**The history of Balts from the area of present-day north-eastern Poland during the Iron Age and the Middle Ages based on the analyses of ancient DNA**

The area of present-day north-eastern Poland was inhabited by the Balts since the early Iron Age. Around the 6th to 5th century BCE, they arrived from the Dnieper basin and created the West Baltic Barrow Culture, which also reached parts of present-day Belarus, Lithuania and the Kaliningrad Oblast. In the following centuries, despite participation in the amber trade, they remained on the periphery of the major events that took place in Europe.

The invasion of Eastern Europe by Huns in 375 CE marked the beginning of the Migration Period, which led to the large-scale migration of peoples across almost the whole of Europe. A significant part of the population of the Wielbark culture left the area neighbouring the Balts' settlements. But the process of migration towards Western or Southern Europe did not include the Baltic peoples. According to the archaeological research and pollen analyses, the western Balts continued inhabiting the area they had lived for centuries and settled the abandoned land to a very limited extent at the end of the Iron Age. Most of the post-Wielbark area got intensively settled by the Slavs who came from the East. The question remains: as a result of the large population displacements that took place during this period, was there a noticeable assimilation of representatives of other peoples into the Balts community at the genetic level? Unfortunately, without knowledge of the genetic pattern characteristic of Iron Age Balts, it is impossible to answer the above question. Assuming a stable demographic growth in the next decades, it can be expected that the presence of Balts should also be recorded in early medieval populations from neighbouring areas like for example Mazovia, which seems a natural direction of expansion.

In the 13th century, the Teutonic Order began the conquest of lands inhabited for hundreds of years by the Balts tribes. As a result of death and migration, the overall loss of the Prusai population is estimated to be greater than 50%. Part of the population emigrated, mainly towards the lands under the rule of the Masovian and Pomeranian princes, where they gave rise to numerous noble families. The people who remained within the territory of the Teutonic Order were acculturated and assimilated. As a result of the above mentioned, accompanied by intensive colonisation of the conquered lands by settlers from Western Europe, ultimately resulted in an irreversible change in the genetic structure of the area formerly inhabited by the Western Balts. Therefore, genetic data of people who lived there before the conquest by the Teutonic Order gives a unique opportunity to reconstruct changes that took place in Balt population over several hundred years of neighbourhood first with the Germanic and then Slavic people.

At present, our knowledge of the peoples inhabiting this area is based mainly on archaeological research and, from the Roman Period onwards, also on historical sources. Application of the recent developments in molecular biology to the study of ancient Baltic communities will provide a unique new source of data. Crucial to increasing our knowledge of the genetic structure of the Balts will be the analysis of ancient DNA samples. Until now, the Western Baltic peoples have not been subjected to genetic analyses, which is a significant gap in understanding the cultural and demographic processes that took place during the Iron Age and early Middle Ages in Central Europe. As a result of the practised cremation burials, the material from the rare inhumation burials, which was collected for the project has a unique value. We propose to perform a genomic analysis of up to 50 individuals from cemeteries associated with Balts from the Iron Age to the Middle Ages.

Based on the ancient DNA analyses, we will reconstruct the genetic structure and diversity of the Western Balts at the level of Y chromosome haplogroups, mitochondrial DNA and nuclear genome during the Iron Age and the Middle Ages. Next, the results of the genetic analyses will be consulted with archaeologists and linked to the particular archaeological context. Interdisciplinary collaboration between genetics and archaeologists will enable to identify demographic processes and link it with cultural processes that took place in the Balts community during the Iron Age and the Middle Ages. Our research will answer question how the historical events have impacted on the Balts' gene pool, and to what scale, their genetic component is present among the subpopulations of people living in present-day Poland. We believe that the planned project will pose a significant contribution to the research of Balt history.