

## FOR THE RECORD

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# Y-Chromosomal STR Haplotypes in Two Population Groups of Kerala in South India

**POPULATION:** Five Y chromosomal STRs (DYS19, DYS389I, DYS389II, DYS391, and DYS393) were investigated from 64 random, normal, and healthy male volunteers in two distinct population groups (Ezhavas and Muslims) of the Kerala state in South India. Ezhavas belong to the Hindu religious fold whereas Muslims are a religio-ethnic group. Both groups speak Malayalam, an Indo-Draavidian language.

DNA was extracted by using a non-enzymatic method (1). PCR amplification of all the five Y STR loci (DYS19, DYS389I, DYS389II, DYS391, and DYS393) was achieved by using locus specific primers and the PCR conditions were as described by Kayser et al. (2) and de Knijff et al. (3) Forward primer of each locus was labeled with fluorescent Cy5<sup>TM</sup> dye amidite (Amersham Pharmacia Biotech Pvt. Ltd, Sweden). A final volume of 25  $\mu$ L PCR reaction mixture containing 25 ng of genomic DNA was carried out in Hybaid<sup>TM</sup> thermocycler. PCR amplicons were electrophoresed in 6% (w/v acrylamide/bis-acrylamide) denaturing high-performance sequencing gels (ready-mix, ALF grade, Amersham Pharmacia Biotech) using ALF Express DNA sequencer (Amersham Pharmacia Biotech). External size standard (50–500 bps) was used in every 8th lane and internal ladders were used in each lane of the gel. The DNA standards kindly supplied by Dr. Chris Tyler-Smith were used for the confirmation of the allele sizes of each locus.

**KEYWORDS:** forensic science, forensic investigations, South Indian population, Y STR haplotypes

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**Access to Data:** Via electronic mail from communicating author.

**Analysis of Data:** Haplotype diversities and frequencies were calculated by using the program ARLEQUIN 1.1 (4). The nomenclature of the allele sizes was as described by Kayser et al. (2) except for DYS389I and DYS389II, which was according to Cooper et al. (5).

A total of fifty haplotypes were observed from these two population groups, of which only five haplotypes were shared by both. There were 33 haplotypes observed among Ezhavas and 23 haplotypes among the Muslims. The haplotype diversity values were  $0.9940 \pm 0.0078$  and  $0.9886 \pm 0.0131$  among Ezhavas and Muslims, respectively. This is the first report on the analysis of y-chromosome STRs from these two population groups of Kerala in South India and will be useful for routine forensic investigations.

## References

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TABLE 1—Distribution of Y-chromosomal haplotypes at five microsatellites among two population groups of South India.

Haplotype	DYS19	DYS389I	DYS389II	DYS391	DYS393	Ezhavas (N = 37)	Muslims (N = 27)	Total (N = 64)
H1	14	9	15	10	11	...	1	1
H2	14	9	16	10	10	2	...	2
H3	14	9	16	10	12	1	...	1
H4	14	9	19	10	10	1	...	1
H5	14	10	15	10	12	1	...	1
H6	14	10	16	10	10	1	...	1
H7	14	10	16	11	13	1	...	1
H8	14	10	17	10	11	2	...	2
H9	14	10	17	10	12	...	1	1
H10	14	10	17	10	13	1	...	1
H11	14	10	17	11	12	...	1	1
H12	14	10	18	10	11	1	...	1
H13	14	10	18	10	12	1	1	2
H14	14	10	18	10	13	1	1	2
H15	14	10	19	10	10	1	...	1
H16	14	10	19	10	13	1	1	2
H17	14	10	19	11	13	...	1	1
H18	14	11	16	11	11	...	1	1
H19	15	9	15	11	11	1	...	1
H20	15	9	16	10	12	...	1	1
H21	15	9	17	10	12	...	1	1
H22	15	10	14	10	11	2	...	2
H23	15	10	15	10	11	1	...	1
H24	15	10	16	11	11	1	...	1
H25	15	10	17	10	11	1	2	3
H26	15	10	18	10	11	1	1	2
H27	15	10	18	10	12	...	2	2
H28	15	10	19	10	11	...	1	1
H29	15	11	16	10	12	...	2	2
H30	15	11	16	11	12	...	1	1
H31	15	11	17	10	12	1	...	1
H32	15	11	18	10	10	1	...	1
H33	15	11	18	10	11	...	1	1
H34	15	11	18	11	11	1	...	1
H35	16	9	17	10	12	...	1	1
H36	16	10	14	10	11	1	...	1
H37	16	10	14	10	12	...	1	1
H38	16	10	16	10	11	1	...	1
H39	16	10	17	10	11	1	1	2
H40	16	10	17	10	12	1	...	1
H41	16	10	17	11	12	1	...	1
H42	16	10	18	10	12	1	...	1
H43	16	10	18	10	13	...	2	2
H44	16	10	19	10	12	2	...	2
H45	16	10	19	11	12	1	...	1
H46	16	11	16	10	12	1	...	1
H47	16	11	18	10	12	1	...	1
H48	17	9	15	10	12	...	1	1
H49	17	10	17	11	12	1	...	1
H50	17	10	18	10	13	...	1	1
Haplotype Diversity						0.9940 ± 0.0078	0.9886 ± 0.0131	

NOTE: Haplotype frequencies are in absolute numbers.