PROJECT RESUME

In this project, high-resolution micro-computed tomography (micro-CT) will be used to investigate and reconstruct the skulls of some early Miocene fossil rodents in the genus Diamantomys, colleced in Uganda. Still embedded in rock, this non-invasive technique will allow us to see in great detail features of the middle and inner ears of animals which last walked the earth around 20 million years ago! Comparisons of the cochlea and ear ossicles of these fossils with those of living relatives will allow us to investigate the directions that evolution took in this group of rodents. If Diamantomys has primitive ear structures, this will allow us to answer questions including whether the bizarre naked mole-rat really has ears specialised for hearing underground, and whether South American rodents like guinea-pigs evolved their characteristic ear adaptations before or after diverging from their African relatives.

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