COMPATIBILITY OF BODE ARMOR AND DIRECT AMPLIFICATION CHEMISTRIES

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Preservation of DNA databanking samples is critically important to enable the laboratory to retest reference samples when a CODIS hit occurs. Bode Buccal DNA Collection devices, through an ongoing stability study, have shown stability of buccal samples at the ten year time point. Accelerated time studies of samples stored in the Bode Vault and treated with the preservative Bode Armor have yielded data indicating stability of buccal DNA samples for greater than 30 years. Bode Armor preserves DNA by inhibiting common factors that cause DNA degradation.

Direct amplification of reference samples eliminates the need for the time consuming extraction and quantification steps encountered in routine processing. During direct amplification, a 1.2mm punch from the Bode DNA Collector is placed directly into the well with the reaction mix. Due to this direct interaction, Bode Armor must not only preserve DNA but it must also not inhibit the amplification reaction. Therefore, reaction conditions were optimized to directly amplify DNA from the Bode Buccal DNA Collector using four STR megaplex kits.

This presentation will describe the studies and results obtained through direct amplification of buccal cells with Promega® Fusion and Fusion 6C, Thermo Fisher's Globalfiler™ Express Kit and Qiagen's Investigator® 24Plex GO! Kit. For each megaplex kit, a minimum of twenty-five pairs of collectors were analyzed. One collector was treated with the preservative Bode Armor while the other was left untreated. 1.2 mm punches were removed from both collectors and amplified with all four STR kits. The amplified products were analyzed using the Applied BioSystems™ 3500 Genetic Analyzer and GeneMapper ID-X software . Data was analyzed comparing RFU values, inter locus and intra color balance, and DNA profile success rates for both the Bode Armor treated and untreated samples. Although minor differences were observed for inter locus and intra color balance, pairwise comparisons of the DNA profiles were 100% concordant between the Bode Armor treated and untreated samples. Bode Armor successfully enhances buccal sample stability without impacting DNA profiling success.