

DEVELOPMENT OF A NEW PLATFORM FOR FULLY AUTOMATED MEDIUM- TO HIGH-THROUGHPUT PURIFICATION OF NUCLEIC ACIDS FROM A BROAD SPECTRUM OF FORENSIC SPECIMENS

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QIAsymphony SP is a novel robotic platform for fully automated medium- to high-throughput purification of DNA, RNA, or proteins using magnetic-particle technology. Pre-filled, sealed reagent cartridges and plasticware are loaded into drawers, providing unprecedented ease of use, swift platform start-up, and process safety. Automated detection of consumables and barcode reading of samples, reagents and eluates provide full data and reagent tracking throughout the purification process. The platform is operated via an integrated touchscreen monitor and allows processing of multiple batches in continuous feed operation. Any number of samples between 1 and 96 can be processed per run using optimized, ready-to-run protocols ensuring standardized processing of samples.

Protocols have been developed for the extraction of molecular targets from a broad range of sample types. Dedicated protocols allow for either quantitative recovery of DNA, or normalization of DNA yield obtaining standardized concentrations of about 1 ng/ μ l, thus ready to use in STR reactions without a need for prior quantification of the DNA. Sample input volumes ranging from 200 μ l to 1 ml lysate can be combined with a broad range of elution volumes down to 30 μ l, providing maximum flexibility and sensitivity.

Performance validation data for real-time PCR based quantitation and STR typing analysis will be shown for both database samples, as well as selected sample types relevant for crime scene analysis. In addition data proving cross-contamination-free processing of samples will be presented.