

**Supplementary Fig. 1** The optimum *K* value of the population genetic structure analysis among Chinese Yunan Hani group and 30 reference populations.



**Supplementary Fig. 2** The locations of Chinese Yunnan Hani group and 30 reference populations on the world map and pie plots of the structure analysis results (*K* = 3) in Chinese Yunnan Hani group and 30 reference populations.

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| **Table S1.** The detailed remark information of Chinese Yunnan Hani group and other 30 reference populations. | | | | | |
| Population origins | Population names and locations | Abbreviations | Population sizes | S&R populations | Data sources |
| African | African Caribbean in Barbados | ACB | 96 | reference population | 1000 Genomes Project Phase 3 database |
| African Ancestry in Southwest US | ASW | 61 | reference population | 1000 Genomes Project Phase 3 database |
| Esan in Nigeria | ESN | 99 | reference population | 1000 Genomes Project Phase 3 database |
| Gambian in Western Division, The Gambia | GWD | 113 | reference population | 1000 Genomes Project Phase 3 database |
| Luhya in Webuye, Kenya | LWK | 99 | reference population | 1000 Genomes Project Phase 3 database |
| Mende in Sierra Leone | MSL | 85 | reference population | 1000 Genomes Project Phase 3 database |
| Yoruba in Ibadan, Nigeria | YRI | 108 | reference population | 1000 Genomes Project Phase 3 database |
| American | Colombian in Medellin, Colombia | CLM | 94 | reference population | 1000 Genomes Project Phase 3 database |
| Mexican Ancestry in Los Angeles, California | MXL | 64 | reference population | 1000 Genomes Project Phase 3 database |
| Peruvian in Lima, Peru | PEL | 85 | reference population | 1000 Genomes Project Phase 3 database |
| Puerto Rican in Puerto Rico | PUR | 104 | reference population | 1000 Genomes Project Phase 3 database |
| European | Utah residents with Northern and Western European ancestry | CEU | 99 | reference population | 1000 Genomes Project Phase 3 database |
| Finnish in Finland | FIN | 99 | reference population | 1000 Genomes Project Phase 3 database |
| British in England and Scotland | GBR | 91 | reference population | 1000 Genomes Project Phase 3 database |
| Iberian populations in Spain | IBS | 107 | reference population | 1000 Genomes Project Phase 3 database |
| Toscani in Italy | TSI | 107 | reference population | 1000 Genomes Project Phase 3 database |
| South Asian | Bengali in Bangladesh | BEB | 86 | reference population | 1000 Genomes Project Phase 3 database |
| Gujarati Indian in Houston, TX | GIH | 103 | reference population | 1000 Genomes Project Phase 3 database |
| Indian Telugu in the UK | ITU | 102 | reference population | 1000 Genomes Project Phase 3 database |
| Punjabi in Lahore, Pakistan | PJL | 96 | reference population | 1000 Genomes Project Phase 3 database |
| Sri Lankan Tamil in the UK | STU | 102 | reference population | 1000 Genomes Project Phase 3 database |
| East Asian | Chinese Dai in Xishuangbanna, China | CDX | 93 | reference population | 1000 Genomes Project Phase 3 database |
| Han Chinese in Bejing, China | CHB | 103 | reference population | 1000 Genomes Project Phase 3 database |
| Southern Han Chinese, China | CHS | 105 | reference population | 1000 Genomes Project Phase 3 database |
| Japanese in Tokyo, Japan | JPT | 104 | reference population | 1000 Genomes Project Phase 3 database |
| Kinh in Ho Chi Minh City, Vietnam | KHV | 99 | reference population | 1000 Genomes Project Phase 3 database |
| Dingjie Sherpa, China | SHP | 628 | reference population | [1] |
| Hainan Li, China | HNL | 279 | reference population | [2] |
| Hunan Han, China | HNH | 397 | reference population | [3] |
| Yunnan Miao, China | YNM | 210 | reference population | [4] |
| Yunnan Hani, China | YNH | 211 | studied group | this study |

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