

## PERFORMANCE EVALUATION OF THE NEW EZ1 ADVANCED XL FOR FORENSIC APPLICATIONS

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Forensic DNA laboratories are challenged by the requirement to provide results on the identity of genetic evidence within a very short time. This holds true for important casework evidence as well as for reference samples taken from suspects. It is therefore important to start DNA extraction immediately after reception of samples. This in turn leads to small batches of samples that have to be processed in parallel in an efficient manner. Fast low-throughput robotic extraction systems like the BioRobot EZ1® have found widespread utilization for that purpose.

Recently a second generation system has been developed incorporating additional functionalities to meet increasing requirements regarding forensic process safety: An UV lamp decontaminates the inner surface of the workstation, which helps to eliminate sample carryover from run-to-run. Forensic data management and chain of custody are improved in the new system. Bar code reading enables complete tracking of samples and reagents throughout the entire purification process. Reagent identification and lot numbers are logged and all relevant process information is documented in a report file.

Like its predecessor, the EZ1 Advanced XL enables nucleic acid purification from a wide range of forensic reference and casework samples, utilizing proven prefilled reagent strips. Throughput is increased to accommodate the simultaneous extraction of up to 14 samples in a single run. Data will be presented on the automated extraction of DNA from reference and case work samples using the new platform. Study data cover concordance to the predecessor platform, yield, sensitivity, and cross-contamination experiments.