

UTILIZING THE FULL CAPABILITY OF DNAscan™ Rapid DNA Analysis™ System WITH DIFFERENT TYPES OF CASEWORK SAMPLES

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The fully automated DNAscan Rapid DNA Analysis System performs sample-in to results-out processing and provides high-quality STR profiles. The DNAscan System has received NDIS approval for processing reference sample buccal swabs. A Low DNA Content BiochipSet (LDC BCS) has been developed for processing samples containing less DNA than typical buccal swabs and was used to analyze casework samples.

A wide range of samples were processed, including but not limited to, swabs taken from coffee mugs, tea cups, and water bottles, bites on fruit, chewing gum, cigarette butts, bloodstains of varied volumes from a crime scene, and human tissue samples from decomposed human remains. Casework samples were processed by either swabbing the item or directly inserting a piece of the item into the LDC BCS.

STRs profiles were obtained from casework samples and demonstrated concordant results when compared to profiles generated routinely in the lab using standard laboratory analysis processes, including ABI thermal cyclers with Genetic Analyzer. No contamination was detected using the contained single-use LDC BCS, and peak heights were suitable for casework analysis.

Samples collection and input methods were evaluated and will be discussed. Additionally, data from the fully integrated DNAscan testing will be presented.

When fully utilized, the rapid DNA technology will provide a powerful and effective tool for reference samples, casework samples, and disaster victim identification with short analysis time and ease of use by non-technical operators. The implementation of rapid DNA has the potential to dramatically improve societal safety by revolutionizing the speed at which DNA profiles can be obtained and searched.