Y-STR haplotypes in Japanese using PowerPlex® Y System

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Typing of the polymorphic short tandem repeat (STR) loci on the Y-chromosome is a useful tool for forensic cases and paternity tests as well as tracing human evolution. We investigated 11 Y-chromosome markers, namely DYS19, DYS385, DYS389I and II, DYS390, DYS391, DYS392, DYS393, DYS437, DYS438 and DYS439 in 323 unrelated Japanese males using the PowerPlex Y System (Promega). Genomic DNA was extracted from buccal swab using proteinase K and Chelex 100 treatment followed by the phenol/chloroform extraction. PCR was performed in accordance with manufacture's protocols. Electrophoresis was carried out of an ABI 310 Genetic Analyzer and the alleles were determined by GeneScan 3.7 software (Applied Biosystems). The DYS385 locus proved to be highly polymorphic (gene diversity: 0.945), DYS391 showed the lowest value (0.179), and the other loci showed values ranging from 0.186 to 0.744. A total of 272 different haplotypes were found from 323 males, of which 250 were unique, and 13, three, four, one and one were found in two, three, four six and 16 individuals, respectively. The observed haplotype diversity value was 0.9934 and discrimination capacity was 0.842. Comparisons were made with previously published allele frequency data on other Japanese samples and no significant differences were found. The results demonstrate that this Y-STR kit will be useful for human identification in forensic cases and paternity tests in Japanese.