

## FOR THE RECORD

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# Y-Chromosomal STR Haplotypes in Indonesians

**POPULATION:** 90 unrelated Indonesian male individuals living in Surabaya (east region of Java Island).

**KEYWORDS:** forensic science, DNA typing, population genetics, Y-chromosome, short tandem repeats, haplotypes, Indonesians, DYS19, DYS385, DYS389II, DYS390, DYS391, DYS393, DYS389I, DYS392, DYS438, DYS439

Genomic DNA was extracted from blood samples taken from 90 unrelated Indonesian males using the phenol-chloroform method. Six Y-STR loci, DYS19, DYS385, DYS389II, DYS390, DYS391 and DYS393, were amplified using Y-PLEX<sup>TM</sup>6 amplification kit (ReliaGene Technologies, New Orleans, LA) (1,2) and five Y-STR loci, DYS389I, DYS389II, DYS392, DYS438 and DYS439, were amplified using Y-PLEX<sup>TM</sup>5 amplification kit (ReliaGene Technologies) (2) according to the manufacturer's recommended protocols. DYS389II was common to both kits. The amplified products were detected with ABI PRISM 310 Genetic Analyzer (Applied Biosystems, Foster City, CA). Fragment sizes were determined using GeneScan Analysis v3.1 software (Applied Biosystems) and the alleles were typed using Genotypes v2.5 software (Applied Biosystems). The haplotype diversity was calculated according to Nei (3). The discrimination capacity was calculated according to Gené et al. (4).

Allele frequencies and gene diversity values of the 10 Y-STR loci in 90 Indonesian males are shown in Table 1. Gene diversity values for analyzed 10 Y-STR loci decrease in the following order: DYS385, DYS390, DYS389II, DYS439, DYS389I, DYS393,

DYS392, DYS391, DYS19 and DYS438. Haplotypes of the 10 Y-STR loci are shown Table 2. A total of 90 individuals produced 86 haplotypes, of which 82 were unique and four were found in two individuals. The haplotype diversity calculated from the 10 Y-STR loci was 0.9990 and the discrimination capacity was 0.9556.

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

## References

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TABLE 1—Allele frequencies and gene diversity values of 10 Y-STR loci in Indonesians.

Allele	DYS19	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS438	DYS439	Allele	DYS385
8								0.0444		9-16	0.0111
9					0.1667		0.0111	0.0111		9-17	0.0111
10					0.6222			0.8000	0.0556	9-18	0.0111
11		0.0222			0.2111	0.0667		0.1333	0.3333	11-13	0.0111
12	0.0111	0.4556				0.1333	0.1111	0.0111	0.3111	11-14	0.0111
13		0.3889				0.6222	0.5333		0.2444	11-21	0.0333
14	0.1000	0.1333				0.1667	0.3333		0.0444	12-13	0.0222
15	0.6667					0.0111	0.0111		0.0111	12-14	0.0667
16	0.1333									12-15	0.0222
17	0.0889									12-16	0.0778
18										12-17	0.0222
19				0.0111						12-18	0.0222
20										12-19	0.0111
21				0.1222						12-22	0.0111
22				0.0111						13-13	0.0222
23				0.1778						13-14	0.0556
24				0.3556						13-15	0.0222
25				0.2667						13-16	0.0111
25.2				0.0444						13-18	0.0222
26				0.0111						13-20	0.0111
27			0.0556							14-16	0.0111
28			0.2667							14-18	0.0333
29			0.2889							14-19	0.0333
30			0.3000							14-20	0.0111
31			0.0556							15-15	0.0222
32			0.0333							15-18	0.0667
										15-19	0.1222
										15-20	0.1222
										15-21	0.0111
										15-22	0.0111
										16-18	0.0111
										16-19	0.0222
										16-21	0.0222
										17-20	0.0111
G	0.5256	0.6300	0.7565	0.7622	0.5465	0.5690	0.5987	0.3438	0.7353		0.9531

G: Gene diversity.

TABLE 2—Y-STR haplotypes detected in Indonesians.

H	DYS19	DYS385	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS438	DYS439	N
1	12	14-16	13	29	23	11	11	15	10	13	1
2	14	12-14	12	29	21	9	12	13	10	12	1
3	14	12-14	12	30	21	9	12	13	10	11	1
4	14	13-13	12	28	23	10	14	13	10	12	1
5	14	13-15	12	28	24	10	14	13	11	11	1
6	14	13-20	14	32	23	10	11	12	10	13	1
7	14	14-19	12	30	23	10	11	13	9	12	1
8	14	15-19	13	29	25	10	14	14	8	11	1
9	14	15-19	13	30	25	10	13	13	10	13	1
10	14	15-20	12	28	24	10	13	14	10	12	1
11	15	9-16	12	28	22	10	14	12	10	12	1
12	15	9-17	12	28	24	10	13	12	10	12	1
13	15	11-13	14	29	24	10	13	13	11	10	1
14	15	11-14	14	32	25	10	11	13	11	10	1
15	15	11-21	13	29	24	10	13	13	8	11	1
16	15	11-21	13	29	25	10	14	13	8	11	2
17	15	12-13	12	30	21	9	12	13	10	10	1
18	15	12-14	11	28	21	9	12	13	10	11	1
19	15	12-14	12	29	21	9	12	13	10	11	1
20	15	12-14	12	30	21	9	12	13	10	11	1
21	15	12-14	12	31	21	9	12	13	10	11	1
22	15	12-15	12	30	21	9	12	13	10	11	1
23	15	12-15	12	30	21	9	12	13	10	13	1
24	15	12-16	12	27	24	10	13	13	10	13	2
25	15	12-16	12	28	23	10	13	13	10	12	1
26	15	12-16	12	28	24	10	13	13	10	13	2
27	15	12-16	12	28	24	10	14	13	10	14	1
28	15	12-16	13	32	24	10	13	12	10	12	1

TABLE 2—Continued.

H	DYS19	DYS385	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS438	DYS439	N
29	15	12–17	14	30	19	10	11	14	11	11	1
30	15	12–18	12	28	24	11	13	13	10	14	1
31	15	12–18	13	29	25	10	13	14	10	12	1
32	15	12–19	12	27	24	10	13	13	10	11	1
33	15	12–22	12	30	24	11	13	13	10	10	1
34	15	13–13	12	29	23	11	14	13	10	11	1
35	15	13–14	12	30	21	9	12	13	10	11	2
36	15	13–16	12	28	23	10	13	13	10	11	1
37	15	14–19	13	29	24	11	12	13	10	13	1
38	15	15–15	11	29	24	10	13	13	10	11	1
39	15	15–18	12	30	24	10	13	13	10	13	1
40	15	15–18	13	28	25	11	13	14	10	12	1
41	15	15–18	13	29	25.2	11	13	14	10	12	1
42	15	15–18	13	30	24	10	11	13	10	13	1
43	15	15–18	14	31	25	10	13	14	10	11	1
44	15	15–19	13	29	24	11	13	14	10	12	1
45	15	15–19	13	29	25	11	13	13	10	12	1
46	15	15–19	13	29	25	11	13	14	10	13	1
47	15	15–19	13	29	25	11	13	14	10	14	1
48	15	15–19	13	30	24	10	13	13	10	12	1
49	15	15–19	13	30	24	10	13	13	10	13	1
50	15	15–19	13	31	24	10	13	13	10	15	1
51	15	15–19	14	30	24	10	13	14	10	12	1
52	15	15–20	12	28	25	11	13	14	10	13	1
53	15	15–20	13	28	25.2	11	13	14	10	14	1
54	15	15–20	13	29	25	10	13	14	10	13	1
55	15	15–20	13	29	25.2	10	13	14	10	12	1
56	15	15–20	13	30	25	10	13	14	10	13	1
57	15	15–20	13	30	25	11	13	13	10	11	1
58	50	15–20	13	30	25	11	13	13	10	12	1
59	15	15–20	14	30	25.2	10	14	14	10	11	1
60	15	15–20	14	31	24	10	13	14	10	13	1
61	15	15–21	13	29	25	10	13	14	10	12	1
62	15	15–22	14	30	25	11	13	14	10	11	1
63	15	16–18	13	29	25	10	13	14	10	12	1
64	15	16–19	13	29	25	10	13	14	10	13	1
65	15	16–19	14	30	25	10	13	14	10	12	1
66	15	16–21	13	29	25	11	13	14	10	11	1
67	16	12–17	13	31	24	10	13	13	10	12	1
68	16	13–14	12	27	23	10	14	13	10	11	1
69	16	13–14	12	28	23	10	14	13	10	11	1
70	16	13–14	12	28	23	10	14	13	11	11	1
71	16	13–15	12	29	23	10	14	13	10	11	1
72	16	13–18	12	28	24	10	13	12	10	13	1
73	16	14–19	13	29	24	10	13	14	11	12	1
74	16	15–15	13	30	26	11	14	14	10	12	1
75	16	15–18	13	30	24	10	13	13	10	12	1
76	16	15–19	14	30	25	10	13	14	10	11	1
77	16	15–20	14	30	24	10	13	14	10	12	1
78	16	17–20	13	30	24	10	13	14	10	12	1
79	17	9–18	13	29	23	11	15	14	12	13	1
80	17	12–13	12	28	23	10	14	13	10	13	1
81	17	13–18	12	27	24	10	13	12	11	12	1
82	17	14–18	12	28	23	9	13	12	11	11	1
83	17	14–18	12	28	23	9	13	12	11	13	1
84	17	14–18	12	28	24	10	13	12	11	10	1
85	17	14–20	12	28	25	9	13	12	11	12	1
86	17	16–21	12	28	23	9	13	9	11	11	1

H: Haplotype number.

N: Individuals observed for each haplotype.