

VALIDATION OF CASEWORKDIRECT KIT: A FAST AND RELIABLE FORENSIC SAMPLE DNA EXTRACTION

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Sexual assault and touch DNA sample have limited DNA and thus it's crucial to get as much of DNA for STR analysis. Standard extraction methods for forensic samples are often laborious and DNA might lose from repeated washing steps. Promega has introduced a new kit called Casework Direct which can perform quick DNA extraction that can be done within 1 hour including incubation step and no washing step required. This kit is useful for Y-screening and extraction of trace DNA samples. Casework Direct Kit is always used together with the PowerQuant® System which can provide information regarding autosomal/male DNA quantity, degradation, and inhibition indication thereby assist in decision making of using either Auto or Y-STR analysis to get better STR profile or the need of getting new sample. We present data evaluating the CaseworkDirect kit using PowerQuant® System on sensitivity studies using serial male blood dilution and semen dilution in the presence of abundance female DNA. The casework direct kit can reliably and consistently extract DNA from blood and semen diluted in 1:100 fold with full Auto- and Y-STR profiles. For the semen diluted in 1:1000 fold and spotted on female buccal swab, the casework kit can extract up to 0.0063-0.0074 ng/ul Y DNA and produce partial Y-STR profile. We further tested the extraction on real casework sample like semen stained/blood stained swab, blood stains from cutting (paper, nylon, black jeans) and touch DNA, this kit can extract quantifiable DNA and produce good Auto- and Y-STR profile.