

## **EQUAL CONTRIBUTION OF THE CENTRAL PLAIN HAN AND SOUTHERN NATIVES TO THE MATRILINEAL GENETIC COMPOSITION OF CHAOSHANESE**

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To explore the matrilineal origin of Chaoshan population (Chaoshanese) and clarify the genetic relationship between Chaoshanese and other Chinese populations from the perspective of matrilineal inheritance, mitochondrial DNA (mtDNA) polymorphisms in the two hypervariable segment regions (HVS-I and HVS-II) and COII/tRNA<sup>Lys</sup> intergenic region were typed in 256 unrelated Chaoshanese individuals. All haplogroups were assigned following the phylogeny of East Asian mtDNAs. The mtDNA HVS-I sequence and haplogroup frequency data of other 56 Chinese populations were collected and used for population comparison. For Chaoshan population, the overall frequency of the southern natives dominant haplogroups (47.63%) was slightly higher than that of the northern Han dominant haplogroups (33.98%). Clustering analyses (principal component, multidimensional scaling and median-joining network analyses) of Chaoshanese and other Chinese populations indicated that the Chaoshan population, along with other southern Hans, was well separated from the northern Hans and occupied an intermediate position between northern Hans and southern natives. Results from phylogenetic tree construction and analysis of molecular variance implied that the matrilineal genetic linkage among the Chinese populations was associated with their geographic locations more than with their linguistic affiliations. In addition, the relative contribution of the two parental populations (Central Plain Han and southern natives) in Chaoshanese was estimated by admixture analysis and the result suggested that the Central Plain Han and southern natives contributed almost equally to Chaoshan population's mtDNA gene pool ( $M_{RH}$ : 0.5068,  $M_{BE}$ :  $0.5974 \pm 0.3124$ ). Chaoshanese is a typical southern Han population. The matrilineal genetic composition of Chaoshanese consists of both the Central Plain Han and southern natives.

Keywords: Chaoshanese; mitochondrial DNA (mtDNA); matrilineal origin; genetic relationship.

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