

SHORT COMMUNICATION

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F13B and CD4 allele frequencies in an Austrian population sample

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Abstract Allele frequencies of the two short tandem repeat (STR) systems F13B and CD4 were determined in an Austrian population sample by PCR analysis. A total of 6 alleles for F13B and 8 alleles for CD4 could be observed in a population of 216 (F13B) and 198 (CD4) unrelated individuals. No significant deviations from Hardy-Weinberg equilibrium were observed.

Key words Short tandem repeats (STR) · F13B · CD4 · Allele frequencies · Austria

Introduction

The two short tandem repeat (STR) systems F13B (Nishimura and Murray 1992) and CD4 (Wall et al. 1993) are widely used in forensic casework. This paper presents allele frequency data in an Austrian population sample.

Materials and methods

DNA was isolated from blood samples from unrelated individuals living in the Salzburg region of Austria. Leukocytes were isolated and lysed with Proteinase K (2 mg/ml) and DNA extracted with phenol/chloroform followed by ethanol precipitation. For PCR amplification 1–3 ng was used using published primer sequences and protocols (Nishimura and Murray 1992; Wall et al. 1993). Electrophoresis of PCR products was according to previous described methods (Neuhuber et al. 1996; Wiegand et al. 1993).

The mean exclusion chance (MEC), mean exclusion probability (MEP), polymorphism information content (PIC), probability of match (pM) and the discrimination power (D) were determined using the computer programme HWE-Analysis, Version 3.1 (Christoph Puers, Institute for Legal Medicine, University of Münster) (Tables 1, 2).

Table 1 Allele frequencies for F13B ($n = 216$ individuals). MEC = 0.457, MEP = 0.439, PIC = 0.656, pM = 0.139, D = 0.861. Observed and expected heterozygosities are 0.6991 and 0.7070 ± 0.0607 respectively

Allele	Frequency
6	0.090
7	0.016
8	0.245
9	0.225
10	0.419
11	0.005

Table 2 Allele frequencies for CD4 ($n = 198$ individuals). MEC = 0.429, MEP = 0.428, PIC = 0.638, pM = 0.155, D = 0.845. Observed and expected heterozygosities are 0.7071 and 0.6998 \pm 0.0638 respectively

Allele	Frequency
5	0.337
6	0.331
7	0.003
8	0.003
9	0.010
10	0.278
11	0.025
12	0.013

Results

For F13B 6 alleles could be observed (population size 216 individuals) and 8 alleles were found for CD4 (population size 198 individuals).

Expected and observed heterozygosities (H. exp, H. obs) are listed in Tables 1 and 2. No significant deviation from Hardy-Weinberg-equilibrium (exact test; Guo and Thompson 1992) was found for both STR systems ($P > 0.05$). The discrimination power (Jones 1972) is 0.861 for F13B and 0.845 for CD4.

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