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FOR THE RECORD

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Allele Frequency Distribution of Five X-Chromosomal STR Loci in an Antioquian Population Sample (Colombia)

POPULATION: We have analyzed the distribution of the allele frequencies at five microsatellite loci (DXS6798, DXS6807, DXS7423, DXS6800, DXS8377) among males living and born in Antioquia (Colombia) ($n = 300$).

KEYWORDS: forensic science, DNA typing, population genetics, X-Chromosome, STR, DXS6798, DXS6807, DXS7423, DXS6800, DXS8377, Antioquia, Colombia.

Blood samples from unrelated Caucasian individuals from Antioquia (Colombia) were collected. DNA was extracted from 200 μL of peripherical blood by the salting-out procedure (1). The primer sequences of loci and cycling conditions were as recommended in previous studies (2–4) o from Genome Database (http://www.gdb.org). The PCR products were analyzed using denaturing 4% acrylamide-*bis*-acrilamide gel electrophoresis and detected by silver staining. Alleles were identified based on the number of repeats and their attribution was made by comparison with an in-house constructed allelic ladder and following the published nomenclature (2–4) and ISFG guidelines for STR analysis (5).

The gene frequencies were calculated using the software ARLEQUIN version 2000 (6). Statistical parameters of forensic interest were estimated with the formulae proposed by Desmarais et al. (7). Table 1 summarizes the allele frequency distribution for each locus. Forensic interest parameters are presented in Table 2. Complete data are available at the e-mail address of the corresponding author upon request.

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References

1. Miller SA, Dykes DD, Polesky HF. A simple salting-out procedure for extracting DNA from human nucleated cells. Nucleic Acids Res 1988;16:1215. [PubMed]
2. Edelmann J, Szibor R. Validation of HumDXS6807 short tandem repeat polymorphism for forensic application. Electrophoresis 1999;20:2844–6. [PubMed]
3. Edelmann J, Deichsel D, Hering S, Plate I, Szibor R. Sequence variation and allele nomenclature for X-linked STRs DXS9895, DXS8378, DXS7132, DXS6800, DXS7133, GATA172D05, DXS7423 y DXS8377. Forensic Sci Int 2002;129:99–103. [PubMed]
4. Shin SH, Yu JS, Park SW, Min GS, Chung KW. Genetic analysis of 18 X-linked short tandem repeat markers in Korean population. Forensic Sci Int 2005;147:35–41. [PubMed]
5. DNA Commission of the International Society of Forensic Haemogenetics. DNA recommendations—Further report of the DNA commission of the ISFH a regarding the use of short tandem repeat systems. Forensic Sci Int 1997;87:179–84.
6. Schneider S, Roessli D, Excoffier L. A software for population genetics data analysis. Geneva, Switzerland: Genetics and Biometrics Laboratory, University of Geneva, 2000.
7. Desmarais D, Zhong Y, Chakraborty R, Perreault C, Busque L. Development of a highly polymorphic STR marker for identity testing purposes at the human androgen receptor gene (HUMARA). J Forensic Sci 4 1998;3:1046–9.

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TABLE 1—*Allele frequencies of DXS6798, DXS6807, DXS7423, DXS6800 and DXS8377 loci in Antioquian population sample (Colombia) (n = 300).*

Allele	DXS6798	DXS6807	DXS7423	DXS6800	DXS8377
2	0.003				
4	0.013				
5	0.020				
6	0.033				
7	0.050				
8	0.060				
9	0.113				
9.2	0.003				
10	0.383				
11	0.213	0.437			
12	0.083	0.023			
13	0.017	0.137	0.030		
14	0.017	0.237	0.343		
15		0.147	0.397		
16		0.013	0.120	0.513	
17		0.007	0.110	0.013	
18				0.113	
19				0.263	
20				0.010	
21				0.077	
22				0.010	
40					0.007
41					0.010
42					0.027
43					0.057
44					0.087
45					0.100
46					0.163
47					0.080
48					0.123
49					0.073
50					0.100
51					0.087
52					0.047
53					0.020
54					0.020

TABLE 2—*Forensic efficiency of DXS6807, DXS7423, DXS6798, DXS8377 and DXS6800 markers in paternity analysis and identification (PE expected power of exclusion in paternity testing of a female child for standard trio cases and cases with unavailable mother, PD power of discrimination in identification of samples of male or female origin).*

LOCUS	PE_1	PE_2	PD_1	PD_2
DXS6807	0.6300	0.5260	0.9182	0.7117
DXS7423	0.6065	0.5007	0.9092	0.6973
DXS6798	0.7323	0.6282	0.9522	0.7802
DXS8377	0.8951	0.8193	0.9908	0.9043
DXS6800	0.5299	0.4523	0.8813	0.6486

PE_1: (trio); PE_2: (motherless); PD_1: (female sample); PD_2: (male sample).