EVOLUTION OF RAPIDHIT ID SYSTEM

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Crime fighting in the 21st century necessitates improved investigation methods, and increased partnership between crime labs and investigation units. Rapid DNA technology emerged over a decade ago as a way of confirming a suspect's identity while still in custody. Improvements in size and usability of recent RAPID DNA technology systems have enabled additional usage in non-laboratory environments such as police booking stations and border checkpoints. The next step in this evolution is the recent enhancements we present here; improved capabilities for use with investigative leads samples. These improved capabilities were achieved by enhancing the PCR amplification, improving lysis and adjusting the analysis parameters to ensure maximum recovery of alleles while still returning 100% concordant genotypes under these new conditions. The goal of this study was to assess the newly optimized RapidHIT ID System for the analysis of investigative leads samples with Globalfiler Express chemistry. This included low and mid-level saliva and blood samples, mixtures of saliva, purified DNA and casework sample types. Instrument performance was excellent, with all runs completed and 99% of samples returning a profile. Concordance studies resulted in 100% concordance for unflagged loci. For sensitivity studies, improved performance with low-level samples was demonstrated. All mixture samples were flagged appropriately. Many of the casework samples returned usable profiles. We show that the new Rapid Intelligence protocol demonstrated a significant improvement in sensitivity. The results of this study conclude that the Applied Biosystems RapidHIT ID System provides a useful solution, allowing law enforcement personnel to generate investigative leads and identify suspects faster.