

POPULATION GENETIC DATA ON 5 AUTOSOMAL AND 8 Y-CHROMOSOMAL STR LOCI IN 2 HUNGARIAN POPULATIONS

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A collection of 5 autosomal (D3S1358, FGA, D5S818, D13S317, D7S820) and 8 Y-chromosomal STR loci (DYS19, DYS389-I, DYS389-II, DYS390, DYS391, DYS392, DYS393, DYS385) was used to generate population databases for two Hungarian population samples, Caucasians from the Budapest area and Romanies from Baranya County. For the PCR amplification of the autosomal markers the AmpF/STR Profiler™ Kit was used. A sizing precision of ≤ 0.14 nucleotide standard deviation was obtained with capillary electrophoresis carried out on an ABI™ Prism® 310 Genetic Analyzer. Objective and accurate genotyping is thus possible using the internal size standard CXR 60-400 (Promega Corp.) with a high density of fragments. There was little evidence for association of alleles within/between the 5 autosomal STR systems. Allele frequency distributions at most markers were significantly different between the Romany and the Central Hungarian population databases. At the locus DYS385, three types of intermediate sized alleles were detected in six males. The presence of a (GA) dinucleotide, probably due to an (AA) deletion in the second (GAAA) repeat of the polymorphic repeat region leads to an intermediate allele 17.2. The intermediate alleles 17.-1 and 18.-1 with the consensus repeat structure of (GAAA)17 and (GAAA)18, respectively, were found to lack a T in the same (T)7 stretch located within the 3' flanking region of each allele. The forensic efficiency values of Y-STR database for the Romany population were significantly lower than those found in the Central Hungarian and other non-isolated Caucasian populations, which may imply a possible common paternal ancestry of some haplotypes in the Romany sample. With pairwise comparisons of inter-population molecular variance (AMOVA), the two populations could be distinguished significantly using data of the investigated STRs. The results suggest that the population structure may have an effect on the interpretation of forensic DNA evidence in Hungary.

