DIRECT AMPLIFICATION OF FORENSIC TOUCH DNA SAMPLES

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Because property crime offenders have high recidivism rates and the types of crimes they perpetrate can escalate, solving property crimes can also help prevent violent crimes. According to a study by Palm Beach County Sheriff's Office Forensic Biology Unit, nearly 90% of the samples collected from property crimes are touch evidence samples and 45% of the CODIS hits are from touch samples. Although its effectiveness is well recognized and documented, DNA technology has not been widely adopted for routine use by law enforcement communities for solving property crimes. This is mainly due to the inefficiency of current technologies for processing touch DNA samples, which in turn contributes to the high processing cost and low success rate. Because of their reliance on conventional DNA extraction and purification before STR typing, all current touch DNA sample processing workflows are tedious, time consuming and difficult to automate. In addition, since touch DNA sample contains small amounts of DNA and most of the current workflows have relative a large elution volume, further concentration of the DNA sample after DNA purification is required, and this contributes further to the workflow complexity and DNA loss. In this presentation we introduce a transformative technology which allows direct amplification of forensic touch DNA samples without any complicated DNA extraction and purification. Because there is no sample prep, this workflow is extremely simple and fast. The effectiveness of this workflow on processing a broad range of forensic touch samples has been demonstrated. Detailed workflow and example STR typing results will be described.