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Review

Rapid PCR of STR markers: Applications to human identification

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Highlights:

This provides a comprehensive review of various approaches to perform Rapid DNA analysis covering reagents to fully integrated system such as RapidHIT. The review contains a summary of the currently available integrated systems.

Summary of integrated platforms performing STR typing:

Device	Assay	Success (%)	Time (min)	Reference number
RapidHIT 200	PowerPlex 16	89	90	[101]
RapidHIT 200	PowerPlex 16	94.7	90	[102]
RapidHIT 200	PowerPlex 16	94	90	[103]
RapidHIT 200	PowerPlex 16	95*	90	[104]
RapidHIT 200	PowerPlex 16	74	90	[105]
RapidHIT 200	PowerPlex 16	94	90	[106]
RapidHIT 200	PowerPlex 16	95.3	90	[107]
RapidHIT 200	GlobalFiler Express	100	100	[108]

LGC ParaDNA has good success, however; this is only for 5 STR's so this product has very limited use and cannot be compared to our NDIS approved 24 loci GlobalFiler cartridge.

RapidHIT offers superior performance compared to NetBio. The RapidHIT data presented is from multiple sources and highly consistent across these multiple sites and users – NetBio is only one reference point

Also detailed in the review is that RapidHIT can be used to process crime scene samples under the run other protocol. Several examples are cited including cigarette butts, cigar butt, drinking items and chewing gum. This can be further expanded upon by showing customers the White paper and poster from Richland County on the Validation and Incorporation of RapidHIT Technology into Routine Forensic DNA Casework.

Final part of the review refers to the use case for Rapid DNA to provide investigative leads and deployments outside of the lab environment (point-of-contact collection) since the systems are fully integrated and provide sample-to-profile in less than 2 hours. We are able to substantiate this with our user cases from Arizona Department of Public Safety, Richland County Sheriff's Office and Palm Bay Police Department.