

ARTICLE

Mitochondrial DNA analysis reveals diverse histories of tribal populations from India



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We analyzed 370 bp of the first hypervariable region of the mitochondrial DNA (mtDNA) control region in

1960-61
1961-62
1962-63
1963-64
1964-65
1965-66
1966-67
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2096-2097
2097-2098
2098-2099
2099-20100

Table 1. תְּבִיבָה וְעַמְּלָקָה = עֲמָלָק

Ethnic groups	Sample size	Linguistic affiliation	Population size ×	Reference
Tribals				
North India	~	~		et al et al
Northeast India	~	~	~	~
East India	~	~	~	et al et al et al
Central India	~	~	~	et al
South India	~	~	~	~

Results

Results

Diversity indices and demographic parameters

Diversity indices and demographic parameters

• A
• $\frac{d}{dx} \left(\frac{dy}{dx} \right) = \frac{d^2y}{dx^2}$

$\hat{M} = \hat{M}_1 + \hat{M}_2$, $\hat{M}_1 = \frac{1}{2} \begin{pmatrix} 1 & -1 & -1 \\ -1 & 1 & -1 \\ -1 & -1 & 1 \end{pmatrix}$

MDS ənalyasis

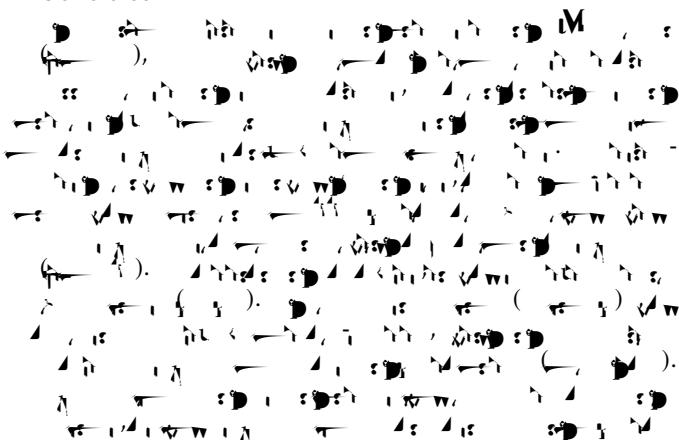
$\hat{M} = \hat{M}_1 + \hat{M}_2$, $\hat{M}_2 = \frac{1}{2} \begin{pmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{pmatrix}$

Table 2 Summary statistics for the mtDNA haplotypes

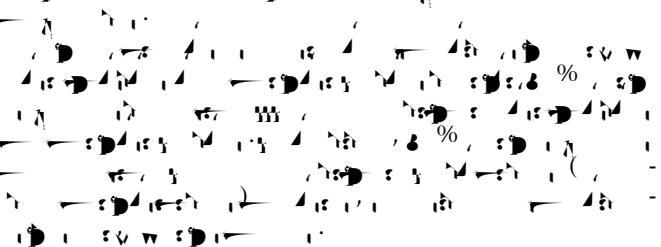
	<i>N</i>	<i>n</i>	Haplotype diversity	Nucleotide diversity	MPD	Fu's <i>Fs</i>	<i>r</i> ^a
Tribals							
North India			±	±	±	—	
<i>Adivasi</i>	10	10	0.99	0.0001	0.0001	—	
<i>Other</i>	10	10	0.99	0.0001	0.0001	—	
Northeast India			±	±	±	—	
<i>Assam</i>	10	10	0.99	0.0001	0.0001	—	
<i>Other</i>	10	10	0.99	0.0001	0.0001	—	
East India			±	±	±	—	
<i>Other</i>	10	10	0.99	0.0001	0.0001	—	
Central India			±	±	±	—±	±
<i>Other</i>	10	10	0.99	0.0001	0.0001	—±	±

higher than the average (0.7), and the lowest was found in the *Other* tribes (0.7).

Gene tree



higher than the average (0.7), and the lowest was found in the *Other* tribes (0.7).



mtDNA haplogroup affiliation



• M⁺ — M⁺ — M⁺ — M⁺ — M⁺
• M⁺ — M⁺ — M⁺ (~1%). M⁺ — M⁺ — M⁺
• M⁺ — M⁺ — M⁺ (~1%), M⁺ — M⁺ — M⁺
• M⁺ — M⁺ — M⁺ (~1%). M⁺ — M⁺ — M⁺
• M⁺ — M⁺ — M⁺ (~1%); M⁺ — M⁺ — M⁺
• M⁺ — M⁺ — M⁺ (~1%) — M⁺ — M⁺ — M⁺
• M⁺ — M⁺ — M⁺ — M⁺ — M⁺ — M⁺ — M⁺
• M⁺ — M⁺ — M⁺ — M⁺ — M⁺ — M⁺ — M⁺

M($\frac{1}{4}$ %) \rightarrow D15 S(25%) D16
T9A D17 D18 S(25%) D19 D20

