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South Portugal population genetic analysis with 17 loci STRs

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Abstract. It was necessary to establish a statistically significant population database from South Portugal residents for further reliable statistical analysis in forensic cases. Genetic analysis of 17 loci was performed on samples obtained from 2723 south Portugal residents after informed consent. Allele frequencies and statistical parameters were calculated for each locus.

Keywords: Powerplex 16; Identifiler; Genetic frequencies; Forensic statistical parameter

1. Introduction

It was necessary to establish a statistically significant population database from South Portugal residents for further reliable statistical analysis in forensic cases. Genetic analysis of 17 loci from 2723 south Portugal residents samples, was performed with AmpF1STR®Identifiler™ (Applied Biosystems) and Geneprint Powerplex®16 (Promega Corporation, Madison, WI, USA) routinely used in our laboratory.

2. Material and methods

Oral swabs and blood samples were obtained from unrelated 2723 South Portugal residents. DNA was extracted from samples using Chelex™100 resin method [1]. Amplification conditions were identical to those proposed by the manufacturers and carried out in a 9700 Perkin Elmer® Applied Biosystems thermocycler [2,3]. The amplified products were analysed using the ABI Prism 3100 DNA sequencer (Applied Biosystems). Allele frequencies and statistical parameters were calculated.

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3. Results and discussion

Table 1 (see Appendix A) shows the allelic frequencies and statistical parameters in the population studied. The combined Power of Discrimination for the 17 loci was >0.9999999999999999, and the combined probability of exclusion was 0.99999999973. Concerning Hardy–Weinberg equilibrium genotype deviations ($p > 0.01$) were observed in the systems Penta D, vWA, and D2S1338.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.ics.2005.10.068.

References

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