

SY18: Looking beyond the genome: cultural and behavioral drivers of biological evolution (July 11, 9:30–11:30)

O-03-LB03

Ancient Genomic Diversity Reveals Differences in Cultural Practices and Cultural Barriers between Prehistoric Farmers and Hunter-gatherers in Europe

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Humans differ from most other species in that we create our own ecological niche. Culture has thus shaped human genetic variation over millennia. While surprisingly little is known about prehistoric cultural practices, there is vested hope that patterns of ancient genetic diversity will elucidate how past societies were organized and interacted with each other. Yet such inferences remain challenging due to generally low numbers of individuals and especially the lack of population-level samples. Here we present novel samples from the region of the Danube Gorges (Balkans), located in the heart of the migration corridor through which farming was brought from Anatolia to Central Europe. Our archaeologically well-defined samples (~10000-5500 calBC) represent multiple closeby-settlements of a sedentary society before and during Neolithisation. Contrasting population-genomic and cultural affinities of our samples revealed that settlements differed strikingly in their interaction with immigrating farmers: while some exhibited strong barriers to gene flow, others incorporated multiple individuals of genetic ancestry common to Aegean farmers. To elucidate important aspects of social practices before, during and after this demographic shift, we accurately inferred within and between individual genetic diversity of our population sample by sequencing either whole genomes or many putatively neutral regions, and by using novel methods that account for *post-mortem* damage and the heterochronous nature of our reference panel. Notably, we found a lower within-individual diversity as well as a lower X to autosomes diversity in hunter-gatherers than farmers prior to their contact, consistent with an elevated population size and stronger patrilocality in farmers.
