

**Patrick Wittmeier** (Department of Historical Anthropology, University of Göttingen): **Non-destructive sampling techniques for DNA analysis from human skulls.**

DNA analysis can provide useful information for provenance research on human remains. The detection of representative haplotypes may indicate the biogeographical origin of an individual, mitochondrial and Y-chromosomal DNA can be used to reconstruct familial relationship between individuals and enable to trace back family lines even over generations, and genetic fingerprinting via autosomal STRs allows to identify specific individuals. However, whether DNA analysis should be applied on skeletal remains from critical contexts, such as colonial contexts for example, is highly debated, as it usually requires the destruction of at least parts of the remains.

We are currently working on a project that investigates the possibility of acquiring sufficient amounts of DNA from human skulls without having to damage them. With our non-destructive sampling approach we are targeting possibly adhering cell residues in natural cavities of the skull, such as the external acoustic meatus or different foramina. The cell residues are detached using ultrasound and collected with a cotton swab or fine brush.

Our preliminary results indicate that this approach is applicable at least for mitochondrial DNA. It was possible to amplify fragments of up to 434 bp of the hypervariable region I (HVR1) of the human mitochondrial genome from the non-destructively taken samples. The amplification of human autosomal STRs was not successful thus far, but will be approached further in the near future.