Ancient DNA analysis might suggest external origin of individuals from chamber graves placed in medieval cemetery in Pień, Central Poland

Tomasz Płoszaj¹,* , Krystyna Jędrychowska-Dańska¹, Alicja Zamerska¹, Alicja Drozd-Lipińska², Dariusz Poliński³, Andrzej Janowski⁴, and Henryk Witas¹

¹ Department of Molecular Biology, Medical University of Łódź, Narutowicza 60, 90–136 Łódź, Poland
² Department of Anthropology, Nicolaus Copernicus University, Lwowska 1, 87–100 Toruń, Poland
³ Institute of Archaeology, Nicolaus Copernicus University, Szosa Bydgoska 44/48, 87–100 Toruń, Poland
⁴ Center for Medieval Archaeology of the Baltic Region, Institute of Archaeology and Ethnology, Polish Academy of Sciences, Kuśnierska 12/12a, 70–536 Szczecin, Poland
* Corresponding author: tomasz.ploszaj@umed.lodz.pl

With 1 figure, 1 table, 3 appendix figures and 8 appendix tables

Abstract: The participation of immigrants during early days in Poland of Piast’s dynasty is a debated issue among archaeologists and anthropologists alike. Such hypotheses were formulated on the basis of, amongst others, the discovery of early medieval chamber graves characterized by construction features typical of the Scandinavian culture area. Archaeological and anthropological studies to date have not provided an unequivocal answer as to whether the individuals interred in those graves were autochthons who adopted a different burial rite, or perhaps immigrants from foreign lands. To characterize the gene pool of this population we analyzed the C/T allele of the nuclear gene LCT-13910 as well as fragments of the mitochondrial genome from individuals buried in very richly furnished chamber graves at the medieval cemetery in Pień. The obtained results for the nuclear allele and mtDNA do not corroborate the Scandinavian origin of the analyzed population. Moreover, we did not find haplogroup I, which is the one typical of populations that historically inhabited the north of Europe; and the frequency of the LCT-13910 T allele was similar to that of past and present Polish populations. On the other hand, we identified the atypical haplogroup C5c1, which suggests Asian origin of the studied individuals and confirms our previous reports concerning ancient human migrations from Asia to the territory of present-day Poland. While our findings do not conclusively disprove a Scandinavian lineage of the studied population, they certainly shed some new light on the origin of the individuals buried in chamber graves, which may be very different from the one initially proposed by archaeologists.

Keywords: mtDNA; ancientDNA; haplogroup; medieval; chamber grave

1 Introduction

Chamber graves are a unique form of burial in the shape of a small building or chamber erected over the body of the deceased individual and characterized by a wooden construction made of logs or poles (Eisenschmidt 1994). Such graves are also usually larger and deeper (up to 1.5 m) than other types of burials. They often exhibit a complicated multi-level stratigraphy and contain both horizontal and vertical structural elements (Drozd & Janowski 2009). In the past, such burials were very popular in Scandinavian countries and are considered typical of that ethnic group (Eisenschmidt 1994; Graslund 1981; Iversen & Näsman 1991). In Europe, outside of Scandinavia, such graves have been found in Germany, Ukraine, and Russia (Janowski 2011). In Poland, chamber graves have been excavated, amongst others, in Cedynia (Malinowska-Lazarczyk 1982), Sowinki (Krzyszowski 1995), Kalduś (Chudziak 2002), Napole (Bojarski 2014), and Bodzia (Buko & Sobkowiak-Tabaka 2011). However, it should be noted that the Pień cemetery, discussed in this paper, together with that in Bodzia are only among a few archaeological sites in Europe, with chamber graves containing the remains of children. Classical anthropology is unable to provide a conclusive answer as to whether the individuals buried in these unique graves are of foreign origin, although the atypical form of burial and rich grave