A Polish Population Study of Y-Chromosome Polymorphic Loci

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Nonpseudoautosomal portion of the Y-chromosome is male specific, haploid and free of genetic recombination. In particular significance for identification tests in forensic aspects are STR type sequences. More then 20 highly variable Y-chromosome specific STR markers are now available which make the forensic and evolutionary application of Y variation feasible.

The object of this work was to examine the DYS19, DYS390 and DYS393 system allele frequencies in the population of northern Poland and the possibility of its application in forensic casework.

In the present study carried out on at least 145 DNA samples taken from unrelated males from the Gdansk area, PCR amplification of DYS19, DYS390 and DYS393 was performed. PCR products were separated in denaturing conditions on vertical polyacrylamide gels or in denaturing conditions using capillary electrophoresis (ABI Prism 310).

Comparison of alleles distribution for the DYS19, DYS390 and DYS393 loci shows statistical differences between Polish and other Caucasian populations. The preliminary frequencies of DYS19, DYS390 and DYS393 haplotypes are presented and possible forensic applications of the analyzed systems are discussed.