

## FOR THE RECORD

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# Haplotype Frequency Distribution of Two Autosomal Microsatellites (D12S66 and D12S67) Among Five Endogamous Population Groups in India

**POPULATION:** We have studied DNA polymorphism at two autosomal microsatellite loci (D12S66 and D12S67) among five anthropologically distinct population groups of India. The five ethnic groups belonged to two different states of India, Maharashtra (Konkanasthas and Marathas) and Kerala (Nairs, Ezhavas, and Muslims). A total of 230 individuals were studied for haplotype analysis of D12S66 and D12S67 loci.

**KEYWORDS:** forensic science, DNA typing, D12S66, D12S67, haplotype frequency, Indian population

Genomic DNA was extracted using a rapid non-enzymatic method (1). PCR amplification of both the loci was achieved by using locus specific primers flanking the repeat region (2,3) and carried out in a Hybaid™ thermal cycler using Taq polymerase (Roche Molecular Diagnostics, GmbH, Germany). Amplimers were electrophoresed in 6% denaturing urea gel (7M) and analyzed by Fragment manager using ALF DNA Sequencer (Amersham Pharmacia Biotech, Uppasala, Sweden). Allelic ladders for both the loci were developed in our laboratory and used for the correct assignment of the allele sizes.

Haplotype diversities and frequencies were calculated by using the program ARLEQUIN 1.1 (3). Nomenclature of both the loci (D12S66 and D12S67) was based on the number of the repeat units, i.e., allele 8 refers to 8 repeats of the core sequences. The nomenclature of the alleles for D12S66 and D12S67 was based on the number of repeats (4,5).

A total of 9 alleles each were observed at both the loci; 8–17 repeats at D12S66 and 36–44 repeats at D12S67 (6). A total of 54 haplotypes were detected among 230 random individuals studied from the five population groups. Only 9 haplotypes were shared across the five Indian population groups. The frequencies ranged from 0.010 in Marathas (14–39) to 0.187 in Nairs (12–40). Thirty-six haplotypes were found in the Maharashtrians, whereas 44 haplotypes were found in Kerala population groups. There were 23 unique haplotypes detected in these five ethnic groups.

The haplotype diversity values ranged from  $0.919 \pm 0.012$  (among Ezhavas) to  $0.965 \pm 0.006$  (among Konkanasthas). This is

the first report on haplotype analysis of D12S66 and D12S67 loci from these five ethnic groups of India and will be useful for forensic investigations.

The complete dataset is available to any interested party via electronic mail from the corresponding author at msesh@apsara.barc.ernet.in or birajalaxmi@yahoo.co.in

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TABLE 1—Haplotype analysis of D12S66 and D12S67 among Indian population groups.

SI. No.	Haplotypes	Konkanasthas (N = 44)	Marathas (N = 51)	Nairs (N = 30)	Ezhavas (N = 55)	Muslims (N = 52)
1	8-37	0.012	0.010			
2	8-38		0.020	0.033	0.009	
3	8-39					0.020
4	8-44					0.010
5	9-37		0.007			
6	9-40	0.083				
7	9-41		0.024			0.020
8	9-42				0.009	
9	9-43		0.008			
10	10-36					0.026
11	10-37					0.019
12	10-38					0.010
13	10-39	0.018	0.013			0.010
14	10-40	0.058			0.018	
15	10-41	0.020				0.013
16	10-42		0.017			
17	10-44			0.017		
18	11-36					0.023
19	11-37		0.013			0.010
20	11-38					0.038
21	11-39	0.064	0.058	0.071	0.073	0.085
22	11-40	0.038	0.051	0.130	0.118	0.180
23	11-41	0.069	0.105	0.078	0.175	0.055
24	11-42	0.014	0.032	0.055	0.049	0.042
25	11-43	0.017	0.006		0.021	
26	11-44		0.029	0.050		
27	12-37			0.017	0.009	
28	12-38	0.016			0.027	0.019
29	12-39	0.063	0.050	0.063	0.012	0.105
30	12-40	0.096	0.118	0.187	0.118	0.094
31	12-41	0.021	0.140	0.122	0.137	0.013
32	12-42		0.050	0.045	0.018	
33	12-43	0.054	0.015		0.033	
34	12-44					
35	13-44	0.012	0.020		0.022	
36	13-38	0.031				
37	13-39	0.071	0.035		0.010	0.041
38	13-40		0.066		0.025	0.025
39	13-41	0.042	0.065	0.033	0.015	0.016
40	13-42	0.046				0.035
41	13-43			0.033		0.019
42	14-39	0.017	0.010	0.050	0.013	0.010
43	14-40	0.040	0.029		0.022	
44	14-41	0.015		0.017		0.010
45	14-42	0.036			0.015	0.010
46	14-43		0.010			
47	14-44				0.032	
48	15-39	0.030				
49	15-40	0.018				
50	15-42				0.009	0.010
51	15-44					0.010
52	17-43				0.009	
53	17-40					0.019
54	17-43					0.010
Total	54	26	26	16	25	31
Haplotype Diversity		0.965 ± 0.006	0.941 ± 0.009	0.925 ± 0.0144	0.919 ± 0.012	0.945 ± 0.010

\* N = number of individuals.