

A new [paper](#) in PNAS, "Y chromosome diversity, human expansion, drift, and cultural evolution," by Jacques Chikaruni, Peter A. Underhill and Luca L. Cavalli-Sforza (Published online Nov. 17, 2009, doi: 10.1073/pnas.0910803106).

**Abstract** The relative importance of the roles of adaptation and chance in determining genetic diversity and evolution has received attention in the last 50 years, but our understanding is still incomplete. All statements about the relative effects of evolutionary factors, especially drift, need confirmation by strong demographic observations, some of which are easier to obtain in a species like ours. [...] All these observations are difficult to explain without accepting a major relative role for drift in the course of human expansions. The increasing role of human creativity and the fast diffusion of inventions seem to have favored cultural solutions for many of the problems encountered in the expansion. We suggest that cultural evolution has been subrogating biologic evolution in providing natural selection advantages and reducing our dependence on genetic mutations, especially in the last phase of transition from food collection to food production.