

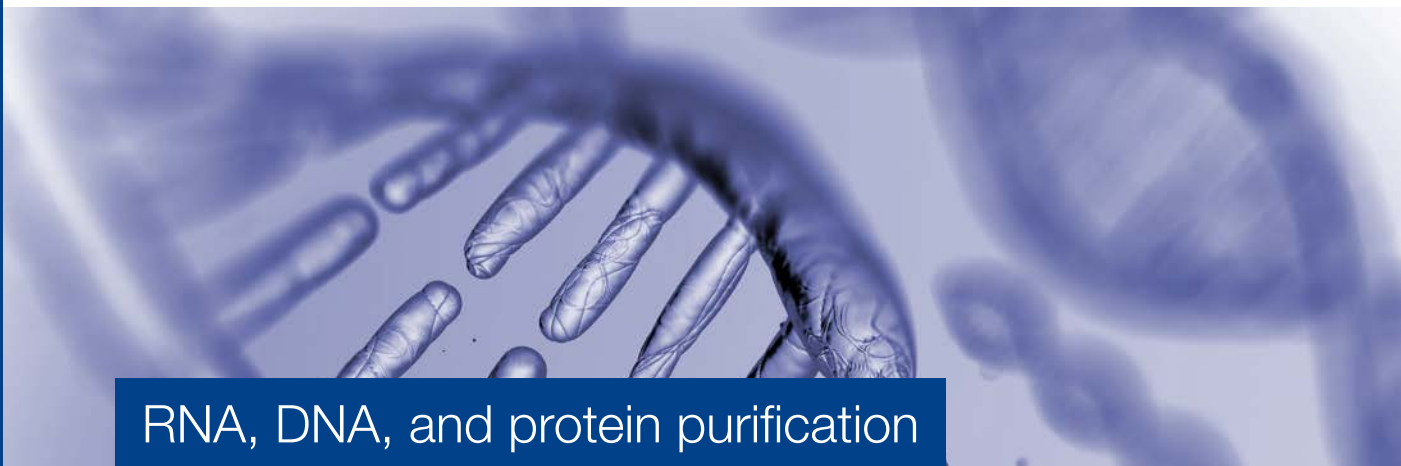
MACHEREY-NAGEL



INTERNATIONAL
CONFERENCE & EXHIBITION



Bioanalysis



RNA, DNA, and protein purification

Your partner for automated low to high throughput solutions

- Personal support and application notes by MN experts
- Automation partners
- New products for automated workflows

MACHEREY-NAGEL

www.mn-net.com



Your partner for automated low to high throughput solutions

MN offers a variety of kits for low (LTP), medium (MTP), and high throughput (HTP) nucleic acid and protein purification. Our solutions are based on different technologies. For RNA and DNA purification, we offer

- NucleoBond®: anion exchange chromatography
- NucleoSpin®: silica membrane technology
- NucleoFast®: ultrafiltration
- NucleoMag®: magnetic bead technology

For protein purification, we offer

- Protino®: affinity chromatography

Kits for all applications are available for both manual and automated use on common laboratory robotic platforms. The NucleoSpin® 8/96 kits are offered as ready to run solutions including all consumables, but are also available as “Core Kits” containing no plastic material in order to provide a high flexibility for automation.

Personal support by MACHEREY-NAGEL experts

For more than 20 years MN develops and produces a large portfolio of purification technologies and formats to meet your everyday needs. During this time, we gained a lot of experience and expanded a large knowledge. Thus, we offer an extensive troubleshooting by our MN experts in case special support is needed for your application. Furthermore, we supply validated and released basic scripts on request. Our specialists from R&D assist you to generate customized scripts for different robotic platforms if needed. MN experts help you to optimize or adjust your scripts on request e.g., to process new sample material. Contact our Technical Support and Customer Service or Product Management:

Technical Support and Customer Service

Tel.: +49 24 21 969-270

E-mail: tech-bio@mn-net.com

Product Management HTP

Tel.: +49 24 21 969-277

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Application notes by MACHEREY-NAGEL experts

MN offers a broad range of application notes. These application notes contain detailed descriptions on how to use low, medium, and high throughput kits from MN on different robotic platforms. The number of available application notes increases continuously.

For or detailed information please visit: www.mn-net.com/HTP-application-notes



Automation partners

Eppendorf®

- Easy and reliable Plug'n'Prep® solution for nucleic acid extraction or protein purification
- Convenient nucleic acid extraction with epMotion® 5075 from Eppendorf® using NucleoSpin® or NucleoMag® kits
- Vacuum based extraction for NucleoSpin® 8 / 96 kits using the epMotion® 5075v, minimized risk of crosscontamination due to eppendorf's channeling plate
- Magnetic bead based extraction for NucleoMag® kits on the epMotion® 5075t or 5073t
- Vacuum based 96-well protein purification using the Protino® 96 Ni-NTA kit
- Optimized Plug'n'Prep® scripts available on request for NucleoSpin® and NucleoMag® kits
- Easy import of ready to use methods due to standardized configurations, no adjusting of scripts necessary
- Flexible customization of scripts can be requested at MN Technical Support



Hamilton

- Validated standardization with proven MACHEREY-NAGEL kits
- The NucleoSpin® 8 / 96 and NucleoFast® kits are used on the Genomic STARlet™
- NucleoSpin® 96 kits can also be processed using the [MPE]² positive pressure module
- Standard sample input and output lab ware from MN is already predefined
- Optimized and validated configurations to save time and minimize tip consumption
- Protocols and application packages can be provided by Hamilton



Tecan

- Flexible and versatile nucleic acid extraction and protein purification suitable for Tecan Freedom EVO® series or Fluent® Laboratory Automation Solution platforms
- Vacuum based extraction using the Te-VacS™ for NucleoSpin® 8 / 96 kits
- Minimized risk of cross-contamination due to MNs unique Wash Plate
- Suitable for higher sample volumes using the NucleoSpin® L / Midi kits
- Magnetic bead based extraction for NucleoMag® kits using the NucleoMag® SEP and the Te-Shake™
- Vacuum based 96-well protein purification using the Protino® 96 Ni-NTA kit
- Optimized basics scripts and protocols are available on request for NucleoMag® and NucleoSpin® kits



Thermo Fisher Scientific

- Fast and flexible nucleic acid extraction using NucleoMag® kit
- Magnetic bead based isolation of RNA / DNA for a broad sample spectrum
- Suitable for low to high throughput extractions
- Convenient processing of high sample volumes (e.g., NucleoMag® Blood 3 mL)
- Validated and optimized scripts available for all NucleoMag® kits
- Scripts available for different Thermo Scientific™ KingFisher® platforms
- Flexible customization of scripts can be requested at MN Technical Support



Others

The MN low to high throughput kits are very flexible and widely applicable. The NucleoSpin®, NucleoFast®, NucleoBond®, and Protino® kits can be processed on any other platform which works with vacuum or positive pressure. The NucleoMag® kit can be automated on a platform with automated magnetic separators or with static magnetic pins combined with a suitable microplate shaker. Even any platform related to the above mentioned platforms can be used to automate MN kits.

Get an overview about suitable platforms and refer to the application notes at www.mn-net.com/HTP-application-notes

Take advantage of the MN experts and contact Technical Support

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New products for automated workflows

NucleoSpin® 96 Plasmid Transection-grade

A fast way to purify plasmids for transfection

- Novel technology to diminish endotoxin content (< 50 EU/μg DNA) for successful transfections
- Innovative MN Wash Plate minimizes risk of cross-contamination

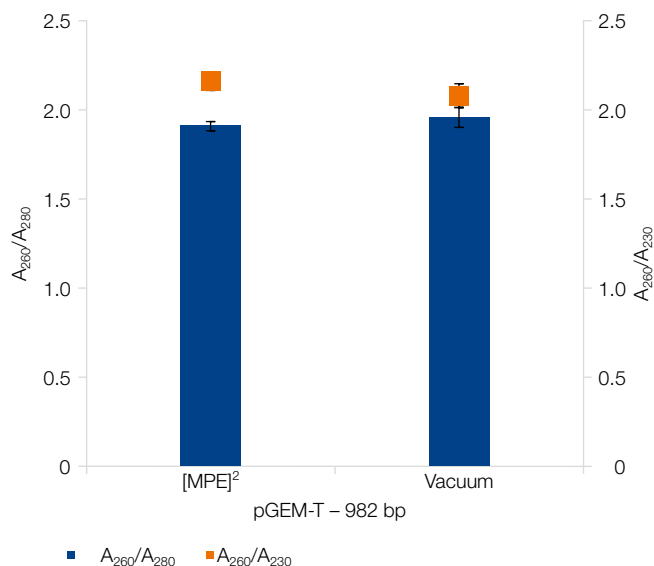
Product at a glance



NucleoSpin® 96 Plasmid Transection-grade

Technology	Silica membrane technology
Endotoxin level	1–50 EU/μg DNA
Sample material	1–5 mL <i>E. coli</i> culture
Fragment size	< 25 kbp
Typical yield	5–20 μg
Elution volume	100–200 μL
Binding capacity	20 μg
Preparation time	45 min/plate

Application data



NucleoSpin® 96 Plasmid Transection-grade kit shows best performance

The NucleoSpin® 96 Plasmid Transection-grade kit was processed on Hamilton [MPE]²-unit in comparison to the standard procedure on a manual vacuum manifold. Standardized sample material such as *E. coli* DH 5α cultures were used for the isolation of plasmid DNA. Purity was determined by UV-spectrometry resulting into a comparable performance between positive pressure and vacuum processing.

Ordering information

Product	Preps	REF
NucleoSpin® 96 Plasmid Transection-grade	1 x 96 / 4 x 96 / 24 x 96	740491.1 / .4 / .24
NucleoSpin® 96 Plasmid Transection-grade Core Kit*	4 x 96 / 24 x 96	740492.4 / .24

* Core Kits contain buffers, Filter plates and Binding Plates only, no additional accessories.

New products for automated workflows

NucleoMag® DNA Plasma

Consistent cfDNA recovery from 1–10 mL plasma samples

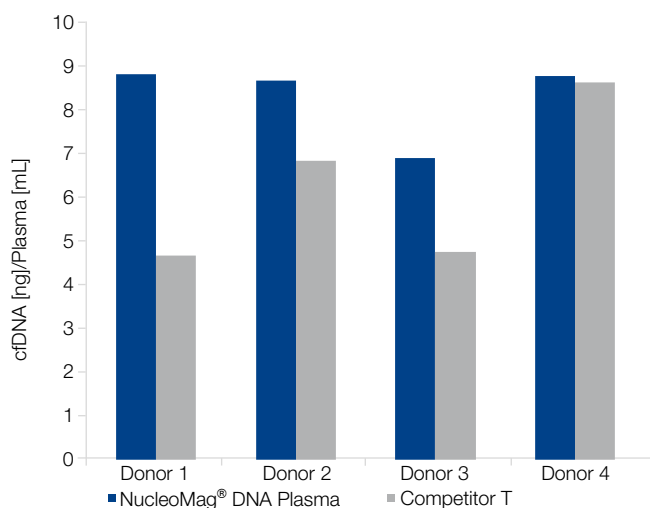
- Efficient purification of fragmented DNA as small as 50 bp
- No PCR inhibition regardless of your preferred sample volume



Technology	Magnetic bead technology
Sample material	1-10 mL Human EDTA/Cell-Free DNA BCT® plasma
Fragment size	≥ 50 bp
Typical yield	Depending on sample source, storage, and quality
Elution volume	50–200 µL
Binding capacity	0.3 µg/µL beads
Preparation time	55 min/24 preps (2 mL; excl. lysis)*

* Established on KingFisher® Flex

Application data



Competitive detection of low abundance cfDNA samples

Total cfDNA was purified from 2 mL human EDTA plasma derived from 4 challenging donor samples with low abundance cfDNA (< 10 ng cfDNA/ mL Plasma). Isolation with the NucleoMag® DNA Plasma kit results in higher and more consistent total cfDNA yields with less fluctuations in comparison to competitor T.

Ordering information

Product	Preps	REF
NucleoMag® DNA Plasma	1 x 48 / 4 x 48	744550.1 / .4
Related products		
NucleoMag SEP 24	1	744903
24-Square-well Block	4	740679.4
24-Square-well Block U-bottom	24	740448.24
KingFisher® 24 Accessory Kit	1 set	744953



New products for automated workflows

NucleoMag® 384 Plant

Magnetic bead based isolation of DNA from plant tissue

- Efficient plant tissue lysis by optimized CTAB buffer chemistry
- Scalable magnetic bead technology facilitates automation

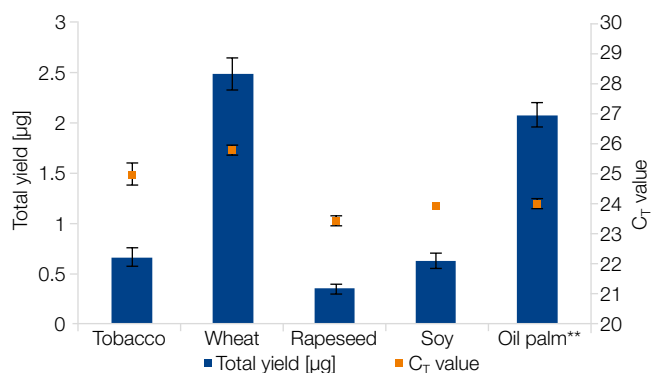


Technology	Magnetic bead technology
Sample material	Up to 30 mg plant tissue (wet weight)
Fragment size	300 bp–approx. 50 kbp
Typical yield	Depending on sample source, storage, and quality
Elution volume	40–100 µL
Binding capacity	0.4 µg/µL beads
Processing time	60 min/384 preps**

* Established on KingFisher® Flex.

** Using e.g., TECAN Freedom EVO and MCA 384 head.

Application data



Reliable detection of genomic DNA from various different plant species

DNA was isolated from 30 mg fresh leaves or seeds from different plant species using the NucleoMag® 384 Plant kit. The total yield was determined by UV spectrometry (dark blue bars). A subsequent qPCR analysis (orange squares) was performed with a Taqman® Probe for a 103 bp actin amplicon using the SensiFast™ Probe Lo-ROX kit from Bioline on an Applied Biosystems® 7500 Real-Time PCR System. High throughput processing with the NucleoMag® 384 Plant kit of all tested sample material, results in pure and sufficient DNA yields, ready for direct subsequent biomolecular analysis.

** Genomic DNA extraction of oil palm leaves was achieved by addition of Binding Buffer CB according to the support protocol NucleoMag® 384 Plant – Oil palm leaves.

Ordering information

Product	Preps	REF
NucleoMag® 384 Plant	1 x 384 / 4 x 384	744402.1 / .4



New products for automated workflows

NucleoMag® DNA Food

Flexible DNA isolation from various food and feed samples

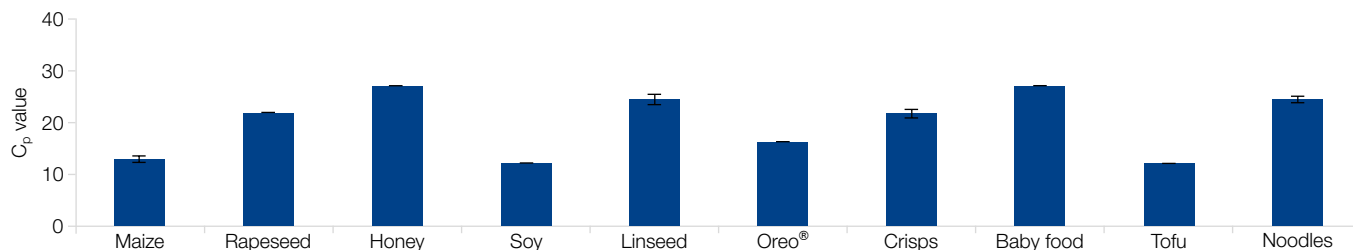
- Get even low amounts of partially degraded DNA from complex matrices
- Suitable for species identification, GMO detection



Technology	Magnetic bead technology
Sample material	< 200 mg food or feed
Binding capacity	300 bp–approx. 50 kbp
Typical yield	0.1–10 µg
Elution volume	50–200 µL
Binding capacity	0.4 µg/µL beads
Processing time	120 min/96 preps*

* Established on KingFisher® Flex.

Application data



NucleoMag® DNA Food is able to isolate DNA from various food samples

Various food samples have been used as input for DNA isolation. Sample homogenization and lysis was performed manually, whereas DNA isolation was performed automated using a KingFisher® Flex. DNA presence within the eluates was determined using qPCR.

Ordering information

Product	Preps	REF
NucleoMag® DNA Food	1 x 96 / 4 x 96	744945.1 / .4



New products for automated workflows

NucleoMag® Pathogen

Magnetic bead based isolation of viral RNA/DNA and bacterial DNA

- One kit for any common clinical sample type
- High sensitivity even for low viral titers
- Proteinase K, Carrier RNA, and all buffers ready to use

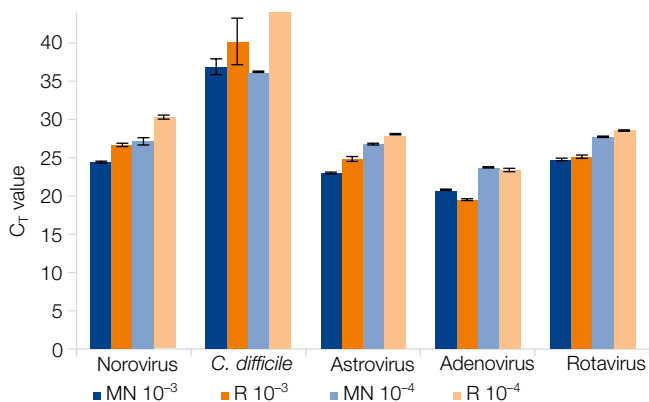
Product at a glance



Technology	Magnetic bead technology
Sample material	Scalable. A convenient volume, especially for 96-well processing would be: < 200 µL whole blood, serum, plasma, < 25 mg tissue (e.g., ear notches), < 200 µL feces, < 200 µL swab wash solution
Maximum amount of starting material in purification procedure	200 µL liquid/homogenized sample
Fragment size	300 bp–approx. 50 kbp
Elution volume	50–100 µL
Binding capacity	0.4 µg/µL beads
Preparation time	45 min/96 preps*

* Established on KingFisher® Flex.

Application data



Customer testimonial

“The NucleoMag® Pathogen kit meets all expectations and requirements of a nucleic acid extraction system for the molecular diagnostic market.”

Dr. Carsten Tiemann, LABCON-OWL GmbH (certified laboratory)

NucleoMag® Pathogen is reliably sensitive even for challenging samples

Sensitivity screening was performed for pathogen detection in human feces samples. Extraction was performed with the NucleoMag® Pathogen kit and the competitor kit „R“. NucleoMag® Pathogen displays high sensitivity for various viruses and hard to lyse bacteria such as *C. difficile* measured in triplicates across a dilution series of 10⁻³–10⁻⁴.

Ordering information

Product	Preps	REF
NucleoMag® Pathogen	1 x 96 / 4 x 96	744210.1 / .4

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