VALIDATION OF THE AMPF*I*STR™ IDENTIFILER PCR AMPLIFICATION KIT

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The expansion of state legislation for submission of a wide-range of offender samples has led to a situation where even the most prepared and well-equipped laboratories have large sample backlogs. Previously, submission of these samples to CODIS required information garnered from two separate PCR reactions. To simplify this process and increase databasing throughput, we developed a new STR kit, Ampf*I*STR™ Identifiler. This kit amplifies 15 tetranucleotide loci (13 core CODIS loci, plus D2S1338 and D19S433 loci), and the gender identification locus, Amelogenin, in a single PCR reaction. All loci are simultaneously detected on the ABI Prism® platforms in a single lane or injection. D2S1338 and D19S433 are internationally recognized and endorsed by the European Network of Forensic Science International (ENFSI). Ampf*I*STR™ Identifiler kit contains all genetic loci present in Ampf*I*STR Profiler Plus™, Ampf*I*STR COfiler™, and Ampf*I*STR™ SGM Plus kits.

The design goals for this multiplex were to maintain identical primer sequences from existing Ampf*I*STR™ kit products and to amplify all loci in a single reaction. Using existing Ampf*I*STR™ primer sequences ensures genotyping concordance with NDIS approved PCR amplification kits. To accommodate all 15 STRs in a single amplification, a 5-dye system has been developed with four (4) fluorescent dyes to label sample loci and a fifth dye used to label an in-lane size standard. The development of a 5-dye system further enhances throughput capabilities on existing ABI Prism® instrument platforms.

In this talk, validation studies performed for this new STR multiplex kit will be described. These studies include results on PCR parameter conditions, sensitivity, and specificity. In addition, the results will be presented from concordance studies comparing genotypes from Ampf*I*STR™ Identifiler kit to Ampf*I*STR Profiler Plus™, Ampf*I*STR COfiler™, and Ampf*I*STR™ SGM Plus kits generated on three different platforms: ABI Prism® 310 Genetic Analyzer, 377 DNA Sequencer, and 3700 Genetic Analyzer. Coupled with appropriate instrument and software solutions, the complete CODIS profile generated in a single Ampf*I*STR™ Identifiler amplification kit will help reduce the backlog of convicted offender samples.