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Genetic Affinities of Cook Islanders:
A Look at the Mitochondrial DNA of Ancient Mंगाians

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Abstract

The biological affinities of Polynesians are one of the most contentious topics when trying to understand the population histories of Pacific Islanders and the nature of their expansion into Oceania. Mitochondrial DNA (mtDNA) has been used to ascribe particular geographic groups, or populations, to regions in association with specific mitochondrial lineages (or haplogroups). Using DNA isolated from ancient human skeletal remains, I examine the lineages present at Ana-Manuku rockshelter, a site in Mंगाia, a southern Cook Island. This unique site produced an assemblage of cooked human remains, dating from approximately 1390-1470 AD, which differed considerably from other rockshelter sites in Mंगाia.

Anthropologists often use molecular data as a complement to linguistic and cultural data, to explain the grouping of Pacific Islanders. The “Polynesian Motif” haplotype associated with a 9 bp intergenic deletion is common in Polynesian samples and throughout Oceania. These data have been interpreted as supporting a model of rapid migration of South East Asians into the Pacific Islands, with an uncertain amount of admixture from indigenous Melanesian populations. I compare the lineages present at MAN-84 to those in the rest of the Cook Islands, Polynesia and Oceania.

Examination of the hypervariable control region 1 suggests that at least one individual that lived at Ana-Manuku rockshelter MAN-84, possessed a lineage uncommon to other Cook Islanders. The presence of a haplotype different from the expected “Polynesian Motif” may be a product of the particular attributes of contemporary ancient Polynesian societies, (namely an increased propensity for violence between groups or towards outsiders). Analysis was confounded by continuous contamination by modern human DNA and therefore, the results of this study should be treated as preliminary data. Further analyses of these remains may add support to the hypothesis that this site was ritualistic, containing outsider populations that possess atypical genetic affinities.