

FOR THE RECORD

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Population Study of Seven Microsatellites in Alagoas—Northeastern Brazil

POPULATION: Over 153 unrelated individuals from the State of Alagoas (Northeastern Brazil).

KEYWORDS: forensic science, DNA typing, population genetics, F13B, LPL, D3S1358, D18S51, D21S11, FGA, D10S2325, Brazil

Last decade DNA profiling STR loci has become widely used for human identification in forensic science and other related fields. Data banks for STR loci have not yet been established in Alagoas population, Brazil. The aim of this study was to carry out the analysis of allele frequencies of the loci F13B, LPL, D3S1358, D18S51, D21S11, FGA and D10S2325 in Alagoas, as well as to determine other statistics parameters of forensic and paternity interest. Specimens were collected from over 153 unrelated individuals living in Alagoas region—Northeastern Brazil. DNA was obtained from peripheral blood extracted with Chelex method as previously described (1). PCR reactions were performed and analysis of the products was made by polyacrylamide gel electrophoresis silver stained. Allele frequencies and others statistics parameters for forensic and paternity were determined for each locus by the Power Stats software (<http://www.promega.com/techserv/apps/>

hmnid)—Promega Corporation, USA (2). Observed and expected heterozygosity as well as calculations for Hardy-Weinberg Equilibrium were performed in Arlequin 2.0 software (<http://lgb.unige.ch/arlequin>) (3). None of the analyzed loci showed deviations from HWE ($p > 0.05$) in the population studied. A more complete data set can be accessed at <http://www.mhn.ufal.br/forense>.

References

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TABLE 1—Allele frequencies of the STR loci FGA, D21S11, D18S51, D10S2325, D3S1358, LPL and F13B in the population of Alagoas, Brazil.

FGA Alelo (<i>n</i> = 484)	D21S11 Alelo (<i>n</i> = 326)	D18S51 Alelo (<i>n</i> = 330)	D10S2325 Alelo (<i>n</i> = 306)	D3S1358 Alelo (<i>n</i> = 1142)	LPL Alelo (<i>n</i> = 854)	F13B Alelo (<i>n</i> = 836)							
17.2	0.002	24	0.003	10	0.006	6	0.039	12	0.002	7	0.001	6	0.167
18	0.012	25	0.003	11	0.015	7	0.137	14	0.089	8	0.007	7	0.068
19	0.067	27	0.028	12	0.127	8	0.036	15	0.287	9	0.064	8	0.172
19.2	0.002	28	0.163	13	0.094	9	0.088	16	0.271	10	0.403	9	0.254
20	0.108	29	0.193	14	0.142	10	0.190	17	0.215	11	0.259	10	0.329
21	0.170	30	0.215	15	0.158	11	0.157	18	0.125	12	0.214	11	0.010
22	0.152	30.2	0.018	16	0.136	12	0.203	19	0.011	13	0.052		
22.2	0.002	31	0.074	17	0.139	13	0.101						
23	0.156	31.2	0.117	18	0.091	14	0.036						
24	0.149	32	0.012	19	0.055	15	0.010						
25	0.113	32.2	0.117	20	0.009	16	0.003						
26	0.043	33	0.009	21	0.012								
27	0.016	33.2	0.021	22	0.009								
28	0.002	34	0.012	24	0.006								
29	0.002	35	0.012										
35	0.002	35.2	0.003										
38	0.002												

n = number of alleles.

TABLE 2—Statistic parameters of the seven loci analyzed in the population from the State of Alagoas, Brazil.

Locus	F13B	LPL	D3S1358	D18S51	D21S11	FGA	D10S2325
Forensic							
Matching probability	0.098	0.128	0.088	0.030	0.042	0.034	0.040
Express as 1 in ...	10.2	7.8	11.4	33.1	23.7	29.6	25.1
Power of discrimination	0.902	0.872	0.912	0.970	0.958	0.966	0.960
PIC	0.73	0.67	0.74	0.87	0.84	0.86	0.84
Paternity							
Typical paternity index	2.20	1.68	2.25	3.30	3.54	3.71	2.83
Power of exclusion	0.549	0.432	0.558	0.692	0.712	0.725	0.643
Variability							
Heterozygosity observed	77.3%	70.3%	77.8%	84.8%	85.9%	86.5%	82.4%
Heterozygosity expected	76.9%	71.9%	77.5%	88.3%	86.2%	87.2%	86.0%
HWE							
Exact test	<i>p</i> = 0.075	<i>p</i> = 0.224	<i>p</i> = 0.869	<i>p</i> = 0.512	<i>p</i> = 0.254	<i>p</i> = 0.632	<i>p</i> = 0.369