

FOR THE RECORD

Bofeng Zhu,^{1,2} Ph.D.; Chunmei Shen,³ M.Sc.; Zhaozhong Gong,⁴ B.Sc.; Jun Zhu,^{1,2,5} Ph.D.;
Gong Yang,^{1,2} Ph.D.; Hanyuan Wu,⁴ B.Sc.; Xiaosong Li,⁴ Ph.D.; Yongfeng He,⁴ B.Sc.;
Jie Zhao,⁴ B.Sc.; and Yao Liu,⁵ Ph.D., M.D.

Population Genetics for Y-STRs Haplotypes of Chinese Ewenki Ethnic Minority Group

POPULATION: Chinese Ewenki ethnic minority group, with a population of 26,300 in a statistical survey conducted in 2000, has a lifestyle of nomad, and is distributed across seven counties in the Inner Mongolia Autonomous Region and in Nahe County of Heilongjiang Province of China. The Ewenki people have no written script but a spoken language with three dialects belonging to the Manchu-Tungusic group of the Altai language family. Raising reindeers is the key livelihood of Ewenkis.

KEYWORDS: forensic science, DNA typing, population genetics, Y-STRs haplotypes, Chinese Ewenki ethnic group, Y-PLEX™ 6 kit, China

Blood samples were obtained from 106 unrelated healthy male individuals of Ewenki population living in Manzhouli district of the Inner Mongolia Autonomous Region of China. Genomic DNA was extracted using the Chelex-100 protocol as described by Walsh et al. (1). Six Y-chromosome STRs loci (DYS19, DYS389 II, DYS390, DYS391, DYS393, and DYS385) were performed in fluorescence-based multiplex reaction using Y-PLEX™ 6 kit (Reliagene Technologies Inc., New Orleans, LA). The amplification reactions of 10 µL in total contained 2.0 µL of 5 × Y-PLEX™ 6 Primer Mix, 0.20 µL of AmpliTaq Gold DNA Polymerase (5 µ/µL), 5.8 µL of deionized water, and 2.0 µL (approximately 1 ng) of Genomic DNA. Thermal cycling conditions were conducted according to the manufacturer's kit protocols using GeneAmp PCR system 9600 (PE Applied Biosystems) (2). Detection and genotyping of all PCR Products were accomplished using ABI 3100 DNA Genetic Analyzer (Applied Biosystems). Haplotype and allele frequencies were

estimated by direct counting method. Haplotype and gene diversities were estimated according to Nei (3).

The complete dataset is available via electronic mail from corresponding author: Liuyao2002cn@yahoo.com.cn or the first author zhubofeng7372@126.com.

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Additional information and reprint requests:

Bofeng Zhu
The Key Laboratory of Public Health of Ministry for Forensic Sciences
Xi'an Jiaotong University
Yan Ta West Road No. 76
Xi'an 710061, Shaanxi
P. R. China
E-mail: zhubofeng@126.com

¹ The Key Laboratory of Environment and Gene Related to Diseases, Ministry of Education, Xi'an Jiaotong University, Xi'an 710061, Shaanxi, P. R. China.

² The Key Laboratory of Public Health of Ministry for Forensic Sciences, Xi'an Jiaotong University, Xi'an 710061, Shaanxi, P. R. China.

³ Shaanxi Blood Center, Xi'an Blood Center, Xi'an 710061, Shaanxi, P. R. China.

⁴ Forensic Medical Identification Center of Shaanxi Public Security Bureau, Xi'an 710016, Shaanxi, P. R. China.

⁵ Institute of Forensic Science, Ministry of Public Security, Beijing, 100038, P. R. China.

TABLE 1—*Y-STR haplotypes in 106 unrelated males of Chinese Ewenki ethnic group.*

Haplotype	Sample	N	Frequency	DYS19	DY389 II	DYS390	DYS391	DYS393	DYS385
H1	64	1	0.0094	13	30	22	10	13	14,16
H2	62,123	2	0.0189	13	30	25	9	14	15,15
H3	84	1	0.0094	14	27	23	10	12	13,19
H4	42	1	0.0094	14	27	25	10	12	13,18
H5	125	1	0.0094	14	28	23	10	13	12,13
H6	92	1	0.0094	14	28	23	10	13	12,14
H7	46	1	0.0094	14	28	23	10	15	12,19
H8	107	1	0.0094	14	28	23	11	13	12,13
H9	110	1	0.0094	14	28	24	10	12	13,14
H10	7	1	0.0094	14	28	24	10	12	13,17
H11	19	1	0.0094	14	28	24	10	12	13,20
H12	128	1	0.0094	14	28	24	10	12	14,17
H13	24	1	0.0094	14	28	24	11	12	13,13
H14	10	1	0.0094	14	28	24	11	13	12,12
H15	93	1	0.0094	14	29	23	10	12	12,18
H16	190	1	0.0094	14	29	23	10	13	11,15
H17	115	1	0.0094	14	29	23	10	13	12,13
H18	59	1	0.0094	14	29	24	10	12	13,14
H19	56	1	0.0094	14	29	25	10	12	11,18
H20	20,41,88	3	0.0283	14	30	23	10	14	11,13
H21	73	1	0.0094	14	30	24	10	12	11,16
H22	99	1	0.0094	14	30	25	10	12	13,17
H23	25	1	0.0094	14	31	25	10	12	13,18
H24	6	1	0.0094	15	27	23	10	12	12,17
H25	133	1	0.0094	15	27	23	10	12	12,18
H26	4	1	0.0094	15	27	23	10	12	13,22
H27	65	1	0.0094	15	28	22	10	12	11,11
H28	103	1	0.0094	15	28	22	11	13	12,17
H29	5	1	0.0094	15	28	23	10	12	11,16
H30	129	1	0.0094	15	28	23	10	12	12,12
H31	39,105	2	0.0189	15	28	23	10	12	12,18
H32	67	1	0.0094	15	28	23	10	12	13,14
H33	31	1	0.0094	15	28	23	10	13	11,11
H34	89	1	0.0094	15	28	23	10	13	12,18
H35	23	1	0.0094	15	28	23	10	14	11,11
H36	69	1	0.0094	15	28	23	11	12	12,16
H37	18	1	0.0094	15	28	23	11	13	13,20
H38	102	1	0.0094	15	28	24	10	12	12,12
H39	29	1	0.0094	15	28	24	10	12	13,18
H40	130	1	0.0094	15	28	24	11	13	12,17
H41	68,126	2	0.0189	15	29	22	10	13	11,11
H42	9	1	0.0094	15	29	22	11	13	12,19
H43	114	1	0.0094	15	29	23	10	12	11,16
H44	55,109,117	3	0.0283	15	29	23	10	12	12,12
H45	74	1	0.0094	15	29	23	10	12	12,13
H46	52	1	0.0094	15	29	23	10	13	12,17
H47	15	1	0.0094	15	29	23	10	13	13,13
H48	43	1	0.0094	15	29	23	10	13	13,14
H49	95	1	0.0094	15	29	23	11	12	12,17
H50	37	1	0.0094	15	29	23	11	13	13,13
H51	66	1	0.0094	15	29	24	9	13	12,14
H52	122	1	0.0094	15	29	24	10	12	13,17
H53	57	1	0.0094	15	29	24	10	12	14,20
H54	104	1	0.0094	15	29	24	10	13	12,13
H55	63	1	0.0094	15	29	24	11	12	14,18
H56	76,91	2	0.0189	15	29	25	10	13	12,13
H57	60	1	0.0094	15	30	22	11	12	12,17
H58	30	1	0.0094	15	30	24	10	12	12,16
H59	34	1	0.0094	15	30	24	10	13	11,18
H60	36	1	0.0094	15	30	24	10	13	12,15
H61	54	1	0.0094	15	31	24	10	14	11,17
H62	33	1	0.0094	15	31	24	10	14	12,17
H63	86	1	0.0094	15	32	24	10	14	11,18
H64	71,100	2	0.0189	16	27	23	10	12	12,17
H65	2	1	0.0094	16	28	23	10	12	12,16
H66	17	1	0.0094	16	28	23	10	12	14,18
H67	44	1	0.0094	16	28	23	10	13	11,18
H68	32	1	0.0094	16	28	23	11	13	13,13
H69	124	1	0.0094	16	28	24	10	12	12,12
H70	14	1	0.0094	16	28	24	10	12	12,13
H71	49	1	0.0094	16	28	24	10	12	13,19
H72	87	1	0.0094	16	28	24	10	12	14,18

TABLE 1—Continued.

Haplotype	Sample	N	Frequency	DYS19	DY389 II	DYS390	DYS391	DYS393	DYS385
H73	3,16,27,80	4	0.0377	16	28	25	10	12	12,19
H74	85	1	0.0094	16	29	21	10	12	11,11
H75	61	1	0.0094	16	29	23	10	14	10,20
H76	86	1	0.0094	16	29	23	10	14	11,19
H77	21,75	2	0.0189	16	29	23	10	14	12,12
H78	111	1	0.0094	16	29	23	10	15	11,17
H79	81	1	0.0094	16	29	23	11	13	11,15
H80	118	1	0.0094	16	29	24	10	12	12,16
H81	11	1	0.0094	16	29	25	10	12	14,17
H82	2,51,78	3	0.0283	16	29	25	10	13	12,13
H83	12	1	0.0094	16	31	25	11	13	11,16
H84	127	1	0.0094	16	32	25	11	13	11,14
H85	53	1	0.0094	17	28	24	10	12	12,18
H86	90	1	0.0094	17	28	24	10	12	13,13
H87	1	1	0.0094	17	28	24	10	12	13,18
H88	97	1	0.0094	17	28	25	10	12	12,21
H89	98,112	2	0.0189	17	29	24	9	14	12,13
H90	113	1	0.0094	17	30	24	10	12	14,19

N: number of individuals observed for each haplotype. ^aHaplotype diversity = 0.996. Sample: sequence number of samples.

TABLE 2—Allele frequencies and gene diversity (GD) at six Y-chromosome STRs of Chinese Ewenki ethnic group.

Allele	DYS19	DYS389 II	DYS390	DYS391	DYS393	Phenotype	DYS385	Phenotype	DYS385
9				0.047		10,20	0.009	13,17	0.028
10				0.792		11,11	0.057	13,18	0.038
11				0.160	0.528	11,13	0.028	13,19	0.019
12					0.302	11,14	0.009	13,20	0.019
13	0.028				0.142	11,15	0.019	13,22	0.009
14	0.217				0.028	11,16	0.038	14,16	0.009
15	0.425					11,17	0.019	14,17	0.019
16	0.264					11,18	0.038	14,18	0.028
17	0.066					11,19	0.009	14,19	0.009
21			0.009			12,12	0.085	14,20	0.009
22			0.066			12,13	0.123	15,15	0.019
23			0.434			12,14	0.019		
24			0.311			12,15	0.009		
25			0.179			12,16	0.038		
27		0.066				12,17	0.085		
28		0.387				12,18	0.057		
29		0.359				12,19	0.057		
30		0.132				12,21	0.009		
31		0.038				13,13	0.047		
32		0.019				13,14	0.038		
GD	0.704	0.705	0.685	0.347	0.615				0.955