Arcis Dried Blood Nucleic Acid Extraction Protocol

Extraction of DNA from Dried Blood Spots (DBS) is not only important in forensics and genetic identity testing, it is becoming increasingly important within areas such as neonatal DBS storage in Bio-banking, epigenetics and disease testing. The challenges in recovering genetic material from dried blood are often due to the degradation that occurs during processing and extraction.

The Arcis DNA Blood Kit is a ready to use, room temperature kit comprising two reagents enabling pre-analytical processing of blood samples. In 3 minutes, with no prior sample preparation, the kit allows you to go from blood to downstream nucleic acid investigations without the need for isolation or purification. The Arcis DNA Blood Kit will release nucleic acids from fresh or frozen or dried whole blood samples. The kit is suitable for untreated specimens and specimens that have been stored in EDTA and heparin-containing solutions. The DNA released is ready for immediate use in PCR or other molecular applications. The Arcis DNA Blood Kit is intended for in vitro identification of dried blood or diagnostic use.

The following protocol describes the extraction of DNA from air dried samples and the subsequent analysis of the genetic material extracted by the Arcis DNA Blood Kit.

Storage conditions

Tubes are shipped and stored at room temperature. Samples which have been lysed in buffer 1 are stable at room temperature for 30 days.

Materials provided

Materials provided	Quantity	No. Reactions
Tube 1 Lysis Buffer	1	48
Tube 2 Wash Buffer	1	48

Samples

Samples tested were from multiple samples of 30µl of whole blood dropped onto polycarbonate plastic and spread with a pipette tip. Samples were then air dried.

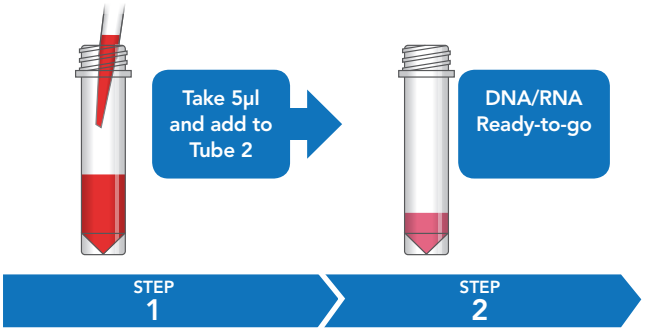
Method

- The dried blood sample types were then equally divided and collected by swabbing with cotton tipped swabs pre-wetted with either water or 10mM Tris-EDTA (TE) buffer.
- The tip of the swab was then placed in Arcis Solution 1 – Lysis buffer (150µl) and agitated briefly to release the nucleic acids.
- The sample was then incubated for 1 minute at room temperature. After this 5µl was transferred to Tube 2 (1:4 ratio) and mixed thoroughly.
- 5µl of the resultant solution was then added to the PCR master mix for a final reaction volume of 25µl

PCR conditions

Initial denaturation 95°C 10 min, denaturation 95°C 15 sec, annealing 60°C 60 sec 45 cycles on LC480 II Lightcycler. Fluorescence readings acquired in the VIC channel (540-580nm) at the annealing step.

hRNase P PCR Mix	Vol µl
Master Mix 2x	12.5
F Primer (50µM)	0.4
R Primer (50µM)	0.4
Probe (1µM)	0.5
Water	6.2
Template (tube 2)	5



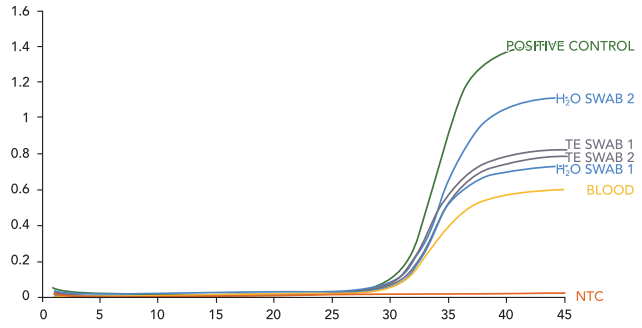
Results (Ct values averaged)

	Air dried
Positive control	30.70
Water swab	30.77
TE swab	30.65
Fresh blood	30.45

Conclusion

Good results were obtained with swabs from air dried blood, with Ct values similar to fresh blood. Results were the same irrespective of which buffer was used to swab the sample.

Air Dried Blood



Version 001 03/17

For further information please visit arcisbio.com

ARCIS BIOTECHNOLOGY