

The thermocycler is one of the most important pieces of equipment in the aDNA lab. It provides full automation of the temperature dependent polymer chain reaction (PCR), and thus the synthetic duplication of the rare fragments of old DNA.

Is the archaeogenetic analysis and interpretation of faunal remains also of interest to you or do you have questions in this regard? As a department of ZBSA, the aDNA lab also offers opportunities for long-term or project specific cooperation with external partners.

Our team will be pleased to provide you with further information.

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Zentrum für Baltische und Skandinavische Archäologie

Centre for
Baltic and
Scandinavian
Archaeology



aDNA

research laboratory
for archaeozoological
research questions



Foundation
Schleswig-Holsteinische Landesmuseen
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The **Centre for Baltic and Scandinavian Archaeology (ZBSA)** is an extra-mural university research institution, whose role is to carry out archaeological research in the North Sea/Baltic region and in Scandinavia. It is part of the Foundation Schleswig-Holsteinische Landesmuseen Schloss Gottorf in Schleswig. Our research focuses on the Palaeolithic and Mesolithic periods and the 1st Millennium AD (Roman Iron Age, Migration Period, Merovingian Period, Carolingian Period, Early Middle Ages, Viking Age).



The generously equipped separate extraction lab.

aDNA research laboratory at the Centre for Baltic and Scandinavian Archaeology

In response to the growing interest in aDNA analysis within the field of archaeozoology, an independent aDNA research laboratory was set up within the Centre for Baltic and Scandinavian Archaeology (ZBSA). With this lab the ZBSA will take on a pioneering role in this field and close a gap at the juncture of the humanities and natural sciences. The Foundation Schleswig-Holsteinische Landesmuseen curates one of the richest prehistoric and historic faunal collections in Central and Northern Europe. In total the collection includes approximately one million finds dating from the late glacial to modern times. Based on this substantial collection of finds resulting from archaeological excavations our research will focus on faunal remains of pre- and early historic domestic and wild animals. These archaeological finds have a great importance for the settlement and culture history of northern Central Europe and Scandinavia, and will, in the coming years, to a large extent be analyzed for any preserved DNA. Such molecular-biological analysis will form the basis for the reconstruction of population structure, migration movements, or trade connections.

The archaeogenetic lab at the ZBSA extends to four isolation rooms, each containing separate, secure, and shielded workspaces supplied with UV lamps. Among the state-of-the-art instrumentation of the lab is an extraction robot that fully automates many of the most important procedures.

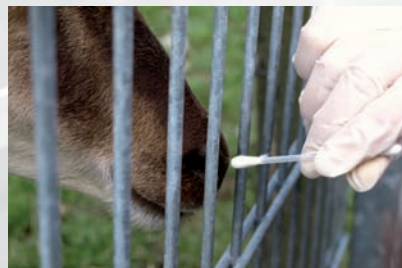


Jacob sheep.

Case study – modern descendants of Viking sheep

Sheep husbandry played an important role in the early Middle Ages. Sheep provided people with meat, milk, and wool, especially in the marsh areas of the North Sea coast or on the islands of the Baltic Sea.

Analysis of hair structure and composition from archaeological finds of the 1980's showed, that the type of mixed-wool Bronze and Viking Age sheep are preserved in a breed of sheep originally found on the Scottish island of Soay. Therefore, Soay sheep are seen as direct descendants of at least the Viking Age animals. Genetic research to clarify the relationship between Viking Age sheep and old sheep breeds such as the Soay, Gotlands, Heidschnucke, Pomeranian, Rotkopf, Jacob sheep, Wallachian sheep and Skudde is one of the core projects of the aDNA research lab.

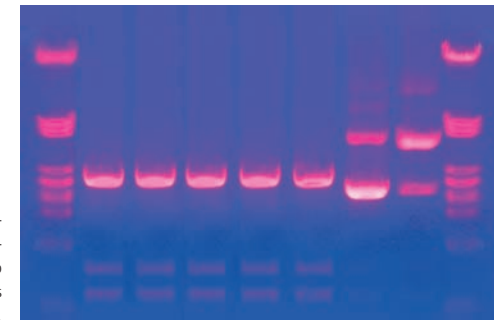


Extraction of a saliva sample from a Soay sheep.



Sheep skull with pelt remains from the Roman Iron Age settlement Feddersen-Wierde (Lower Saxony).

The long term project, conducted in collaboration with multiple international partners, is to compile a comprehensive picture of the degree of relationship between contemporary old sheep breeds as well as to present their phylogenetic relationship to early historic populations at settlements in the Baltic Sea region.



Analysis of DNA-fragments and -concentrations with help from electrophoresis under UV light.

Further archaeogenetic research at the ZBSA focuses on the Roman Iron Age herding of small ruminants in marsh areas (Feddersen-Wierde) and seeks to clarify of the question, if the residents of Feddersen-Wierde really exclusively maintained sheep and no goats, as the morphological analyses seem to indicate. The separation of these species based on the bones is admittedly problematic, and leather remains discovered on the settlement are mostly from goat. This project is of great interest, because the results about the genetics of sheep from the Feddersen-Wierde can be directly incorporated into the previously described project on the relationships between modern and early historic sheep.