

Bones, Teeth and Hair Analysis of Siberian Mummies: Another way for Authentication of the Results?

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Ancient DNA results are always submitted to caution due to the technical difficulties induced by the minute amounts, the degraded nature of the template and the high risk of contamination. A list of criteria of validation has been published as a guideline for ancient DNA researchers¹, including a dedicated and separated work area, controlled amplification, reproducibility of the results, etc... In addition to these criteria, the analysis of different substrates: bone, teeth and hairs of the same individual could be another way to ensure the reliability of the results. This study presents the first results obtained on bones, molar teeth and hairs of two Siberian samples dated from the 18th Century. Thus, the grave of Munur Urek, a burial site of an important clan chief and the multiple grave of the "Chamanic tree" site, gave us the opportunity to sample these different types of substrates. These two subjects excavated from frozen graves, were mummified. This exceptional state of preservation allowed us to test the amplification of autosomal and Y chromosome STRs and the sequencing of the HVI region on the three types of substrates. All experiments were done in a dedicated laboratory and negative controls were run for each step. The persons in contact with the samples were typed for the same markers in order to determine exogenous contamination. This method permitted the identification of artefacts on STRs profiles, common when working with Low Copy Number amounts of DNA. Indeed, the comparison of the profiles obtained for bones and teeth highlights allelic dropouts and spurious alleles for the bone samples. The possibility to compare results from different substrates, in spite of the limited numbers of possible cases, represent another, and interesting, criterion to confirm the authenticity of ancient DNA results. (Contact sylvain.amory@iml-ulp.u-strasbg.fr). 1Cooper A, Poinar HN. Ancient DNA: Do It Right or Not at All. 2000. Science, Vol 289, Issue 5482, 1139.