



# NucleoMag<sup>®</sup> Tissue

Automated DNA purification from cells or tissue samples using the IsoPure Mini

## Application benefits

The combination of the proven NucleoMag<sup>®</sup> Tissue technology and the IsoPure Mini (16) has several advantages that streamline your genomic DNA purification workflows:

- Verified methods for fully automated DNA isolation from cells and tissue samples
- Purification of DNA with reliable yield and purity
- Processing of up to 16 samples in parallel
- Simple protocol installation via QR-code scanning or Bluetooth<sup>™</sup> transfer

## Keywords

Genomic DNA, cells, animal and human tissue, NucleoMag<sup>®</sup>, magnetic beads, magnetic rod system, IsoPure Mini

## Introduction

The efficient isolation of genomic DNA from cells or tissue samples is essential for subsequent molecular biological applications in life science and applied testing laboratories. For their demanding downstream analyses in genotyping, sequencing, parental and husbandry testing, or clinical research, molecular biology laboratories require reliable, pure, and high quality DNA.

MACHEREY-NAGEL designed the magnetic bead-based NucleoMag<sup>®</sup> Tissue kit for the rapid and automated purification of genomic DNA from animal/ human cells and tissue specimens in an automation-friendly and magnetic bead-based format. The obtained DNA is of high purity and quality and can be used for any standard downstream application such as PCR, NGS, blotting, or any other kind of enzymatic reaction.

In this Application Note we demonstrate the automated genomic DNA purification from cells and tissue using the NucleoMag<sup>®</sup> Tissue kit on the IsoPure Mini. The IsoPure Mini is a minimal footprint nucleic acid extraction system adopting magnetic bead technology. Capable of processing up to 16 samples at one time, the stand-alone instrument is easy to set up, program, and operate. Mixing, magnetic bead transfer, washing, and elution steps are performed automatically, saving valuable hands-on time.

An optimized protocol using the IsoPure Mini with the NucleoMag<sup>®</sup> Tissue extraction kit can be easily accessed by scanning the QR-codes below with the scanner included with the IsoPure Mini device.

NucleoMag <sup>®</sup> Tissue	
Technology	Magnetic beads
Sample material	< 20 mg human / animal tissue, < 10 <sup>6</sup> cells
Lysate clarification	Centrifugation
Elution volume	50 – 200 µL
Fragment size	300 bp – approx- 50 kbp
Max. sample number on the IsoPure Mini	16 samples



IsoPure Mini	
Technology	Automated magnetic rod system
Display	4.3 inch-color touch screen
Capacity / volume per well	1 – 16 samples / 50 µL to 1000 µL
Dimensions	7.9 x 10.2 x 11.8 in. (20 x 26 x 30 cm)
Weight	7.0 kg / 15.4 Lbs
Contamination control	UV lamp (3 W, 253.7 nm UVC wavelength)
Program transfer	Bluetooth <sup>®</sup> , OR scanner, USB flash drive

## Material and Methods

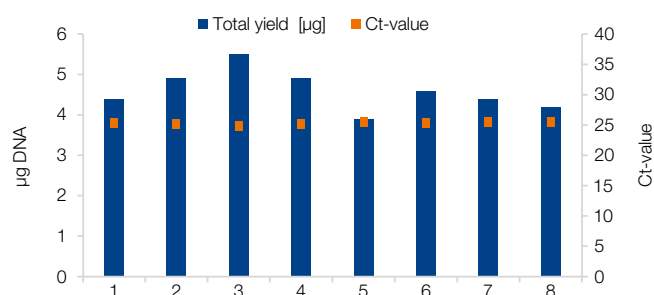
The isolation procedure of the NucleoMag® Tissue kit is based on reversible adsorption of nucleic acids to paramagnetic NucleoMag® B-beads under appropriate binding conditions. 10 mg pork liver tissue were mixed and incubated with Proteinase K and Lysis Buffer T1. After lysate clarification via centrifugation, reversible binding of nucleic acids to paramagnetic beads was enabled by adjustment with Binding Buffer MB2. Subsequent

to the magnetic separation, the NucleoMag® B-Beads were washed to remove contaminants and salts using Wash Buffer MB3 and MB4. After a short MB5 washing step, highly pure nucleic acids are eluted in elution buffer MB6.

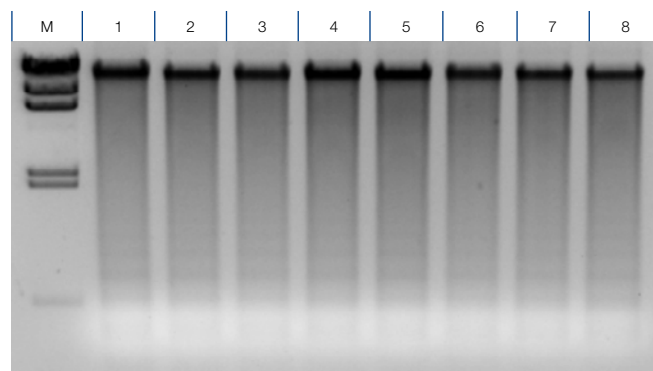
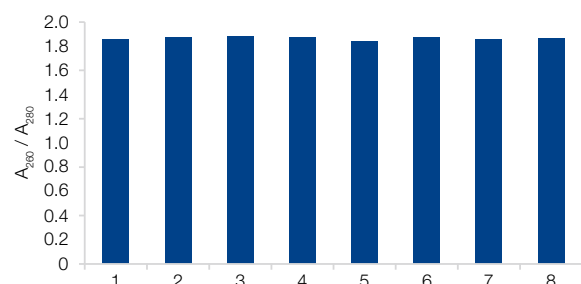
All binding, washing, and magnetic bead separation steps were carried out by the IsoPure Mini magnetic rod device.

## Application data

A



B



Integrity of isolated nucleic acids from pork liver tissue samples

The integrity of the isolated nucleic acids was analyzed by gel electrophoresis (10 µl per eluate; 1.0 % TAE gel; M: Lambda DNA/*Hind* III – Thermo Scientific). The gel electrophoresis analysis shows intact genomic DNA of high integrity.



### Simple method transfer

A handheld scanner is included with each IsoPure Mini device, adding a convenient and fast method for loading a protocol onto the instrument. Simply scan the QR code to instantly transfer the protocol to your IsoPure Mini. For more information regarding loading schemes and set-ups, please download the protocol information from [www.mn-net.com/IsoPureScripts](http://www.mn-net.com/IsoPureScripts).

### Isolation of genomic DNA from pork liver tissue samples

The figure shows total yields after genomic DNA extraction from eight individual 10 mg pork liver tissue samples using the NucleoMag Tissue kit automated on the IsoPure Mini. (A) Total DNA yields were determined by UV spectrometry averaging at  $4.6 \pm 0.5$  µg. A subsequent qPCR analysis (orange squares) was performed with a Taqman® Probe for a 250 bp β-actin amplicon using the SensiFast™ Probe Lo-ROX kit from Meridian Bioscience® on an Applied Biosystems® 7500 Real-Time PCR System. (B) The purity of the isolated nucleic acids was determined by UV spectrometry resulting into an average A<sub>260</sub>/A<sub>280</sub> value of  $1.86 \pm 0.01$ . The results demonstrate a reliable and reproducible purification of gDNA with high yield and quality.

## Ordering information

Product	Specifications	Pack of	REF
NucleoMag® Tissue	Magnetic bead-based kit for the isolation of DNA from tissues, cells, and bacterial pellets; including NucleoMag® B-Beads, buffers, and Proteinase K	1 × 96 preps	744300.1
		4 × 96 preps	744300.4
		24 × 96 preps	744300.24
IsoPure Mini	Magnetic rod system for automated nucleic extraction using MACHEREY-NAGEL NucleoMag® kits, parallel processing of up to 16 samples	1	747000
Android tablet with IsoPure Mini app	Android tablet preloaded with IsoPure Mini app for creating or modifying protocols and simple method transfer via Bluetooth®	1	747001
96 Deep-well plates	96 deep-well plates for IsoPure Mini	25	744955
Tip Combs	8-place magnetic tip comb for IsoPure Mini	50	744960

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