Table S4. The Nei's genetic distancebetweenthe Hainan Han population and 39reference populations.

Population	HainanHan	HainanHan -1	HainanLi -1	HainanLi -2	GuangdongHa	GuangzhouHa	ZhanjiangHan	GuangxiHan	ShanghaiHan	JiangxiHan	ChongqingHa	HunanHan	HubeiHan	YunguiHan	YunnanHan	XiamenHan	MinnanHan	MinxiHan	merMongolia I	HenanHan	HebeiHan	TianjinHan	ShandongHan	ShanxiHan	GansuHan	AnhuiHan	LiaoningHui	GansuHui	NingxiaHui	,iangshanTibet	SichuanTibetan	Tibet	Tibetan (umun Zhuan	Yunnan Miao	Yunnan Dai	Ginjiang Uygur	Ginjiang-Uygur	Ginjiang	Kazak	Hebei Manchu	,iaoning Manchu
Hainan Han																																									
HainanHan -1[11]	0.0105																																								
Hainan Li -1[2]	0.0057	0.0154																																							
Hainan Li -2[3]	0.0177	0.0352	0.0161																																						
Guangdong Han[4]	0.0044	0.0128	0.0133	0.0298																																					
Guangzhou Han[5]	0.0010	0.0107	0.0057	0.0192	0.0043																																				
Zhanjiang Han[5]	0.0031	0.0121	0.0059	0.0215	0.0085	0.0030																																			
Guangxi Han[5]	0.0039	0.0149	0.0056	0.0178	0.0092	0.0033	0.0048																																		
Shanghai Han[6]	0.0076	0.0161	0.0196	0.0362	0.0032	0.0076	0.0116	0.0154																																	
Jiangxi Han[5]	0.0075	0.0147	0.0157	0.0322	0.0068	0.0067	0.0098	0.0132	0.0073																																
Chongqing Han[7]	0.0052	0.0135	0.0133	0.0300	0.0029	0.0047	0.0081	0.0096	0.0041	0.0061																															
Hunan Han[5]	0.0045	0.0157	0.0126	0.0258	0.0031	0.0044	0.0083	0.0089	0.0051	0.0073	0.0037																														
Hubei Han[8]	0.0055	0.0129	0.0152	0.0328	0.0019	0.0052	0.0088	0.0117	0.0022	0.0052	0.0030	0.0029																													
Yungui Han[9]	0.0051	0.0134	0.0139	0.0297	0.0022	0.0049	0.0083	0.0103	0.0034	0.0055	0.0023	0.0032	0.0019																												
Yunnan Han[10]	0.0050	0.0122	0.0149	0.0316	0.0015	0.0048	0.0082	0.0110	0.0019	0.0054	0.0028	0.0029	0.0008	0.0015																											
Xiamen Han[11]	0.0037	0.0111	0.0128	0.0297	0.0019	0.0035	0.0066	0.0095	0.0027	0.0047	0.0025	0.0031	0.0010	0.0020	0.0011																										
Minnan Han[12]	0.0069	0.0159	0.0148	0.0309	0.0063	0.0070	0.0092	0.0119	0.0072	0.0080	0.0065	0.0069	0.0060	0.0052	0.0058	0.0051																									
Minxi Han[13]	0.0037	0.0119	0.0110	0.0258	0.0031	0.0032	0.0070	0.0070	0.0056	0.0065	0.0040	0.0033	0.0032	0.0035	0.0032	0.0024	0.0063																								
Inner Mongolia Han[14]	0.0110	0.0173	0.0214	0.0406	0.0043	0.0113	0.0146	0.0177	0.0050	0.0099	0.0059	0.0073	0.0040	0.0045	0.0039	0.0047	0.0087	0.0072																							
HenanHan[15]	0.0136	0.0217	0.0253	0.0443	0.0055	0.0135	0.0172	0.0209	0.0053	0.0121	0.0079	0.0089	0.0051	0.0059	0.0050	0.0063	0.0105	0.0095	0.0043																						
Hebei Han[16]	0.0221	0.0290	0.0331	0.0553	0.0156	0.0225	0.0260	0.0292	0.0160	0.0197	0.0176	0.0176	0.0148	0.0136	0.0147	0.0154	0.0194	0.0163	0.0155	0.0159																					
Tianjin Han[17]	0.0120	0.0180	0.0253	0.0453	0.0052	0.0124	0.0160	0.0211	0.0044	0.0091	0.0057	0.0074	0.0035	0.0042	0.0036	0.0043	0.0102	0.0083	0.0043	0.0051	0.0148																				
ShandongHan[18]	0.0136	0.0189	0.0242	0.0433	0.0082	0.0136	0.0169	0.0219	0.0081	0.0117	0.0091	0.0110	0.0072	0.0074	0.0065	0.0072	0.0122	0.0105	0.0080	0.0085	0.0170	0.0077																			
Shanxi Han[19]	0.0116	0.0168	0.0228	0.0440	0.0050	0.0120	0.0145	0.0205	0.0047	0.0094	0.0061	0.0082	0.0046	0.0047	0.0038	0.0051	0.0098	0.0090	0.0043	0.0043	0.0152	0.0036	0.0071																		
GansuHan[20]	0.0155	0.0246	0.0270	0.0452	0.0089	0.0163	0.0191	0.0231	0.0096	0.0161	0.0093	0.0099	0.0088	0.0093	0.0077	0.0099	0.0143	0.0126	0.0096	0.0106	0.0236	0.0087	0.0138	0.0082																	
AnhuiHan[21]	0.0177	0.0238	0.0288	0.0487	0.0088	0.0173	0.0227	0.0251	0.0090	0.0150	0.0103	0.0113	0.0073	0.0087	0.0074	0.0091	0.0156	0.0118	0.0074	0.0081	0.0195	0.0068	0.0115	0.0076	0.0134																
LiaoningHui[22]	0.0119	0.0178	0.0237	0.0402	0.0059	0.0123	0.0175	0.0208	0.0071	0.0099	0.0088	0.0094	0.0063	0.0072	0.0062	0.0071	0.0113	0.0095	0.0076	0.0086	0.0197	0.0070	0.0101	0.0068	0.0122	0.0123															
Gansu Hui[23]	0.0217	0.0264	0.0352	0.0558	0.0136	0.0217	0.0266	0.0294	0.0128	0.0188	0.0145	0.0171	0.0134	0.0142	0.0132	0.0145	0.0201	0.0174	0.0135	0.0141	0.0264	0.0122	0.0180	0.0120	0.0160	0.0161	0.0139														
Ningxia Hui[24]	0.0166	0.0218	0.0283	0.0451	0.0108	0.0174	0.0218	0.0256	0.0107	0.0173	0.0124	0.0128	0.0102	0.0104	0.0096	0.0110	0.0163	0.0144	0.0099	0.0117	0.0222	0.0101	0.0126	0.0085	0.0134	0.0117	0.0113	0.0155													
Liangshan Tibetan[1]	0.0335	0.0416	0.0466	0.0613	0.0243	0.0336	0.0385	0.0459	0.0252	0.0317	0.0280	0.0293	0.0252	0.0272	0.0242	0.0261	0.0327	0.0315	0.0255	0.0237	0.0413	0.0253	0.0273	0.0204	0.0272	0.0296	0.0225	0.0264	0.0253												
Sichuan Tibetan[24]	0.0324	0.0392	0.0440	0.0561	0.0230	0.0310	0.0365	0.0415	0.0233	0.0312	0.0250	0.0264	0.0230	0.0231	0.0223	0.0232	0.0324	0.0279	0.0217	0.0221	0.0390	0.0229	0.0259	0.0198	0.0265	0.0258	0.0262	0.0286	0.0275	0.0237											
Tibet Tibetan[25]	0.0349	0.0422	0.0477	0.0587	0.0253	0.0354	0.0410	0.0450	0.0260	0.0317	0.0282	0.0300	0.0270	0.0256	0.0262	0.0277	0.0337	0.0296	0.0254	0.0246	0.0334	0.0256	0.0289	0.0216	0.0294	0.0286	0.0257	0.0254	0.0280	0.0272	0.0209										
Yunnan Zhuang[26]	0.0116	0.0240	0.0136	0.0226	0.0195	0.0110	0.0112	0.0087	0.0259	0.0240	0.0206	0.0190	0.0219	0.0207	0.0212	0.0192	0.0213	0.0175	0.0311	0.0331	0.0391	0.0340	0.0339	0.0328	0.0337	0.0392	0.0323	0.0445	0.0403	0.0529	0.0531	0.0558									
Yunnan Miao[27]	0.0834	0.0940	0.0871	0.0946	0.0842	0.0823	0.0861	0.0775	0.0906	0.0873	0.0792	0.0817	0.0841	0.0760	0.0853	0.0851	0.0795	0.0762	0.0879	0.0919	0.0745	0.0873	0.0891	0.0931	0.1023	0.0842	0.0992	0.1064	0.0965	0.1442	0.1232	0.1103	0.0911								
Yunnan Dai[26]	0.0133	0.0238	0.0174	0.0255	0.0212	0.0123	0.0143	0.0133	0.0241	0.0222	0.0190	0.0187	0.0219	0.0210	0.0216	0.0195	0.0244	0.0178	0.0335	0.0359	0.0399	0.0325	0.0339	0.0322	0.0351	0.0364	0.0328	0.0454	0.0375	0.0619	0.0492	0.0587	0.0167	0.0911							
Xinjiang Uygur-1[24]	0.0632	0.0660	0.0717	0.0944	0.0536	0.0635	0.0685	0.0709	0.0553	0.0639	0.0621	0.0599	0.0567	0.0579	0.0545	0.0579	0.0624	0.0590	0.0572	0.0564	0.0696	0.0591	0.0599	0.0528	0.0552	0.0616	0.0465	0.0553	0.0535	0.0704	0.0727	0.0658	0.0848	0.1664	0.0835						
Xinjiang-Uygur-2[28]	0.0367	0.0471	0.0481	0.0616	0.0300	0.0374	0.0439	0.0432	0.0316	0.0388	0.0359	0.0331	0.0323	0.0330	0.0318	0.0334	0.0353	0.0345	0.0319	0.0331	0.0506	0.0345	0.0426	0.0329	0.0350	0.0392	0.0270	0.0283	0.0330	0.0424	0.0467	0.0414	0.0550	0.1420	0.0605	0.0348					
Xinjiang Kazakh[29]	0.0558	0.0691	0.0704	0.0822	0.0483	0.0564	0.0658	0.0653	0.0495	0.0613	0.0570	0.0544	0.0525	0.0551	0.0514	0.0535	0.0604	0.0546	0.0506	0.0530	0.0711	0.0526	0.0611	0.0506	0.0575	0.0596	0.0437	0.0473	0.0478	0.0522	0.0651	0.0602	0.0821	0.1792	0.0858	0.0581	0.0240				
Hebei Manchu[30]	0.0133	0.0191	0.0251	0.0437	0.0060	0.0132	0.0167	0.0214	0.0048	0.0114	0.0070	0.0080	0.0044	0.0050	0.0042	0.0053	0.0100	0.0087	0.0051	0.0054	0.0164	0.0046	0.0078	0.0052	0.0095	0.0062	0.0084	0.0135	0.0099	0.0244	0.0234	0.0259	0.0322	0.0919	0.0326	0.0569	0.0352	0.0556			
Liaoning Manchu[31]	0.0139	0.0200	0.0254	0.0416	0.0075	0.0140	0.0188	0.0229	0.0057	0.0114	0.0092	0.0099	0.0063	0.0078	0.0056	0.0075	0.0143	0.0104	0.0079	0.0095	0.0197	0.0076	0.0098	0.0081	0.0123	0.0096	0.0105	0.0168	0.0125	0.0274	0.0265	0.0284	0.0338	0.0947	0.0306	0.0577	0.0381	0.0540	0.0074	

References:

[1] Wang M, Wang Z, He G, Jia ZLiu J, Hou Y. (2018).Genetic characteristics andmhvlocenetic analysis of three Chinese ethnic aroups usina the HuaxiaPlatinum System. Sci Ren 8(1): 2429.
[2] Fan H, Wang X, Ren Z, He G, Lonz R, Lianz A, Song T, Dong J.(2019). Population data of 19 autosomal STR locin the Li population from Hainan Province in southernmost China. Int J LegalMed 133:429-431.
[3] Fan H, Du Z, Wang F, Wang X, Wen SQ, Wang L, Du P,Liu H,Cao S, Luo Z, et al.(2021).The forensic landscape and the population genetic analyses of Hainan Li based on massively parallel sequencingDNA profiling.Int J LegalMed 135:1295-1317.
[4] Yang L, ZhangX, Zhao L, Sun Y, Li J,Huang R, Hu L, NieS. (2018) Population data of 23 autosomalSTR loci in the Chinese Han population from Guangdong Province in southern China. IntJ Legal Med132(1):133-135.
[5] Liu QL,Chen YF, HuangXL, Liu KY,Zhao H,Liu DJ.(2017). Population data and mutation rates of 9 STRlocs in seven provinces from China basedon Goldeneye DNA ID System20A. Int J Legal Med131:653-656.
[6] Xie J,Shao C, Zhou Y, Zhu W, Xu H, Liu Z, Zhao Z. (2014). Genetic distribution on 20 STRloci from the Han population in Shanghai, China. Forensic Sci Int Genet 9:e3041.
[7] Zou X, Li Y, Li P, NieQ, Wang T, Hu Y, Zhu Y, Li J, Tang R. (2017)Genetic polymorphisms for 19 autosomal STRloci of Chongqing Han ethnicity andphylogenetic structure exploration among 28 Chinesepopulations. Int J LegalMed 131(6):1539-1542
[8] Xiao C, Zhang W,Wei T, PanC, Huang D.(2016). Population data of 21 autosomalSTR loci inChinese Han population from Hubei province in CentralChina. Forensic Sci Int Genet 20:e3-e14.
[9] Xiang C, Huang L, Su S, FanY, Yu J, Huang Y, Xu B. (2016). Genetic variation of the20 STRs in Han population from Yunnan Province, Southwest China. Forensic Sci Int Genet 23:e16-e11.
[10] Zhang X, Liu L, XieR, Wang G, Shi Y, Gu T, Hu L, NieS. (2018). Population data and mutation rates of 20 autosomal STR loci in a Chinese Han population from Yunnan Province, Southwest China.Int J Legal Med132(4):1083-1085.
[11] Wu L, Pei B, Ran P, Song X. (2017).Population genetic analysis of Xiamen Han population on 21 short tandem repeat loci. Leg Med (Tokyo)26:4-6.
[12] Hu SP, WuDQ, XuXH, LiuJW, Li B. (2005). Genetic profile of 15 STRloci in the Min Nan population in Southeast China. Forensic Sci Int152:263-265.
[13] Lian HH, Ge WD, LinF, Li B. (2017). Genetic Polymorphism of 21 Autosomal STR Loci of Fujian Han Population. FaYiXue Za Zhi31(3):211-214.Chinese.
[14] Sheng X, Wang Y, Zhang J, Chen L, Lin Y, Zhao Z, Li C, ZhangS. (2018).Forensic investigation of 23 autosomal STRs and analyzation in Han and Mongolia ethnic groups. Forensic Sci Res3(2):138-144.
[15] Wang HD, WuD, Feng ZQ, Jing ZA,Li T, GaoQN, ZhangXP, Hou QF,Guo LJ, KangB, et al.(2014). Genetic polymorphisms of 20 short tandem repeat loci from the Han population in Henan, China.Electrophoresis 35:15094514.
[16] Zhang Y, Li A, Zhao L, Liu J, Song J.(2011). Genetic polymorphisms of 20 Short Tandem Repeats of Hebei Han Population. Xing Shi JiShu. 02:48-50.
[17] Chen P, Wang B, He G, Song F, Luo H, Zhang L, Yu J, Han Y. (2017). Population genetic analysis of 20 autosomal STR loci in Chinese Han population from Tianjin in Northern China. Forensic Sci Int Genet 27:184-185.
[18] Zhang SS, Tang YQ, ZhangMX, Guo HM, Wang C, Wang YS, Han SY.(2018). Genetic Polymorphisms of 59 STR Loci in Populations of Three Culture Regions in Shandong. Fa Yi Xue Za Zhi34(3):264-269.
[19] Shen J, KangH, DongF, Guo J, Wang R. (2015). Research of genetic polymorphism on 19 STR loci in Han nationality in Shanxi province and forensic medicine application. Journal of Shanxi Police Academy 23: 63-66.
[20] Zhao W, Hu S, Wang T. (2015). Genetic polymorphisms of 19 STR loci of Pinglang Han of Gansu province. Chin JForensic Med 30: 618-619.
[21] Zhang HJ.(2017). Genetic profile of21 STRloci in the Anhui Han in China. Zhongguo FaYiXue Za Zhi32(3):314-315.Chinese.
[22] Xing J, XuanJ, Wang B, Pang H, Li C, Ding M.(2011). Genetic polymorphism of 15 STR loci in a Manchu population in Northeast China. Forensic Sci Int Genet 5(3):e93-5.
[23] Hu S, Zhao W, Wang T. (2015). Genetic polymorphisms of 19 STR loci in Gansu Hui. Chin J Forensic Med30: 620-621.
[24] Liu J, Wang Z, He G, Wang M, Hou Y. (2019).Genetic polymorphism and phylogenetic differentiation of the Huaxia Platinum System in three Chinese minority ethnicities.Sci Rep 9(1):3371
[25] Wang Z, Zhou D, Jia Z, Li J, Wu W,Li C2, Hou Y. (2016).Developmental Validation of the Huaxia Platinum Systemand application in 3 main ethnic groups of China. Sci Rep 6:31075.
[26] Zhang X, Du L, Huang Z, Gu T, Hu L, NieS. (2017). Genetic variation of 20 autosomal STRloci in three ethnic groups (Zhuang, Dai and Hani) in the Yunnan province of southwestern China. Forensic Sci Int Genet 31:e41-e42.
[27] Zhang X, Hu L, Du L, Nie A, Rao M, Pang JB, Xiran Z, NieS. (2017).Genetic analysis of 20 autosomal STRloci in the Miao ethnic group from Yunnan Province, Southwest China. ForensicSci IntGenet 28:e28-e29.
[28] Jin X, Wei Y, Chen J, KongT, Ma Y, Guo Y, Dong O, Xie T, Meng H, Zhang M,et al.(2017). Phylogenic analysis and forensic genetic characterizations of Chinese Uyuhur group via autosomal multi STR markers. Oncotarget 8:73837-73845.
[29] Zhang L, et al. (2012). Genetic polymorphisms of 19 STR loci in Xinjiang Barkol Kazakh population. Zhong Nan Da Xue Xue Bao Yi Xue Ban 37, 934-938.
[30] Zhao, L. et al. (2016). Genetic Polymorphisms of 19 STR Loci in Manchu population in Hebei Province. Chin.J. Forensic Med. 31: 72-73.
[31] Liu J, Guo L, Qi R, et al. (2013) Allele frequencies of 19 autosomal STR loci in Manchu population of China with phylogenetic structure among worldwide populations. Gene 529(2):282-287.