

PgmNr 2358: Rome as a genetic melting pot: Population dynamics over 12,000 years.

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Nearly 2000 years ago, Rome was the largest urban center of the ancient world and the capital of an empire with over 60 million inhabitants. Although Rome has long been a subject of archaeological and historical study, little is known about the genetic history of the Roman population. To fill this gap, we performed whole genome sequencing on 127 individuals from 29 sites in and around Rome, spanning the past 12,000 years. Using allele frequency and haplotype-based genetic analyses, we show that Italy underwent two major prehistoric ancestry shifts corresponding to the Neolithic transition to farming and the Bronze Age Steppe migration, both prior to the founding of the Roman Republic. As Rome expanded from a small city-state to an empire controlling the entire Mediterranean, the city became a melting pot of inhabitants from across the empire, harboring diverse ancestries from the Near East, Europe and North Africa. Furthermore, we find that gene flow between Rome and surrounding regions closely mirrors Rome's geopolitical interactions. Interestingly, Rome's population remains heterogeneous despite these major ancestry shifts through time. Our study provides a first look into the dynamic genetic history of Rome from before its founding, into the modern era.