

FOR THE RECORD

Akira Kido,¹ Ph.D.; Noboru Fujitani,² Ph.D.; Masaaki Hara,³ Ph.D.; and Hiroshi Kimura,² M.D.¹

Genetic Data of 16 Y-Chromosomal Short Tandem Repeat Loci in Africans from South Africa

POPULATION: Seventy-three unrelated Africans living in Cape Town, south region of South Africa.

KEYWORDS: forensic science, DNA typing, population genetics, Y-chromosome, short tandem repeats, haplotypes, South Africa, DYS19, DYS389I, DYS389II, DYS390, DYS391, DYS392, DYS393, DYS437, DYS438, DYS439, DYS448, DYS456, DYS458, DYS635, Y GATA H4, DYS385

Genomic DNA was extracted from blood samples taken from 73 unrelated African volunteers from South Africa using the QIA-amp Mini kit (Qiagen, Hilden, Germany). Sixteen Y-short tandem

repeat (STR) loci, DYS19, DYS389I, DYS389II, DYS390, DYS391, DYS392, DYS393, DYS437, DYS438, DYS439, DYS448, DYS456, DYS458, DYS635, Y GATA H4, and

TABLE 1—Allele frequencies and gene diversity values of 16 Y-STR loci in Africans from South Africa.

Allele	DYS19	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS635	Y GATA H4	Allele	DYS385
9															0.0137	11–11	0.0411
10		0.0548			0.8767	0.0411			0.0822	0.4658					0.0411	13–14	0.0137
11					0.1233	0.9589			0.8219	0.5342					0.5616	14–16	0.0137
12		0.3425					0.0137	0.0137	0.0960						0.3562	14–20	0.0411
13	0.0548	0.2603					0.6301	0.0137				0.0548			0.0274	15–16	0.0685
14	0.3151	0.3425					0.1370	0.9589				0.0137				15–17	0.0685
15	0.3014						0.2055	0.0137				0.7808	0.0548			15–19	0.0137
16	0.3014						0.0137					0.0822	0.3425			15–20	0.2329
17	0.0137											0.0548	0.2740	0.0685		15–21	0.0137
18	0.0137			0.0274								0.0137	0.3288			16–16	0.0822
19											0.3425					16–17	0.1233
20											0.2329			0.0411		16–18	0.0137
21				0.5342							0.3699			0.5068		16–19	0.0137
22				0.0411							0.0137			0.0822		16–20	0.0274
23											0.0411			0.0822		16–21	0.0274
24				0.0822										0.2192		17–17	0.0548
25				0.0548												17–18	0.0685
26				0.2466												17–19	0.0274
27			0.0411	0.0137												17–20	0.0411
28			0.3151													18–18	0.0137
29			0.0548														
30			0.1370														
31			0.2877														
32			0.1644														
G	0.7157	0.6947	0.7674	0.6413	0.2162	0.0788	0.5415	0.0799	0.3085	0.4977	0.6898	0.3771	0.6965	0.6751	0.5550		0.8978

G, gene diversity; STR, short tandem repeat.

¹Department of Legal Medicine, Faculty of Medicine, University of Yamanashi, Yamanashi 409-3898, Japan.

²Department of Environmental Security System, Chiba Institute of Science, Chiba 288-0025, Japan.

³Department of Forensic Medicine, Saitama Medical School, Saitama 350-0451, Japan.

DYS385, were amplified using the AmpF/STR[®] Yfiler[™] PCR Amplification Kit (Applied Biosystems, Foster City, CA) according to the manufacturer's instructions. The amplified products were detected with an ABI PRISM[®] 310 Genetic Analyzer (Applied Biosystems). Fragment sizes were determined using GeneScan Analysis v3.7 software (Applied Biosystems) and the

TABLE 2—Y-STR haplotypes detected in Africans from South Africa.

H	DYS19	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS437	DYS438	DYS439	DYS448	DYS456	DYS458	DYS635	Y GATA H4	DYS385	N
1	13	10	27	24	11	11	14	14	10	11	20	17	16	21	11	16–16	2
2	13	10	27	25	11	11	14	14	10	12	20	17	16	21	11	15–16	1
3	13	10	28	24	11	11	16	14	10	11	19	17	16	21	11	17–18	1
4	14	12	28	25	10	11	13	14	11	11	19	15	18	22	11	14–20	1
5	14	12	28	25	10	11	13	14	11	11	19	15	18	23	11	15–20	1
6	14	12	28	25	10	11	13	14	11	11	19	16	18	22	11	13–14	1
7	14	12	28	26	10	11	12	14	11	11	19	15	18	24	11	15–20	1
8	14	12	28	26	10	11	13	14	11	11	19	15	17	23	11	15–20	1
9	14	12	28	26	10	11	13	14	11	11	19	15	18	23	11	15–20	1
10	14	12	28	26	10	11	13	14	11	11	19	15	18	24	11	14–20	2
11	14	12	28	26	10	11	13	14	11	11	19	15	18	24	11	15–19	1
12	14	12	28	26	10	11	13	14	11	11	19	15	18	24	11	15–20	10
13	14	12	28	26	11	11	13	14	11	11	19	15	17	24	11	16–21	1
14	14	12	28	27	10	11	13	14	11	11	19	15	17	23	11	15–20	1
15	14	12	29	26	10	11	13	14	11	11	19	15	18	24	11	15–20	1
16	14	14	31	18	10	11	14	14	11	11	21	15	16	21	12	16–19	1
17	15	13	29	21	10	11	13	14	11	11	20	15	18	23	10	16–16	1
18	15	13	29	21	10	11	14	14	11	12	20	15	18	23	10	16–16	1
19	15	13	30	21	10	11	13	13	11	12	21	15	17	22	12	15–17	1
20	15	13	30	21	10	11	13	14	11	12	21	15	17	21	12	15–17	1
21	15	13	30	21	10	11	15	14	11	12	20	15	16	21	11	17–19	1
22	15	13	31	21	10	11	13	14	11	11	22	15	15	21	12	17–17	1
23	15	13	32	21	10	11	13	14	12	12	19	15	17	21	12	16–17	1
24	15	13	32	21	11	11	13	14	11	11	21	15	15	21	12	17–18	1
25	15	14	30	21	10	11	13	14	11	12	21	15	17	21	12	15–17	1
26	15	14	31	21	10	11	13	14	11	12	21	15	17	22	12	15–17	2
27	15	14	31	21	10	11	14	14	11	11	21	15	16	21	12	16–16	1
28	15	14	31	21	10	11	15	14	11	11	21	15	16	21	12	16–16	1
29	15	14	31	21	10	11	15	14	11	11	21	15	16	21	12	16–18	1
30	15	14	31	21	10	11	15	14	11	12	21	15	16	21	11	17–19	1
31	15	14	32	21	10	11	13	14	11	12	21	14	16	21	12	15–16	1
32	15	14	32	21	10	11	13	14	11	12	21	15	18	21	12	15–16	1
33	15	14	32	21	10	11	13	14	11	12	21	16	17	21	12	15–16	1
34	15	14	32	21	10	11	13	14	11	12	21	16	18	21	12	15–16	1
35	15	14	32	24	10	11	13	14	10	12	23	13	17	17	13	11–11	2
36	15	14	32	24	10	11	13	14	11	12	23	13	17	17	12	11–11	1
37	16	12	28	18	10	10	13	15	11	12	20	15	18	17	10	14–16	1
38	16	12	29	22	11	10	13	14	11	12	19	15	17	17	9	17–17	1
39	16	12	31	21	10	11	15	14	11	12	21	15	16	21	11	17–20	1
40	16	13	30	21	10	10	13	12	11	12	20	15	16	21	12	16–17	1
41	16	13	30	21	10	11	13	14	12	12	20	15	16	21	12	16–17	1
42	16	13	30	21	10	11	14	14	11	11	20	16	17	22	11	17–18	1
43	16	13	30	21	10	11	15	14	11	12	21	16	16	20	11	16–17	1
44	16	13	30	22	10	11	14	14	11	12	20	18	16	20	11	17–17	1
45	16	13	31	21	10	11	13	14	12	12	20	15	17	21	12	16–17	1
46	16	13	32	21	10	11	13	14	12	12	20	15	17	21	12	16–17	3
47	16	14	31	21	10	11	14	14	11	12	21	15	15	21	12	15–20	1
48	16	14	31	21	10	11	14	14	11	12	21	15	15	21	12	15–21	1
49	16	14	31	21	10	11	15	14	11	11	21	15	16	21	11	16–20	1
50	16	14	31	21	10	11	15	14	11	12	20	15	17	20	11	17–18	1
51	16	14	31	21	10	11	15	14	11	12	21	13	16	21	11	17–20	1
52	16	14	31	21	10	11	15	14	11	12	21	15	16	21	11	16–20	1
53	16	14	31	21	10	11	15	14	11	12	21	15	16	21	11	16–21	1
54	16	14	31	21	10	11	15	14	11	12	21	15	16	21	11	17–20	1
55	16	14	31	21	11	11	15	14	11	12	21	15	16	21	11	17–17	1
56	16	14	31	22	11	11	15	14	11	12	21	15	16	21	11	18–18	1
57	17	13	30	21	10	11	15	14	11	12	21	16	16	21	11	17–18	1
58	18	13	31	21	10	11	13	14	12	12	20	15	16	21	12	16–17	1

H, haplotype number; STR, short tandem repeat; N, individuals observed for each haplotype.

alleles were typed using GenoTyper v3.7 software (Applied Biosystems). The haplotype diversity was calculated according to Nei (1). The discrimination capacity was calculated according to Gené et al. (2).

Allele frequencies and gene diversity values of the 16 Y-STR loci in 73 Africans from South Africa are shown in Table 1. At DYS635, an off-ladder allele was found in five individuals. This allele was identified as allele 17. Gene diversity values for the

16 STR loci analyzed decrease in the following order: DYS385, DYS389II, DYS19, DYS458, DYS398I, DYS448, DYS635, DYS390, Y GATA H4, DYS393, DYS439, DYS456, DYS438, DYS391, DYS437, and DYS392. The gene diversity values of DYS456, DYS438, DYS391, DYS437, and DYS392 in Africans from South Africa were considerably lower than those in U.S. African Americans (population data by AmpF/STR[®] Yfiler[™] PCR Amplification Kit User's Manual, 2005). Allele frequencies

of DYS19, DYS389I, DYS390, DYS391, DYS392, DYS393, and DYS385, except for DYS389II, were very similar to those previously reported for Xhosa (3). Haplotypes of the 16 Y-STR loci are shown in Table 2. A total of 73 individuals produced 58 haplotypes, of which 52 were unique, four were found in two individuals, and one was found in three individuals. The most common haplotype (DYS19, DYS389I, DYS390, DYS391, DYS392, DYS393, DYS437, DYS438, DYS439, DYS448, DYS456, DYS458, DYS635, Y GATA H4, and DYS385) 14, 12, 28, 26, 10, 11, 13, 14, 11, 11, 19, 15, 18, 24, 11, 15–20 was found in 10 individuals. The haplotype diversity and the discrimination capacity calculated from the 16 Y-STR loci in Africans from South Africa were 0.9793 and 0.7945, respectively.

The complete dataset can be obtained from the authors on request to akido@yamanashi.ac.jp

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Additional information and reprint requests:

Akira Kido, Ph.D.
Department of Legal Medicine
Faculty of Medicine
University of Yamanashi
Chuo Yamanashi 409-3898
Japan
E-mail: akido@yamanashi.ac.jp