

Genetic study reveals ancestry of Madagascar people

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Traditional fishing pirogue from southeast Madagascar. Credit: Thierry Letellier (INSERM).

(Phys.org)—A large team of researchers from France, Madagascar, Indonesia, Germany and Australia has conducted a genetic study of the

native people that live on Madagascar. In their paper published in the *Proceedings of the National Academy of Sciences*, the group outlines their study, which involved obtaining genetic material from people across the island and what their analysis efforts revealed.

Madagascar is, of course, a large island situated off the coast of Mozambique—it has become widely known for its unique plants and animals. Less well known is that [native people](#) also populate the island. They are known as Malagasy and are believed to have both African and Asian ancestry. What has not been clear is when people first settled on Madagascar and when the two groups combined. Prior studies involving the Malagasy have sought common or different cultural practices and linguistics—the people on the island share a language family known as Austronesian, which is also spoken by people living on other Pacific islands. In this new effort, the researchers sought more precise information by conducting a genetic study of the people. In all, the researchers collected samples from 2,700 people from 257 villages across the island—the average age for the people tested was 61.

The team conducted mtDNA analysis of the samples and found roughly equal contributions from both Asian and African lineages—African lineages were found to be more frequent in Asian in Y chromosomes, however, which suggested a male bias for African ancestry. The team also found that the ratio of Asian to African ancestry varied by geographic location. Those living in the central highlands had more Asian ancestry, while those living on the coasts showed more African ancestry. These results, the team suggests, indicate that admixture happened heterogeneously on the island, which suggests people from Asia and Africa colonized the island independently of one another.

The analysis also suggested that the mixing between the two groups occurred approximately 500 to 900 years ago—though they note that further subsequent clustering of Asian/African ancestry also occurred.

This, the researchers suggest, indicates that geographic separation can result in genetic differences between people over the course of just a few centuries.

More information: Denis Pierron et al. Genomic landscape of human diversity across Madagascar, *Proceedings of the National Academy of Sciences* (2017). [DOI: 10.1073/pnas.1704906114](https://doi.org/10.1073/pnas.1704906114)

Abstract

Although situated ~400 km from the east coast of Africa, Madagascar exhibits cultural, linguistic, and genetic traits from both Southeast Asia and Eastern Africa. The settlement history remains contentious; we therefore used a grid-based approach to sample at high resolution the genomic diversity (including maternal lineages, paternal lineages, and genome-wide data) across 257 villages and 2,704 Malagasy individuals. We find a common Bantu and Austronesian descent for all Malagasy individuals with a limited paternal contribution from Europe and the Middle East. Admixture and demographic growth happened recently, suggesting a rapid settlement of Madagascar during the last millennium. However, the distribution of African and Asian ancestry across the island reveals that the admixture was sex biased and happened heterogeneously across Madagascar, suggesting independent colonization of Madagascar from Africa and Asia rather than settlement by an already admixed population. In addition, there are geographic influences on the present genomic diversity, independent of the admixture, showing that a few centuries is sufficient to produce detectable genetic structure in human populations.

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