we draw conclusions regarding the evolution and history of modern-day Greeks.

1. Morten E. Allentoft et al. *Population genomics of Bronze Age Eurasia* (2015) 522:167-172.

2. Wolfgang Haak et al. *Massive migration from the steppe was a source for Indo-European languages in Europe* (2015) 522:207-211.

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