VALIDATION OF THE InnoQuant® DNA QUANTIFICATION & DEGREDATION ASSESSMENT KIT AND THE InnoTyper® 21 PCR AMPLIFICATION KIT FOR USE ON FORENSIC SAMPLES

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The availability of robust, sensitive DNA testing systems that enable the analysis of highly degraded and/or inhibited samples continues to be a need for forensic practitioners. Recently, InnoGenomics introduced two systems specifically developed for degraded, low level and/or inhibited sample analysis that have been useful in generating probative results from human remains samples and hair samples that have no root.

This poster will provide a summary of the validation of the InnoQuant® and InnoTyper® 21 kits performed by DNA Solutions in compliance with QAS and ISO17025:2005 requirements, highlighting the utility for testing challenging samples such as human remains and rootless hair shafts. A total of 90 samples and 200 replicates were evaluated during this validation study. A specific version of the InnoQuant® Kit ("InnoQuant H-dye") was utilized that enables compatibility with the BioRad CFX Real-Time PCR System in use at DNA Solutions. Studies included: minimum threshold and contamination, sensitivity and stochastic, precision/reproducibility, mixtures, standard curve and control metrics evaluation, NIST accuracy and inter-laboratory testing, and known and non-probative samples. In addition, several protocol modifications, i.e. post-PCR clean-up of amplicons and half reaction volumes (12.5 µL) were evaluated with the InnoTyper® 21 kit to enable increased recovery of genotype information from extremely challenging single source samples. Data will be presented that demonstrates the utility of the InnoQuant® and InnoTyper® 21 Kits for a variety of sample types with high accuracy and sensitivity, good precision and reproducibility, and without contamination. Data showing the ability to recover results from complex forensic samples suffering from low DNA quantity, DNA degradation and/or PCR inhibition will be presented.