

FOR THE RECORD

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Population Database of Y-Chromosomal Haplotypes at Five Microsatellites Among Two Distinct Ethnic Groups of Western India

POPULATION: Five Y-chromosomal microsatellites (DYS19, DYS389I, DYS389II, DYS391, and DYS393) were analyzed and haplotype frequencies were determined in 98 random, normal, and healthy male volunteers, belonging to two anthropologically distinct ethnic groups Konkasthas and Marathas of the Maharashtra state in Western India. Both groups speak, "Marathi," an Indo-European language.

Genomic DNA was extracted using a rapid non-enzymatic method (1). PCR amplification of all the five microsatellites was achieved as described by Kayser et al. (2) and de Knijff et al. (3). The forward primer of each locus was labelled with fluorescent CYS™ dye amidite (Amersham Pharmacia Biotech) and PCR was carried out in a Hybaid™ thermal cycler using Taq DNA polymerase (Roche Molecular Biochemicals). Amplimers were electrophoresed in 6% denaturing urea gel (7M) and analyzed by fragment manager using ALF Express DNA Sequencer (Amersham Pharmacia Biotech). CY5 labeled 50–500 bp external ladder and internal ladders were used for the fragment analysis. The allelic ladders developed in our laboratory were used for each locus for accurate size determination. The amplimers of each locus were also compared with the standards, kindly supplied by Dr. Chris Tyler-Smith from Oxford University, Oxford, UK, for confirmation.

KEYWORDS: forensic science, forensic investigations, Y-chromosomal haplotypes, DYS19, DYS389I, DYS389II, DYS391, DYS393, Indian population

Access to Data: Via electronic mail from communicating author.

Analysis of Data: Haplotype frequencies and haplotype diversities

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were calculated by using the software ARLEQUIN ver. 1.1 (4). The nomenclature of the allele sizes were as described by Kayser et al. (2) except for DYS389I and DYS389II, which was according to Cooper et al. (5).

A total of sixty-nine haplotypes were observed of which only seven were shared between the two ethnic groups. A total of 33 haplotypes were observed among Konkasthas and 43 haplotypes among Marathas. The haplotype diversities observed at five Y-chromosomal microsatellites were 0.9890 ± 0.0080 and 0.9900 ± 0.0051 among Konkasthas and Marathas, respectively. This is the first report on the analysis of haplotype analysis based on Y-chromosomal microsatellites from these two ethnic groups and would provide useful information in population genetics and routine forensic investigations.

References

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TABLE 1—Distribution of Y-chromosomal haplotypes at five microsatellites among two Indian populations.

Haplotype	DYS19	DYS389I	DYS389II	DYS391	DYS393	Konkanasthas (N = 41)	Marathas (N = 57)	Total (N = 98)
H1	13	10	16	10	13	...	1	1
H2	14	8	16	10	10	1	...	1
H3	14	9	15	10	10	...	1	1
H4	14	9	15	10	13	1	...	1
H5	14	9	16	10	10	1	...	1
H6	14	9	17	11	13	...	1	1
H7	14	10	15	10	12	1	1	2
H8	14	10	15	11	10	1	...	1
H9	14	10	16	10	11	1	...	1
H10	14	10	16	10	13	1	2	3
H11	14	10	17	10	13	...	2	2
H12	14	10	18	10	12	...	1	1
H13	14	10	18	11	11	1	...	1
H14	14	11	16	10	11	1	...	1
H15	14	11	17	10	11	...	1	1
H16	15	8	16	10	10	1	...	1
H17	15	9	16	10	10	2	...	2
H18	15	9	16	10	11	1	1	2
H19	15	9	16	10	13	...	1	1
H20	15	9	17	10	13	...	2	2
H21	15	9	17	11	11	...	1	1
H22	15	9	18	10	12	1	1	2
H23	15	9	18	11	12	1	...	1
H24	15	9	19	10	12	...	3	3
H25	15	10	14	10	10	...	1	1
H26	15	10	15	10	12	...	1	1
H27	15	10	16	10	11	2	2	4
H28	15	10	16	10	12	...	1	1
H29	15	10	16	10	13	...	1	1
H30	15	10	17	10	11	...	1	1
H31	15	10	17	10	12	2	2	4
H32	15	10	17	10	13	...	1	1
H33	15	10	17	11	12	2	...	2
H34	15	10	17	11	13	1	...	1
H35	15	10	18	10	11	...	3	3
H36	15	10	18	10	12	...	1	1
H37	15	10	18	11	12	1	...	1
H38	15	10	19	10	13	...	1	1
H39	15	10	19	11	12	1	...	1
H40	15	10	19	11	13	...	1	1
H41	15	11	15	10	13	1	...	1
H42	15	11	16	10	11	1	2	3
H43	15	11	16	10	13	...	1	1
H44	15	11	18	10	13	1	...	1
H45	16	8	16	10	10	2	...	2
H46	16	9	16	10	11	...	2	2
H47	16	9	17	10	12	...	1	1
H48	16	9	18	10	12	...	1	1
H49	16	9	19	10	11	...	1	1
H50	16	9	19	10	12	1	...	1
H51	16	10	16	10	11	1	...	1
H52	16	10	16	10	12	2	...	2
H53	16	10	17	10	11	...	1	1
H54	16	10	17	10	12	3	...	3
H55	16	10	17	11	12	1	...	1
H56	16	10	18	11	11	...	2	2
H57	16	10	18	11	12	1	...	1
H58	16	10	19	10	12	...	2	2
H59	16	10	19	11	12	1	...	1
H60	16	11	16	10	10	...	1	1
H61	16	11	17	10	11	...	1	1
H62	16	11	18	10	12	1	...	1
H63	17	9	15	11	12	1	...	1
H64	17	9	16	10	11	...	1	1
H65	17	10	15	10	11	...	1	1
H66	17	10	17	10	11	...	2	2
H67	17	10	17	10	12	...	1	1
H68	17	10	17	11	12	...	1	1
H69	17	11	16	10	11	...	1	1

NOTE: Haplotype frequencies are in absolute numbers.