

## FOR THE RECORD

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# Allelic Variation at ACTBP2 Microsatellite for Two Indian Tribal Groups

**POPULATION:** Two tribal populations, Bison Horn Maria ( $N = 49$ ) and Muria ( $N = 52$ ) from Bastar district in Central India.

**KEYWORDS:** forensic science, DNA typing, population genetics, ACTBP2, microsatellite, Indian tribal population, Bison Horn Maria, Muria

## Extraction

Blood samples were collected from 101 healthy unrelated individuals belonging to two tribal populations after informed consent. Genomic DNA was then isolated using a rapid method (1).

## PCR

The DNA samples were PCR amplified using locus-specific primers for the locus ACTBP2 and 20 ng of template (2). The forward primer was fluorescent labeled with Cy5<sup>TM</sup> dye amidite. The reaction was carried out in Eppendorf<sup>TM</sup> gradient thermocycler (Eppendorf-AG, Hamburg, Germany) using an annealing temperature of 62°C.

## Typing

The amplimers were analyzed on ALF<sup>TM</sup> Express DNA Sequencer (Amersham Biosciences Ltd., Uppsala, Sweden). Internal control standards were used in each lane. Allelic ladder developed in the laboratory was used for correct allelic assignments.

## Analysis and Results

Statistical analysis was performed using Popgene ver 1.32 (3) and as described earlier (4). Significant departure from Hardy–Weinberg equilibrium expectations was tested using chi-square and likelihood ratio test.

A total of 24 and 25 alleles were observed among Maria and Muria, respectively, with repeats varying from 11 to 32.2 (Table 1). The predominant allele was allele 30.2 for Maria and allele 18 for Muria. Both the populations showed high heterozygosity value of 0.90 (Table 2). The genotype distribution when analysed for Hardy–Weinberg equilibrium showed no deviation from the expectations. The locus is highly informative with high PIC and PE values and useful for forensic DNA analysis and paternity testing.

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## Access to Data

The complete data set can be accessed via electronic mail from the authors at anugh@magnum.barc.gov.in or msesh@apsara.barc.gov.in

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TABLE 1—Allele frequency distribution at ACTBP2 locus in Indian tribal populations.

Allele	Frequency	
	Bison Horn Maria ( $n = 98$ )	Muria ( $n = 104$ )
11	—	0.009
12	0.010	0.009
13	—	0.009
14	0.010	0.009
15	0.010	0.019
16	0.031	0.039
17	0.071	0.106
18	0.092	0.173
19	0.041	0.106
19.2	0.071	0.058
20	0.020	—
20.2	—	0.048
21	0.031	0.009
21.2	0.020	0.029
22	0.010	0.009
22.2	0.010	0.029
23	0.051	0.009
23.2	0.031	0.038
24.2	0.031	0.009
25.2	0.041	0.029
26.2	0.020	0.038
27.2	0.061	0.058
28.2	0.061	0.048
29.2	0.082	0.058
30.2	0.112	0.038
32	0.031	0.009
32.2	0.051	—

$n$ , no. of chromosomes.

TABLE 2—Forensic analysis of *ACTBP2* microsatellite locus.

	Bison Horn Maria	Muria
Observed number of alleles	24	25
Observed heterozygosity	0.90	0.90
Expected heterozygosity	0.95 $\pm$ 0.02	0.94 $\pm$ 0.02
Polymorphic information content (PIC)	0.93	0.92
Power of discrimination (PD)	0.97	0.99
Power of paternity exclusion (PE)	0.88	0.84
Hardy–Weinberg equilibrium		
Chi-Square test ( <i>p</i> value)	0.19	0.52
Likelihood ratio test ( <i>p</i> value)	1.00	1.00

## References

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