D1S80 LOCUS POLYMORPHISM IN A POPULATION SAMPLE FROM LISBON

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INTRODUCTION

The amplification of the D1S80 locus, a variable number of tandem repeats (VNTR) locus, by the polymerase chain reaction (PCR), (Saiki et al, 1985) is an effective tool to forensic analysis (Budowle et al, 1995).

The objective of this work was to analyse the polymorphism of D1S80 locus in order to apply the data in forensic casework, as recommended by the DNA Commission of the International Society for Forensic Haemogenetics (1992).

This study was performed on a portuguese population sample from Lisbon.

MATERIAL AND METHODS

Blood samples were collected from 110 unrelated individuals from Lisbon.

DNA was extracted from blood stains using a chelating resin according to the method developed by Singer-Sam et al, (1989).

Amplification of the DNA samples was carried out by following the recommended protocol of the D1S80 Forensic DNA Amplification Reagent Set (Perkin-Elmer Cetus). PCR products were separated on Phast Gels 10-15 (Pharmacia LKB) and visualised by silver staining according to the method described by Barros et al, (1992).

RESULTS AND DISCUSSION

In the Lisbon population sample, 20 different D1S80 alleles were found and the most common alleles were 24 (f=0.3409) and 18 (f=0.2273).

The distribution of the observed D1S80 genotypes and the allele frequencies for the Lisbon population sample are shown in Table 1 and Fig. 1. forty three different genotypes were found and the most frequent genotype was 18-24 (f= 0.1273). As there are a large number of possible genotypes, for determining whether or not this population sample is in Hardy-Weinberg equilibrium, any genotype with less than five observations, was pooled (X^2 =7.996; df=7; $0.25<p<0.50$), (Budowle et al, 1991). This procedure was repeated with different allelic groups and no deviation was observed.

Table 1. Distribution of observed D1S80 genotypes from 110 individuals

Observed Genotypes	n	Observed Genotypes	n	Observed Genotypes	n	Observed Genotypes	n
16-24	1	18-29	6	22-24	2	24-36	1
17-24	1	18-31	2	22-25	1	25-27	1
18-18	6	18-33	1	22-29	1	25-28	2
18-20	1	18-37	1	22-31	1	25-29	1
18-21	2	19-22	1	24-24	16	25-30	1
18-22	3	20-29	1	24-25	4	28-29	1
18-24	14	20-34	1	24-27	2	28-30	1
18-25	1	21-24	3	24-28	5	29-29	3
18-26	2	21-25	1	24-29	4	29-37	1
18-27	1	21-26	1	24-31	5	31-36	1
18-28	4	21-29	1	24-32	1		

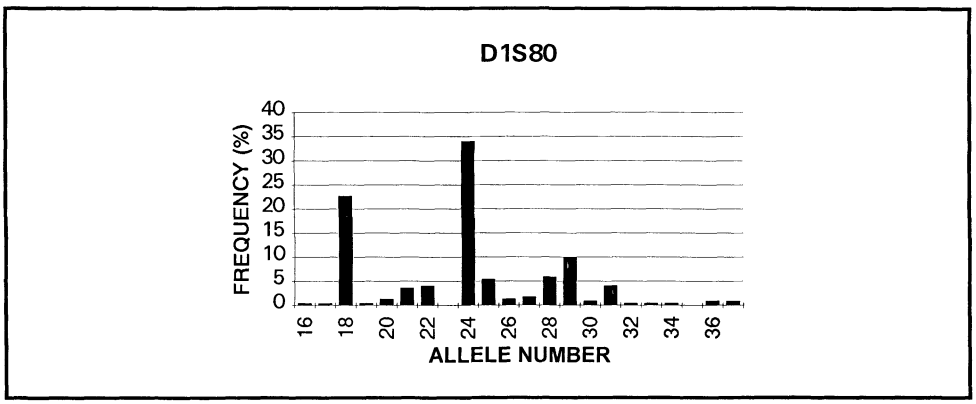

Figure 1. distribution of D1S80 alleles in a population sample from Lisbon (n= 110)

The observed heterozygosity (0.773) and the allelic diversity (h=0.814) for this sample are in agreement with Hardy-Weinberg equilibrium.

The discrimination power (PD) of D1S80 locus for this population sample was estimated as 0.9446.

A comparison between the allele frequencies distribution for Lisbon population sample and other Caucasians data, mainly from Portugal and Spain, showed only slight differences (Budowle et al, 1995; Lareu et al, 1993; Sanz et al, 1993).

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