

# Applications of Autosomal SNPs and Indels in Forensic Analysis

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**REFERENCE:** Phillips: Applications of autosomal SNPs and Indels in forensic analysis; *Forensic Sci Rev* 24:43; 2012.

**ABSTRACT:** The potential applications of short binary markers to forensic analysis are reviewed. Short binary markers are the most common human genomic variation and include single nucleotide polymorphisms (SNPs) and insertion/deletion polymorphisms (Indels). This review outlines their use and performance in typing highly degraded DNA — the original rationale for developing SNPs for forensic analysis — as well as their ability to infer the ancestry or likely pigmentation characteristics of an individual not present on a national DNA database, thus potentially providing investigative leads. Throughout the review, reference is made to short Indels as a new and potentially powerful alternative to SNPs for enhancing short tandem repeat (STR) results by using a simple amplification to capillary electrophoresis (PCR-to-CE) technique that retains the direct relationship between input DNA and signal strength, offering much improved mixture-detection capabilities while retaining the favorable characteristics of short amplicon PCR.

**KEY WORDS:** Ancestry, degraded DNA, Indels, insertion/deletion polymorphisms, pigmentation, short tandem repeat, single nucleotide polymorphisms, SNPs, STRs.

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