

DIRECT QPCR QUANTIFICATION USING THE QUANTIFILER® TRIO DNA QUANTIFICATION KIT

Jason Liu

Thermo Fisher Scientific

The effectiveness of a direct quantification assay is essential to the adoption of the combined direct quantification/direct STR workflow. In this paper, the feasibility of using the Quantifiler® Trio DNA quantification kit for the direct quantification of forensic casework samples was investigated. Both low-level touch DNA samples and blood samples were collected on PE swabs and quantified directly. The increased sensitivity of the Quantifiler® Trio kit enabled the detection of less than 10pg of DNA in unprocessed touch samples and also minimizes the stochastic effect experienced by different targets in the same sample. The DNA quantity information obtained from a direct quantification assay using the Quantifiler® Trio kit can also be used to accurately estimate the optimal input DNA quantity for a direct STR amplification reaction. The correlation between the direct quantification results (Quantifiler® Trio kit) and the direct STR results (GlobalFiler™ PCR amplification kit*) for low-level touch DNA samples indicates that direct quantification using the Quantifiler® Trio DNA quantification kit is more reliable than the Quantifiler® Duo DNA quantification kit for predicting the STR results of unprocessed touch DNA samples containing less than 10pg of DNA.

*: For Forensic or Paternity Use Only.