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EVALUATION OF DISSOLVABLE SAMPLEMATRIX® FOR LONG-TERM ROOM TEMPERATURE STORAGE OF FORENSIC DNA (*ADVANTAGE FOR TRACE SAMPLE RECOVERY*)

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SampleMatrix® developed by Biomatrica, Inc., stabilizes DNA in a dry state, which permits room temperature storage without degradation and allows full sample retrieval with rapid, quantitative recovery. In this study, the integrity of trace levels of DNA stored in SampleMatrix® at ambient temperature compared to conventionally freezer-stored DNA is assessed for various periods of time. DNA that was dehyrated and stored long-term in SampleMatrix® remained viable without degradation and allowed a greater than 3-fold increased recovery of trace DNA compared to conventional freezer storage of forensic DNA samples. There was no significant loss of sample integrity or complexity due to free-thaw cycles. Further, the dissolvable SampleMatrix® allows quantitative sample recovery in minutes without the need for extraction or purification. We further show that there are no significant differences in the migration pattern during STR analysis as compared to frozen control samples. These results demonstrate that SampleMatrix® provides a compelling technology for long-term storage of DNA and is applicable for storage of important forensic DNA evidence at room temperature. These results further indicate the feasibility of storing DNA samples in SampleMatrix® at room temperature along with other case evidence, thus diminishing breaks in the chain of custody.