HAMILTON EASYPUNCH VALIDATION FOR USE IN THE DIRECT AMPLIFICATION OF EASICOLLECT™+ FTA™ CARDS

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The Wisconsin DNA Databank Unit is in the process of implementing new DNA sample collection kits for individuals convicted or arrested of qualifying crimes that will incorporate the GE Healthcare's EasiCollect™+ FTA™ Card device. These new collections kits will allow a significant reduction in cost and an increase to efficiency while maintaining a high success rate in the DNA analysis of Wisconsin's databank samples. The purpose of this study was to validate Hamilton's easyPunch robotic system for transferring amplification reagents and punching FTA™ cards to directly amplify DNA using the PowerPlex® Fusion 6C amplification system. Additionally, the Hamilton easyPunch will be evaluated to transfer reference DNA buccal swab lysate samples to amplification plates for direct amplification of DNA.

Adjustments were made to Hamilton's Standard Solution methods to eliminate errant punches, and sample carry-over and to optimize punch location and recognition. The validation demonstrated that two cleaning punches followed by one 1.2mm FTA™ card punch reliably produced quality single source STR DNA profiles. All samples were amplified with a half volume, direct amplification protocol for PowerPlex® Fusion 6C amplification system using 26 cycles on a GeneAmp 9700 thermal cycler and run on an ABI 3500xL Genetic Analyzer. STR DNA profiles were analyzed using Gene-MapperIDX v1.4. To evaluate the swab lysate sample transfer method, modifications were made to sample racks. In conclusion, the Hamilton easyPunch system will allow the Wisconsin State Crime Laboratory to streamline sample processing for the DNA Databank Unit while maintaining a high level of integrity.