

VALIDATION OF APPLIED BIOSYSTEMS' AMPF ℓ STR MINIFILER PCR AMPLIFICATION KIT

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Presented is a review of the North Louisiana Crime Lab's validation of Applied Biosystems' AmpF ℓ STR MiniFiler PCR amplification kit. At the North Louisiana Crime Lab, like many forensic labs across the country, evidentiary samples are submitted that have undergone accelerated degradation due to exposure to hazardous environmental conditions. This can prohibit a DNA analyst from obtaining a full DNA profile; where the first loci to drop out are the larger STR loci. Only until recently, with the development of the AmpF ℓ STR MiniFiler PCR amplification kit, could these loci be recovered. This is because the primers used to target a given STR loci sit closer to the repeat region itself making the target amplicon much smaller in size. Thus they are more likely to be amplified in compromised samples. At the North Louisiana Crime Lab, through conducting our validation study, we have determined that the MiniFiler kit is robust and reliable. We have examined the limit of detection for single-source and mixed samples for this amplification kit. Partial profiles were able to be obtained with as little as 25 pg of input DNA for the single-source samples while the MiniFiler kit was able to detect mixtures all the way down to a 15:1 mixture. Non-probative samples were typed correctly using this kit. However, one problem faced at the North Louisiana Crime Lab was trying to find degraded non-probative samples to type for this validation study. That is why an additional artificial degradation study was performed using

Dnase I. Some problems were also encountered with the AmpFISTR MiniFiler kit and will be discussed here. In conclusion, by viewing this poster, one will gain a better knowledge on the sensitivity and robustness of this amplification kit, some issues encountered with this kit, and how to perform an appropriate validation for the AmpF ℓ STR MiniFiler PCR amplification kit.