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## **Genomes confirm Aborigines as first Australians**

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Aboriginal Australians are descended from a single migratory wave that arrived about 50,000 years ago, having broken off from an earlier "out of Africa" exodus responsible for humanity worldwide, ground breaking genome research has determined.

The findings should finally put to rest periodic claims by opponents of constitutional recognition, including Liberal Democrat senator David Leyonhjelm, that Aborigines may not have been the first Australians.

The work, published today in science journal Nature, is based on complete genetic sequencing from saliva samples of 83 indigenous Australians and 25 Papuans.

Its Australian element was conducted in collaboration with Aboriginal community leaders, some of them co-authors on the paper. It finds the migrating group interbred with an early, unidentified, human species as it made its way through Asia.

Papuans and Australians -became genetically distinct from each other about 37,000 years ago, the research found, although rising sea levels carved up the -ancient continent of Sahul (New Guinea, mainland Australia and Tasmania) only about 10,000 years ago. The researchers found that most Aboriginal communities were genetically distinct from each other by 31,000 years ago, probably as a result of isolation created by expanding aridity.

They found there may have been genetic adaptations in those groups that remained in arid regions, however, to help them cope with desert cold and dehydration.

The work points to a mysterious "ghost-like" internal migration from the continent's north-east about 4000 years ago of people who reshaped the cultural landscape, including laying the roots for most Aboriginal languages, before disappearing.

The separation between Aboriginal populations, and their isolation in turn from the rest of the world, has long had investigators puzzled as to how it was that languages covering 90 per cent of the continent belonged to a single family. This family, Pama-Nyungan, dates back only about 4000 years, according to linguist-ics analysis.

It had previously been speculated this was the result of a second external migration, but the -researchers have now been able to identify a tiny gene flow from northeastern Australia, potentially at that time.

"It's a really weird scenario," said lead researcher Eske Willerslev. "A few immigrants appear in different villages and communities around Australia. They change the way people speak and think; then they disappear, like ghosts. And people just carry on living in isolation the same way they always have.

"This may have happened for religious or cultural reasons that we can only speculate about. But in genetic terms, we have never seen anything like it before." Previous genetic evidence for indigenous Australians came from one tuft of hair and two

unidentified cell lines. The new work enabled researchers to compare DNA with existing genetic information about other populations worldwide. "Our results suggest that rather than having left in a separate wave, most of the genomes of Papuans and Aboriginal Australians can be traced back to a single 'out of Africa' event (72,000 years ago) which led to modern worldwide populations," said senior -author Manjinder Sandhu.