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News

Pygmies share a recent common ancestor

The rise of farming may have caused formation of diverse groups.

Roberta Kwok

Pygmies in Western Central Africa may have evolved from a common ancestral group and, less than 3,000 years ago, split into the diverse array of populations seen today, according to a new genetic study. The researchers believe that the spread of non-pygmy farmers through Western Central Africa may have driven pygmies into isolated groups, prompting their speedy evolution into distinct populations.

The team found "huge genetic diversity" among pygmies, says lead author Paul Verdu, an anthropological geneticist at the Centre National de la Recherche Scientifique in Paris. "It echoes the huge cultural diversity we find among pygmy populations," he says.

With an adult male height of 155 centimetres, pygmies are around 10 centimetres shorter than the average human and have traditionally lived as hunter-gatherers in the forest. But the roughly two dozen pygmy groups in Central Africa do not share a common language, and their average height can vary by up to 20 centimetres between different populations. Although genetic studies on pygmies have been done before, none have yet elucidated the precise timing of the pygmies' origins.

Verdu and his colleagues collected DNA samples from 604 individuals in 9 pygmy groups and 12 nearby non-pygmy populations spread across Cameroon and Gabon. They then analysed the genes to determine the amount of variation in 28 regions of repeating DNA, called microsatellites. The pygmies were very genetically diverse, Verdu says. The genetic variation between different pygmy populations was of a similar scale to that between Europeans and Asians.

Driven apart

To determine how these genetic differences might have come about, the researchers ran statistical models calculating the likelihood of various origin scenarios. The pygmy groups they examined probably emerged from a common ancestral group around 2,800 years ago rather than branching off one by one and independently evolving the same short stature, the team reports in *Current Biology*¹.

This development coincides with the expansion of non-pygmy agriculture in the region, a process that might have driven pygmies into small, isolated groups that evolved rapidly. The researchers also found that the ancestral pygmies likely split from other humans 54,000 to 90,000 years ago, a finding roughly in line with previous work^{2,3}.

The team's conclusions are "very reasonable", says Luigi Luca Cavalli-Sforza, a professor emeritus at Stanford University in Palo Alto, California, who has done genetic research on pygmies. It is plausible that the spread of farmers led to the separation of pygmy groups, he says, because the process would have increased barriers such as roads.

Barry Hewlett, a cultural anthropologist at Washington State University in Vancouver, calls the study "a significant contribution" to our understanding of Central African history. "This is the most extensive genetic data that we currently have on African pygmy groups," he says. But Hewlett notes that the study does not include DNA samples from the Aka pygmies, which live farther east and are the shortest among all the groups. He plans to collaborate with the team to incorporate Aka data into the analysis.



Diverse pygmy populations may have evolved recently from a single common ancestor.

U.S. Embassy, Cameroon

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As anthropologist Barry Hewlett (Washington State U) points out in this article, it is a shame that body heights of the Aka Pygmies were not included in the sample. Aka men average in height 153 cm, two centimeters shorter than the Pygmies in Western Central Africa measured in the study reported here. Pygmy height doesn't tell us too much, though, about common ancestry. Anthropologist Roberta G. de Souza reported in her 2006 article in the *Annals of Human Biology** that Agta hunter-gatherer men in the Philippines (commonly referred to as Negritos) have a mean height of 153 cm, also two centimeters shorter than the Pygmies in the study. The value of the present study's research is more in the genetics than in body height for reconstructing common ancestry of pygmy populations. Thomas N. Headland (Feb. 5, 2009)

Posted by: **Thomas Headland** | 05 Feb, 2009

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