

Genome Research 2015 vol.25 N4, pages 459-466

A recent bottleneck of Y chromosome diversity coincides with a global change in culture

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Abstract

© 2015 Karmin et al. It is commonly thought that human genetic diversity in non-African populations was shaped primarily by an out-of-Africa dispersal 50-100 thousand yr ago (kya). Here, we present a study of 456 geographically diverse high-coverage Y chromosome sequences, including 299 newly reported samples. Applying ancient DNA calibration, we date the Y-chromosomal most recent common ancestor (MRCA) in Africa at 254 (95% CI 192-307) kya and detect a cluster of major non-African founder haplogroups in a narrow time interval at 47-52 kya, consistent with a rapid initial colonization model of Eurasia and Oceania after the out-of-Africa bottleneck. In contrast to demographic reconstructions based on mtDNA, we infer a second strong bottleneck in Y-chromosome lineages dating to the last 10 ky. We hypothesize that this bottleneck is caused by cultural changes affecting variance of reproductive success among males.

<http://dx.doi.org/10.1101/gr.186684.114>
