Fossil material from Malapa will be sampled for the potential of Ancient DNA at the labs of the Max Planck Institute, Leipzig Germany. This laboratory is the premier lab for such work, having successfully extracted DNA material from Neanderthal and older remains dating to as much as 600,000 years. The potential of extracting DNA from the Malapa samples is slim, but worth attempting and if successful would prove a breakthrough for human origins studies. Matthias Meyer and Svante Paabo will be the responsible researchers at the lab.

When searching for surviving DNA in human and animal fossils, we will be looking for mitochondrial DNA first (which is present in many more copies than nuclear DNA, and provides the best and unambiguous evidence for authentic DNA survival). We will attempt to fish out the surviving pieces of mitochondrial DNA using either (A) a small set of probes that enriches ~2% of the mitochondrial genome of all mammals, or (B) the complete mitochondrial genome from a closely related species. The first test is very quick, but only works for mammals and if DNA preservation is relatively good. The second test is much more sensitive, but requires DNA from a closely related species. For this reason, we will start with mammalian samples using test A, and only if this fails we move on to test B. Obtaining DNA for test B should be relatively easy for porcupine or otheforr species that are held in captivity. If it comes to non-mammalian species obtaining fresh DNA may often be more difficult. We will need to know what species exactly is enclosed in the rock and then find a source of modern DNA. It is perhaps important to note in this context that we do not worry much about human contamination at this stage as procedures are in place to deal with this.

The samples collected and being taken to Germany are from known genera at the Malapa site and either represent isolated specimens, or specimens for which we have a duplicate bone/tooth from the same individual. While there may be destruction of the specimens during the process, the morphology is not precious as it is replicated. Any remaining material will be returned to our collections after the sampling.