HIGHLIGHTS

POPULATION GENETICS

Looking back to the future

In the absence of a written record of their history, myths about the origins of the Roma abound. For example, early European historical records refer to the Roma as Egyptians, a misnomer that probably gave rise to their common name of gypsy. Genetic studies have also added to the confusion by reporting that Romani groups — although genetically more similar to North Indian than to other European poulations — are very distinct from each other. However, both the Roma's language and social traditions point to an Indian origin. So to shed light on this confusion, Luba Kalaydjieva and colleagues studied a diverse collection of Romani individuals. Their findings indicate that the Roma do indeed originate from the Indian subcontinent and that their complex genetic substructure has been shaped by centuries of admixture and migration brought about by Europe's changing political landscape — findings that have implications for the use of Romani populations for mapping disease genes.

Gresham *et al.* selected 275 unrelated Romani men from 14 well-defined, culturally and geographically distinct Romani populations and genotyped them for Y-chromosome and mitochondrial (mt) DNA markers. They found that a Y-chromosome haplogroup that is found in Asian populations, but not in Europeans, was present in all 14 Romani groups and in 44.8% of the Romani sampled. Similarly, a mtDNA haplogroup that is rare in Europeans but common in Asians was present in all 14 populations and in 26.5% of the sample.

The authors also found dramatic differences in the frequencies of these major haplogroups and other minor ones — those common to European and Middle Eastern populations — among the Romani men. However, these differences did not correlate with a group's present geographical location or social organization, only with its language and migration history in Europe, indicating that migration, admixture, marriage within the group and genetic drift have had the strongest hand in shaping these populations. Additionally, low haplogroup diversity among the Roma strongly indicates that this population has been through a profound bottleneck.

Together these findings indicate that the socially and culturally diverse Romani groups of today are descended from a small number of founders — possibly a few related males and unrelated females — who split from a distinct Indian caste or tribal group. But studying the genetics of the Roma is not just about delving into their history, it's also about assessing their potential as an informative founder population for mapping single-gene and complex disorders, some of which are prevalent in certain Romani groups. Although in need of further confirmation, these findings should help to inform both future and ongoing studies into such disorders among the Roma.

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References and links

ORIGINAL RESEARCH PAPER Gresham, D. *et al*. Origins and divergence of the Roma (Gypsies). *Am. J. Hum. Genet.* **69**, 1314–1331 (2001)