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A VALIDATION STUDY OF ABI'S AmpF/STR® MiniFiler™ Kit FOR USE ON DEGRADED DNA SAMPLES

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Currently, laboratories employ a wide variety of commercially available STR kits in the genotyping of DNA samples for human identification purposes. These commercial kits are the methods of choice for DNA analysis and have proven to be reliable techniques. However, there are some limitations with these methods such as the amplicon sizes produced (range of 75-500+ nucleotides), their susceptibility to PCR inhibitors, and the optimum DNA concentration requirements (~1ng). These factors limit the amplification success, specifically, when degraded and/or inhibited DNA samples are handled. The overall DNA analysis process for handling challenging samples would benefit from the implementation of a novel, validated process that offers the ability to amplify shorter size STR fragments, is more resistant to PCR inhibition, and that also requires less DNA sample to produce reliable results. The ABI AmpF/STR®MiniFiler™ PCR Amplification Kit has been optimized for STR typing of degraded DNA as well as for DNA that contains known PCR inhibitors. The amplicon sizes are smaller (<283 nucleotides) and the input DNA requirement is <1ng. Taken together, these features offer a promising approach for handling forensic samples that are degraded and/or inhibited. Orchid Cellmark Inc. has successfully completed a validation study following SWGDAM standards for use of the MiniFiler™ Kit in forensic casework samples. Details of the validation study as well as data obtained from highly degraded samples will be presented.