J Forensic Sci, July 2004, Vol. 49, No. 4
Paper ID JFS2003310
Published 13 May 2004
Available online at: www.astm.org

FOR THE RECORD

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Y-Chromosomal STR Loci Data in Japanese Using the Y-PLEX™5 and Y-PLEX™6 PCR Amplification Kits

POPULATION: 115 Japanese

KEYWORDS: forensic science, DNA typing, population genetics, Y-chromosome, short tandem repeat (STR), Y-PLEX™5, Y-PLEX™6, Japanese

Genomic DNA was extracted from blood samples taken from 75 unrelated Japanese males and semen samples taken from 40 unrelated Japanese males using the phenol-chloroform method. Y-PLEX™5 PCR amplification kit (ReliaGene Technologies, New Orleans, LA) was employed for simultaneous amplification of five Y-chromosomal short tandem repeat (Y-STR) loci (DYS389I, DYS389II, DYS392, DYS438 and DYS439); Y-PLEX™6 PCR amplification kit (ReliaGene Technologies) for simultaneous amplification of six Y-STR loci (DYS19, DYS385, DYS389II, DYS390, DYS391 and DYS393) (1). Both kits included DYS389II. PCR amplification was performed according to the manufacturer's recommended protocol. The amplified products were detected using an ABI PRISM 310 Genetic Analyzer (Applied Biosystems, Foster City, CA). The results were analyzed using GeneScan Analysis v3.1 software (Applied Biosystems) and the alleles were typed using Genotypes v2.5 software (Applied Biosystems). Gene and haplotype diversities were calculated according to Nei (2).

Allele frequencies and gene diversity values of the 10 Y-STR loci in 115 Japanese males obtained with the Y-PLEX™5 and Y-PLEX™6 kits are shown in Table 1. Haplotypes of the five Y-STR loci using the Y-PLEX™5 kit and of the six Y-STR loci using the Y-PLEX™6 kit are shown in Tables 2 and 3, respectively. The haplotype diversity of the six Y-STR loci in Japanese (0.9908) was higher than that of the five Y-STR loci (0.9788).

The complete dataset is available to any interested researcher upon request.

References

1. Sinha SK, Budowle B, Arcot SS, Richey SL, Chakraborty R, Jones MD et al. Development and validation of a multiplexed Y-chromosomal STR genotyping system, Y-PLEX™6, for forensic casework. J Forensic Sci 2003;48(1):93–103. [PubMed]
2. Nei M. Molecular evolutionary genetics. New York: Columbia University Press, 1987.

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TABLE 1—*Allele frequencies and gene diversity values of the 10 Y-STR loci in 115 Japanese males.*

Allele	DYS[5] 389I	DYS[5,6] 389II	DYS[5] 392	DYS[5] 438	DYS[5] 439	DYS[6] 19	DYS[6] 390	DYS[6] 391	DYS[6] 393	Allele	DYS[6] 385
8								0.0087		10–12	0.0174
9								0.0087		10–14	0.0087
10				0.5565				0.8348		10–17	0.0261
11	0.0174		0.3826	0.1391	0.2957			0.1391		10–18	0.0087
12	0.2174		0.0870	0.0087	0.4696			0.0087	0.2261	10–19	0.1043
13	0.3043		0.3826	0.2783	0.2087	0.0261			0.6783	10–20	0.1130
14	0.4522		0.1304	0.0087	0.0261	0.0957			0.0783	10–21	0.0348
15	0.0087		0.0174	0.0087		0.4870			0.0174	10–22	0.0174
16						0.2522				11–12	0.0435
17						0.1391				11–18	0.0261
18										11–19	0.0174
19										11–21	0.0087
20										12–13	0.0174
21							0.0174			12–14	0.0087
22							0.2261			12–16	0.0261
23							0.2696			12–17	0.0348
24							0.1478			12–18	0.0348
25							0.3217			12–19	0.0348
26		0.0087					0.0087			12–20	0.0087
27		0.0435					0.0087			13–13	0.0174
28		0.1739								13–14	0.0087
29		0.2609								13–15	0.0087
30		0.2522								13–17	0.1217
31		0.2174								13–18	0.0522
32		0.0435								13–19	0.0261
										14–16	0.0174
										14–17	0.0957
										14–22	0.0087
										15–17	0.0348
										16–17	0.0087
										16–20	0.0087
G	0.6611	0.7940	0.6884	0.5985	0.6536	0.6761	0.7571	0.2860	0.4868		0.9446

[5]: Y-STR locus included in Y-PLEX™5.
[6]: Y-STR locus included in Y-PLEX™6.
G: gene diversity.

TABLE 2—*Haplotypes of the five Y-STR loci in 115 Japanese males using the Y-PLEX™5 kit.*

H	DYS389I	DYS389II	DYS392	DYS438	DYS439	N	H	DYS389I	DYS389II	DYS392	DYS438	DYS439	N
1	11	27	12	10	13	1	29	13	29	11	10	14	2
2	11	27	13	10	11	1	30	13	29	13	10	11	1
3	12	26	13	10	11	1	31	13	29	13	13	11	1
4	12	27	13	10	11	1	32	13	29	13	13	12	2
5	12	27	14	11	11	2	33	13	29	13	13	13	1
6	12	28	12	10	11	2	34	13	29	13	15	13	1
7	12	28	13	10	11	1	35	13	29	14	10	11	1
8	12	28	13	10	12	1	36	13	29	14	13	13	1
9	12	28	13	10	13	1	37	13	29	15	10	11	1
10	12	28	13	11	11	1	38	13	30	11	10	11	2
11	12	28	14	10	12	2	39	13	30	11	10	12	7
12	12	28	14	11	11	2	40	13	30	11	10	13	1
13	12	28	14	11	12	1	41	13	30	11	11	11	1
14	12	28	14	11	13	1	42	13	30	12	10	11	1
15	12	29	11	10	13	1	43	13	30	13	10	11	1
16	12	29	12	10	11	1	44	13	30	15	11	11	1
17	12	29	12	10	12	1	45	13	31	11	10	11	2
18	12	29	12	10	14	1	46	14	29	11	10	12	2
19	12	29	13	10	12	1	47	14	29	12	13	13	1
20	12	29	13	10	13	1	48	14	29	13	13	12	5
21	12	29	14	10	12	1	49	14	29	13	13	13	3
22	13	31	13	10	11	1	50	14	30	11	10	11	2
23	13	28	11	10	11	1	51	14	30	13	12	12	1
24	13	28	13	10	11	1	52	14	30	13	13	11	2
25	13	28	13	13	12	3	53	14	30	13	13	12	9
26	13	28	13	14	12	1	54	14	30	13	13	13	1
27	13	28	14	13	12	2	55	14	30	14	11	11	1
28	13	29	11	10	12	1	56	14	30	14	13	12	1

TABLE 2—*Continued.*

H	DYS389I	DYS389II	DYS392	DYS438	DYS439	N	H	DYS389I	DYS389II	DYS392	DYS438	DYS439	N
57	14	31	11	10	11	1	63	14	31	14	11	11	1
58	14	31	11	10	12	9	64	14	32	11	10	12	1
59	14	31	11	10	13	5	65	14	32	11	10	13	2
60	14	31	11	11	12	1	66	14	32	12	11	12	1
61	14	31	11	11	13	2	67	15	31	13	13	12	1
62	14	31	13	13	13	1							

Haplotype diversity: 0.9788; Discrimination capacity: 0.5826.
H: haplotype number.
N: number of individuals observed for each haplotype.

TABLE 3—*Haplotypes of the six Y-STR loci in 115 Japanese males using the Y-PLEX™6 kit.*

H	DYS19	DYS385	DYS389II	DYS390	DYS391	DYS393	N	H	DYS19	DYS385	DYS389II	DYS390	DYS391	DYS393	N
1	13	10–14	29	24	10	14	1	46	15	14–16	30	25	10	13	1
2	13	11–12	31	22	10	13	1	47	15	14–17	29	25	10	13	1
3	13	13–15	29	24	10	14	1	48	15	14–17	30	24	10	13	1
4	14	11–12	30	23	10	13	1	49	15	14–17	30	24	10	14	1
5	14	11–18	29	23	10	13	1	50	15	14–17	30	25	10	13	4
6	14	12–13	29	23	10	13	1	51	15	15–17	30	25	10	13	1
7	14	12–19	30	25	10	12	1	52	15	15–17	31	25	10	13	2
8	14	13–18	27	24	10	13	1	53	16	10–12	29	25	10	13	1
9	14	13–18	28	24	10	12	1	54	16	10–12	30	25	10	13	1
10	14	13–18	28	25	10	12	1	55	16	10–17	28	23	10	13	2
11	14	13–19	27	24	10	12	1	56	16	10–19	29	23	10	12	1
12	14	13–19	28	23	10	12	1	57	16	10–19	29	23	10	13	2
13	14	13–19	28	24	10	12	1	58	16	10–19	30	22	10	13	1
14	15	10–17	28	23	10	14	1	59	16	10–20	29	23	10	13	1
15	15	10–18	31	22	10	13	1	60	16	10–22	29	22	10	13	1
16	15	10–19	28	22	10	13	1	61	16	11–19	30	21	10	15	1
17	15	10–19	28	23	10	13	2	62	16	11–21	29	23	10	15	1
18	15	10–19	29	23	10	13	2	63	16	12–16	29	23	9	12	1
19	15	10–19	30	22	10	13	4	64	16	12–18	28	23	10	12	1
20	15	10–20	28	22	10	13	1	65	16	12–18	29	25	10	12	1
21	15	10–20	29	21	10	13	1	66	16	12–18	31	24	10	12	1
22	15	10–20	29	22	10	13	6	67	16	12–19	28	24	10	12	1
23	15	10–20	29	22	10	14	1	68	16	12–19	28	25	11	12	1
24	15	10–20	30	22	10	13	2	69	16	13–14	28	23	10	14	1
25	15	10–20	31	22	10	13	1	70	16	13–17	31	25	10	13	3
26	15	10–21	30	22	10	13	5	71	16	13–17	31	25	11	13	1
27	15	10–22	30	23	10	13	1	72	16	13–18	31	26	11	13	1
28	15	11–12	28	22	10	13	1	73	16	14–16	30	25	10	13	1
29	15	11–12	29	23	10	12	1	74	16	14–17	31	25	11	13	1
30	15	11–12	30	22	10	13	1	75	16	14–17	32	23	10	13	1
31	15	11–18	28	23	10	12	1	76	16	16–17	30	25	11	13	1
32	15	11–18	31	23	10	14	1	77	17	12–16	27	23	11	12	1
33	15	11–19	29	23	10	12	1	78	17	12–17	32	24	11	13	1
34	15	12–13	29	23	11	13	1	79	17	12–19	28	25	10	12	1
35	15	12–14	30	24	11	13	1	80	17	12–20	28	25	10	12	1
36	15	12–16	26	24	10	13	1	81	17	13–13	31	24	10	13	1
37	15	12–17	29	24	11	12	1	82	17	13–17	31	25	10	13	3
38	15	12–17	29	25	8	13	1	83	17	13–17	31	25	12	13	1
39	15	12–17	30	23	10	14	1	84	17	13–17	32	25	10	13	1
40	15	12–18	31	23	10	14	1	85	17	13–18	31	25	11	13	1
41	15	13–13	28	23	10	13	1	86	17	14–17	27	27	10	12	1
42	15	13–17	31	24	11	13	1	87	17	14–17	31	25	10	13	1
43	15	13–17	31	25	10	13	1	88	17	14–22	28	24	11	12	1
44	15	13–17	31	25	11	13	1	89	17	15–17	27	25	11	12	1
45	15	13–17	32	23	10	12	1	90	17	16–20	29	25	10	12	1

Haplotype diversity: 0.9908; Discrimination capacity: 0.7826.
H: haplotype number.
N: number of individuals observed for each haplotype.