AUTOMATED MULTIANALYTE SCREENING FOR CLASSIFICATION OF FORENSIC SAMPLES

M. Sandahl, J. Benton, A. Eckhardt and D. Cohen
Advanced Liquid Logic, Inc., 615 Davis Drive, Suite 800, Research Triangle Park, NC 27709, USA

Expanding the science of evidence screening beyond pure serology to include source classification has tremendous potential value in that only the most probative samples are submitted for STR profiling while reducing needless duplication or unnecessary analysis. This will have a substantial positive effect on case processing and adjudication through better utilization of existing STR analysis assets. Source classification is achieved through multianalyte, sample-to-answer screening and is enabled by Advanced Liquid Logic's Digital Microfluidic technology. The proposed system will accept a sample similar in volume to that required for a confirmatory strip-based test. However, instead of a strip, the proposed system will use Digital Microfluidics to perform, in parallel, purification and analysis of both proteins and DNA. The protein analysis section of the cartridge will test for the presence of human saliva, blood and semen using standard ELISA methods. At the same time, and on the same cartridge, the DNA will be purified, amplified and SNP profiles will be generated. The software component of the system will perform analysis of the multianalyte profiles within a case incorporating, where relevant, single-contributor reference samples. The output will be a report with a preliminary classification assigned to each analyzed sample for a given case. The goal of multianalyte sample classification is to quickly provide criminalists and case managers more thorough data to enable more informed decisions. ⌘