EVALUATION OF THE POTENTIAL OF SINGLE NUCLEOTIDE POLYMORPHISMS (SNPS) FOR CURRENT AND NEW APPLICATIONS IN HUMAN IDENTIFICATION

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Single nucleotide polymorphisms (SNPs) are a recently rediscovered type of polymorphism. Although not new, technological developments enable their rapid discovery and assay. Thus, they can potentiality be used for human identification. However, their utility should be carefully examined before application. We examine their properties from a population genetic perspective, and discuss their strengths and weaknesses with respect to current systems, STRs in particular. We show that approximately 20 reasonable polymorphic SNP loci are required to match current 9 locus STR systems, and approximately 35 SNP loci are required to match the power of the CODIS 13 for a single profile. Many more SNPs are required to match STRs when working with mixture. Finally, we show that SNP loci can be used to estimate the number of contributors to a mixture.

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