

Genome history of Japanese

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Japanese Archipelago (Japonesia, initially proposed by late SHIMAO Toshio) ranges geographically from Hokkaido to Okinawa islands stretching over 4,000 km, and was populated more than 40,000 years ago by Paleolithic people. Jomon culture, defined by the presence of cord marked ("jomon" in Japanese) pottery, lasted from 16,000 to 3,000 years ago, followed by Yayoi culture in which rice farming started. At present, Japanese can be roughly divided into three populations; Ainu, Mainlanders, and Ryukyuan. We found small but clear common genetic features between Ainu and Ryukyuan though genome-wide SNP data analyses (Japanese Archipelago Human Population Genetics Consortium, 2012; *Journal of Human Genetics*, 57: 787-795). This genetic proximity possibly originated from higher Jomon DNA inheritance to these populations compared to Japanese Mainlanders.

Kanzawa-Kiriyama et al. (unpublished) recently determined partial nuclear genomes of several Jomon individuals excavated from four geographical regions with time range of 3000-8000 BP. Those nuclear genome sequences showed that Jomon people diverged from common ancestors of both northern and southern East Eurasians, but this divergence postdated that of East Eurasian and Melanesians. We also found possible gene flow not only between Jomon and Neanderthal but also between Jomon and Denisovan. The existence of Denisovan DNA both in Philippine Negritos and Jomon people posed interesting but complicated problems to the origin of East Eurasians.

We recently determined genome-wide SNP data of people from Izumo area, which is geographically close to Korean Peninsula. Principal Component Analysis revealed unique characteristics of Izumo people; they are genetically more different from Korean than Kanto area people. This new finding suggests existence of dual structure within Japanese Mainlanders; old migrants from south who brought rice agriculture and new migrants mainly from Korean Peninsula. I would like to discuss these DNA-based studies on Japanese.