

DNA sampling and storage using FTA CloneSaver cards

Application

Traditional methods of collecting and storing vertebrate tissue (e.g., ethanol or cryogenic storage) are usually bulky and time consuming, thus requiring a dedicated effort when used in field studies. This demands a simple and inexpensive alternative which could enable efficient collecting of large numbers of tissue samples as a by-product of ecological surveys and similar efforts employing DNA-based identification methods. An additional requirement imposed by the CCDB is the compliance for standard high-throughput analytical protocols.

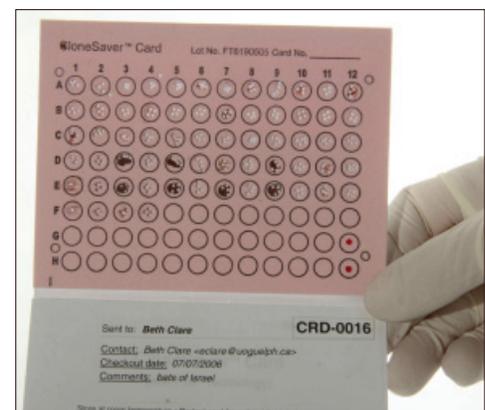
Method Overview

As part of the ongoing effort by the CCDB to streamline sample processing and arraying of tissue samples into a laboratory-compatible format, we tested the CloneSaver™ Card^a with FTA® Technology from Whatman®¹. Originally designed to store plasmid DNA, it is also capable of archiving small aliquots of tissue and extracted DNA. FTA technology is compatible with several standard analytical protocols². The arrangement of blotting circles in 96-well format makes high throughput subsampling^b and subsequent analysis straightforward. The cards underwent extensive testing in the field and in the lab as a medium to store blood, saliva and blots from internal organs like liver and spleen from vertebrates (mammals and fish). In the lab recovery of DNA barcodes from FTA® cards became comparable to frozen tissue after specialized DNA extraction protocols were applied² and when hot start polymerases, such as Platinum Taq® were used for PCR. Exposure to high humidity and excessive amounts of tissue had adverse effects on sequence recovery.

If proper handling procedures are followed^c, CloneSaver™ cards may be recommended for use in the field when alternative tissue sampling methods are impractical. The cards also facilitate easy archival and shipment of residual tissue and DNA at ambient temperature, which is superior to ethanol preservation.

At a glance

- » Nearly 1,000 samples tested
- » Easy handling and archival, low contamination risk
- » Approximately \$0.20 per sample
- » *Ad hoc* automated DNA extraction protocols developed
- » Overall superior to ethanol preservation
- » Good recovery results with Platinum Taq®
- » Vulnerable to high humidity and oversampling



More Information:

1. Whatman® (www.whatman.com)
2. Smith LM, Burgoyne LA (2004) Collecting, archiving and processing DNA from wildlife samples using FTA databasing paper. BMC Ecol. 2004; 4:4.

Materials:

- a. CloneSaver Card 96 well format, Catalogue Number WB120028
- b. Harris Micro Punch 1.2 mm (with Mat), Catalogue Number WB100005
- c. Multi-Barrier Pouch, Large (9 x 15 cm), Catalogue Number WB100037