APPLICATION NOTE

Automated DNA preps from soft tissue biopsies and mouse tails using the BioRobot® EZ1 System

DNA purification from a range of tissue types is commonly used in basic and applied research labs as well as in clinical settings. Successful downstream applications are dependent upon reproducible high-quality DNA. This study describes the consistent yields and high quality of DNA isolated from bovine tissues and mouse tails using the BioRobot® EZ1 System.

Introduction

Fully automated EZ1 purification technology allows a range of sample types to be processed. Downstream applications yield more accurate data and workflow is streamlined when reproducible yields of high quality DNA are used.

Materials and methods

Various amounts of bovine soft-tissue biopsies (Table 1) were processed. Mouse tail biopsies approximately 2 mm in length (12–22 mg) were collected and frozen. Before automated purification, bovine soft-tissue biopsies were digested for three hours at 56°C and mouse-tail clips were digested overnight at 56°C. All digestions used 10 µl of QIAGEN® Proteinase K and 190 µl of QIAGEN Buffer G2 per sample. DNA was purified from all sample types using the BioRobot EZ1 System with the EZ1 DNA Tissue Kit and the EZ1 DNA Tissue Card. Purified DNA was eluted in 200 µl water. DNA yield (A_{260}) and purity (A_{260}/A_{280}) were quantified by absorbance corrected for background. Purified DNA (1 µl) was used in 50 µl PCR of the single-copy bovine obesity gene or GAPDH.

Results

Optimal amounts of tissue were used per DNA isolation. Sample quantities, and yield and purity of purified DNA are shown (Table 1). Average DNA yields for bovine soft tissues and mouse tails were 10.1–22.6 µg. DNA purity was consistently high. Purified genomic DNA performed reliably in sensitive PCR analysis (Figure 1).

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Table 1. Reproducible yields of high purity DNA

Tissue	Sample	Average DNA purity*	Average DNA yield (µg)
Bovine:			
Muscle	40 mg	1.87 ±0.00	10.9 ±0.3
Heart	20 mg	1.88 ±0.01	12.3 ±0.5
Spleen	10 mg	1.87 ±0.01	22.6 ±1.0
Lung	10 mg	1.86 ±0.01	18.6 ±1.5
Liver	10 mg	1.87 ±0.01	20.5 ±1.6
Kidney	10 mg	1.89 ±0.05	6.9 ±0.4
Mouse:			
Tail clips	2 mm	1.89 ±0.01	10.1 ±0.5

Purity and yield data represent averages from 6 replicates.
** A_{260}/A_{280} corrected for background at 320 nm.*

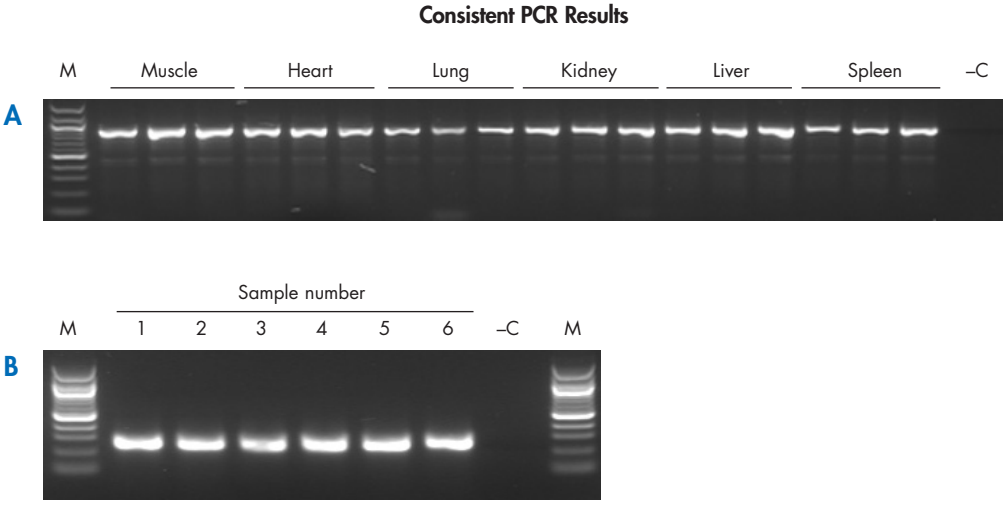

Figure 1. ***A****: PCR of the bovine obesity single-copy gene (850 bp fragment) using EZ1-purified DNA from bovine tissues.* ***B****: PCR of GAPDH (266 bp fragment) using EZ1-purified DNA from six mouse tails. A 2.5 µl aliquot (5%) of each PCR was visualized by agarose gel electrophoresis.* ***M****:100 bp marker;* ***–C****: negative control.*

Conclusions

Using the BioRobot EZ1 System to purify genomic DNA from tissue samples ensures:

- Consistent yields of high-quality DNA that perform well in sensitive downstream applications such as PCR
- Genomic DNA is reliably purified from multiple types of tissue sample using a single purification kit and a single robotic workstation

Contact QIAGEN today and discover how easy it is to get reproducible DNA preps from multiple tissue types.

Ordering Information

Product	Contents	Cat. No.
BioRobot EZ1	Robotic workstation for easy, automated purification of nucleic acids	9000705
EZ1 DNA Tissue Kit (48)*	48 Reagent Cartridges (Tissue), 50 Disposable Tip Holders, 50 Disposable Filter-Tips, 50 Sample Tubes (2.0 ml), 50 Elution Tubes (1.5 ml), Buffer G2, QIAGEN Proteinase K	953034
EZ1 DNA Tissue Card	Pre-programmed card for the BioRobot EZ1 DNA Tissue Protocol	9015588

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

BioRobot Systems are not available in all countries

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