

TIME AFTER TIME: A PREP-N-GO™ BUFFER LONGEVITY STUDY

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Approximately 85% of all of the DNA samples received by the Alabama Department of Forensic Sciences DNA Database Laboratory are buccal swabs collected using the EasiCollect/EasiCollect+ devices. These collection devices allow a foam swab that is saturated with an individual's DNA from their buccal cells to be placed into contact with an FTA® paper card. Once the swab is on the card, the DNA is lysed and stabilized on the paper. The first pass success rate for buccal samples in the DNA Database is greater than 80%. A major reason for not obtaining a full DNA profile on the first pass is the collecting agency personnel not ensuring that there is adequate contact between the swab and the FTA® paper. Since it is believed that every offender was swabbed sufficiently, the foam swab provides a suitable substrate for DNA extraction. Prep-N-Go™ buffer (ThermoFisher™ Scientific, Foster City, USA) is an extraction buffer that may be used on foam swabs to lyse the buccal cells and extract the DNA. A portion of the foam swab is added to the Prep-N-Go™ buffer and allowed to incubate at room temperature for approximately twenty minutes. The DNA within the sample lysate can be amplified via PCR to develop a DNA profile. The purpose of this study is to determine if storage of the lysates at -20°C has any effect on the ability to generate interpretable DNA profiles. This study examined 168 sample lysates that had previously been extracted using the Prep-N-Go™ buffer method over a four-year time span. All 168 sample lysates had previously produced a full DNA profile using GlobalFiler Express™ chemistry. The sample lysates were thawed, re-amplified using GlobalFiler Express™, and the DNA profiles developed on a 3500xl Genetic Analyzer. All of the 168 sample lysates again produced a full DNA profile. The peak heights of the newly developed DNA profiles were then compared to the previous peak heights to determine if there was any degradation or change in peak morphology. There were no significant differences in peak height or morphology between the first and second amplifications of the sample lysates. This demonstrates that the Prep-N-Go™ buffer has no deleterious effect on the DNA within the sample lysate over time, and that the lysate can be used to successfully re-develop DNA profiles even after four years of storage at -20°C.