

SET IT AND FORGET IT: OPTIMIZED AUTOMATION OF THE BODE BUCCAL 2 ON THE HAMILTON® EASYPUNCH™ STARLET

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The passing of new legislation, allowing for the collection of DNA samples from arrestees, has led to some laboratories facing a significant increase in the number of samples submitted. This has resulted in a backlog situation with laboratories being faced with the common problem of trying to do more with less. Direct amplification of reference samples has increased efficiency compared to the traditional methods but still requires staff to either manually remove 1.2mm punches or manually feed a semi-automated instrument. Subsequently, the analyst or technician must perform the amplification setup as a separate procedure.

This presentation will describe the studies performed to integrate Bode Buccal 2 collected samples with the Hamilton easyPunch STARlet. The results of the optimization will help to improve the efficiency and throughput of a Databasing section. The easyPunch STARlet is designed as an “all-in-one” system that will provide both punching and liquid handling with minimum human interaction. The Bode Buccal 2 converts to a cassette after sample collection to seamlessly fit into the instrument’s workflow.

The adoption of any new method or technology requires careful consideration to ensure that removing one bottleneck does not result in the creation of another. Increasing the throughput on the front end of punching and amplification is only successful if the quality of the data is consistent with the previous method. This study compared both the throughput and data quality from samples processed with manual or semi-automated direct amplification to the fully automated method.

Ninety (n=90) Bode Buccal 2 collected samples were processed with the Investigator 24plex GO! amplification kit using the Hamilton easyPunch STARlet. The resulting DNA profiles were analyzed using appropriate laboratory analytical and stochastic thresholds. The data metrics evaluated were first pass success rate, average locus peak height, and average intra-color balance. Additional quality control metrics evaluating positive and negative controls as well as potential sample carryover were also evaluated.

Every sample was successfully punched, lysed, and had amplification mix added using the fully automated easyPunch STARlet. The resulting 24plex GO! amplification yielded complete profiles meeting all laboratory thresholds and desirable intra-color balance values indicating no inhibition. Bode Buccal 2 Collectors are fully compatible with the Hamilton easyPunch STARlet and can successfully be amplified after punching.