DEVELOPMENTAL VALIDATION OF THE AMPFLSTR® MINIFILER™ PCR AMPLIFICATION KIT: A 9-PLEX MINISTR ASSAY FOR THE ANALYSIS OF COMPROMISED DNA SAMPLES

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Forensic DNA typing is facilitated by the employment of highly polymorphic STRs. Despite their relative small size (100-400 bp), DNA degradation due to environmental exposure could result in a lack of sufficient intact target fragments to generate a complete genetic profile. The problem is magnified when large multiplex STR reactions are used due to the wide fragment size range of the amplified PCR products e.g. the largest STR loci fall below the detection limit due to preferential amplification of the smaller loci. In recent years, successful recovery of information from degraded DNA samples has been accomplished through reduction of the size of the STR PCR products by moving primers in as close as possible to the STR repeat region. In an effort to increase the amount of information derived from compromised DNA samples we have redesigned as miniSTRs the largest eight loci in the AmpFlSTR® Identifiler® PCR Amplification Kit (D7S820, D13S317, D16S539, D21S11, D2S1338, D18S51, CSF1PO, FGA). Five of these loci (D16S539, D21S11, D2S1338, D18S51 and FGA) also represent five of the largest loci in the AmpFlSTR® SGM Plus® kit. Size reduction of the STR amplicons ranged from 33 to 208 bp. This highly informative 9-locus multiplex, which includes the sex determining locus Amelogenin, employs a 5-dye labeling technology and mobility modifiers to enable simultaneous CE separation of the DNA fragments. In this presentation, results from a developmental validation study of the AmpFlSTR® MiniFiler™ PCR Amplification Kit will be described.