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Ancient mitogenomics of the extinct Cypriot pygmy hippopotamus

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Abstract

The Cypriot pygmy hippopotamus is an extinct Mediterranean species that inhabited the island of Cyprus during the Late Pleistocene. This iconic species last appears at the archaeological site of Akrotiri Aetokremnos, dated to ~12 500 cal. BP. Taxonomically, the Cypriot pygmy hippopotamus has been assigned to *Hippopotamus minor*, which, based on morphology, is more closely related to the common hippopotamus (*Hippopotamus amphibius*; today present only in Sub-Saharan Africa) than to the West African pygmy hippopotamus (*Choeropsis liberiensis*). Despite adverse conditions for preservation that greatly reduce the likelihood of DNA preservation in subfossil samples from hot environments, we recovered and analysed ancient DNA from petrous bones excavated from Akrotiri Aetokremnos. By whole mitogenome hybridization capture and exhaustive high-throughput sequencing, we were able to investigate the molecular phylogeny and taxonomic status of the Cypriot pygmy hippopotamus. The results of our low-coverage ancient mitogenomic analyses support the close phylogenetic affinity of *H. minor* to *H. amphibius*, with their divergence estimated at ~1.36 or 1.58 Mya, depending on the molecular dating method. To our knowledge, this study constitutes the first step towards reconstruction of the molecular phylogeny of Mediterranean Hippopotaminae.