IMPLEMENTATION OF THE HAMILTON STARLET® IN A CODIS DNA DATABASING LABORATORY

Jeff Hahn[1], Josh Brewer[2]
[1]DNA Databank Technical Leader, Kansas Bureau of Investigation, Kansas, USA
[2]Senior Applications Engineer, Hamilton Robotics, Reno, Nevada, USA

Recently, the Kansas Bureau of Investigation DNA Databank searched for a new robotic system to update our current robotic instrumentation. Our goals were to incorporate the latest technologies and decrease DNA processing time while maintaining quality profiles. Importantly, we wanted to find a system capable of meeting our laboratory's throughput needs today, and in the future. We narrowed our choices to a robotic system using air displacement technology rather than liquid displacement in order to decrease instrument maintenance time and expense. The Microlab® STARlet from Hamilton met these requirements. To begin validation and implementation of the STARlet in our laboratory, we conducted a number of studies to test for accuracy, precision, reproducibility, and contamination/carryover.

Our laboratory utilizes the BODE DNA Collection System to collect saliva samples for database archiving and processing. Test samples collected on BODE buccal collectors were punched (punch size = 3.2 mm) using a BSD600 Duet Semi-Automated Punch System. Several scripts were created for the Hamilton STARlet to test transfer of varying volumes as well as for our current laboratory methods. These included DNA extraction and amplification setup using the PowerPlex® 18D System from Promega. Examples of data from our testing will be presented and show that the STARlet performs as an accurate, precise, and robust robotic liquid handling system in our laboratory. ⌘