

## Concentrations of selected trace elements and their isotopes in bones of Cretaceous dinosaurs from Mongolia as a source of information about post-depositional processes.

The aim of the project is to investigate the concentrations and isotope ratios of selected trace elements in bones of dinosaurs from Mongolia, which are in the collection of Institute of Palaeobiology of Polish Academy of Sciences, with emphasis on U, Th, Pb and Nd and Sr isotopic analyses. The attempts to date the bones with use of both traditional geochronological methods (isochrone, concordia and weighted average) as well as diffusion models in bones is planned. These models have proved their value in archeological bones, but have not been applied to bones older than Quaternary as far. Up to date attempts of dating bones were unsuccessful, but it would be valuable for geological sciences, as it would allow for age determination of the formations in which vertebrates are dominant fossils. Important issue in case of Mongolian dinosaur bones is their origin from exact locations, as those fossils were through many years illegally exported and sold on a black market. Currently such specimens are being regained, however very often their exact place of origin is unknown. As Sr and Nd isotopes are used as proxies for provenance of bone material, those may be useful tool in case of these bones. The project assumes use of modern techniques (TIMS, LA-ICP-MS) for isotopic concentration ratios analyses. Moreover, the project can be a step towards creating definition of fossilization process that is basing on biological, mineralogical and physiochemical process that bones undergo after their burial.