

SHORT COMMUNICATION

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The Y-STRs DYS19 and DYS390 in a south-east Hungarian (Szeged area) population

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Abstract The allele frequencies of DYS19 and DYS390 located on the Y chromosomes were determined from male bloodstain samples of 308 (DYS19) and 268 (DYS390) unrelated male adults in south-east Hungary. Six alleles could be distinguished in both systems, yielding 22 DYS19/DYS390 halotypes in a subset of 239 males.

Key words Short Tandem Repeat · Y-chromosome · DYS19 · DYS390 · Hungary · Population

Introduction

The examination of STR systems located on the Y chromosome is significant for parentage testing and forensic examination (Jobling et al. 1997). DYS19 and DYS390 variation in the Szeged area of south-east Hungary is presented in this publication. The locus DYS19 is located on the short arm of the Y chromosome and is based on a CTAT/C repeat motif with 10–19 repeats. Ten alleles have so far been identified (Roewer et al. 1992, Kayser et al. 1997, de Knijff et al. 1997). Ten alleles of DYS390 are also known, and range from 18 to 27 (CTG/AT) repeats (Kayser et al. 1997, de Knijff et al. 1997).

Materials and methods

DNA was extracted with the chelex method (Walsh et al. 1991) from air-dried blood on cotton fabric from 308 unrelated adult males typed for the DYS19 locus and 268 adult males typed for the DYS390 locus from south-east Hungary (Szeged area). PCR amplification was performed on a PTC 100 Thermocycler (MJ Research Inc.) following the method of Kayser et al. (1997). The genotypes were detected by polyacrylamide gel electrophoresis described by Wiegand et al. (1993), after which silver nitrate staining was applied (Budowie et al. 1991). The statistical analyses were performed using halotype diversity (Nei 1987).

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Table 1 DYS19 and DYS390 allele frequencies in south-east Hungary

Allele	DYS19	DYS390
13	0.088	
14	0.256	
15	0.260	
16	0.290	
17	0.101	
18	0.006	
21		0.004
22		0.097
23		0.187
24		0.470
25		0.224
26		0.019

Table 2 DYS19/DYS390 halotypes in south-east Hungarians

Haplotype	DYS19/DYS390	<i>n</i>	Frequency
1	13/23	3	0.0126
2	13/24	17	0.0711
3	13/25	3	0.0126
4	14/22	8	0.0335
5	14/23	22	0.0921
6	14/24	26	0.1088
7	14/25	8	0.0335
8	15/21	1	0.0042
9	15/22	11	0.0460
10	15/23	19	0.0795
11	15/24	22	0.0920
12	15/25	8	0.0335
13	15/26	1	0.0042
14	16/22	2	0.0084
15	16/23	6	0.0251
16	16/24	34	0.1423
17	16/25	22	0.0921
18	17/23	3	0.0126
19	17/24	13	0.0544
20	17/25	8	0.0335
21	17/26	1	0.0042
22	18/24	1	0.0042

Results

The allele frequency distribution for DYS19 ($n = 308$) and DYS390 ($n = 268$) are summarised in Table 1. In Szeged, the most frequent DYS19 allele has 16 repeats, similar to a sample from Slovakia, but unlike west European samples from Germany, Italy and England, where the dominant DYS19 allele has 14 repeats (Kayser et al. 1997, de Knijff et al. 1997). The DYS390 allele frequency distribution does not diverge to a similar degree when comparing the Szeged sample to the same populations. In Table 2, the 22 resulting DYS19/DYS390 halotype for 239 males are presented. The most common halotype is 16/24 with a frequency of 14.2%, and the halotype diversity is 0.924.

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