

DNA, RNA, and Protein Purification from MACHEREY-NAGEL

MN Guide to Most Wanted Tools

The right solution for every application



BIOKÉ
sharing knowledge

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MACHEREY-NAGEL

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MACHEREY-NAGEL · The Company








Since its foundation in 1911, the roots of MACHEREY-NAGEL have been in the field of Filtration (cellulose and glass fiber filters, membranes), Testing, and Chromatography (e.g., chemically bonded silica gels and polymeric phases). This knowledge in analytical separation materials and methods helped lay the foundation for the Company's involvement in Bioanalysis.

Since 1993 MACHEREY-NAGEL has been successfully developing, producing, and worldwide marketing an increasing range of ready-to-use kits and consumables for the purification of DNA, RNA, and proteins. The high-value products are provided for academic, industrial, and clinical research in the area of life science, genomics, gene expression profiling, molecular diagnostics, genetic identity, gene therapy, and proteomics.

Operational headquarters, R&D, Production, and central Marketing are located in Düren, Germany with subsidiaries in the USA, France, and Switzerland. The worldwide distribution of products is ensured by a net of specialized distributors in more than 150 countries.



MACHEREY-NAGEL – Most Wanted Products:

	Plasmid DNA NucleoBond® Xtra and NucleoSpin® Plasmid	p. 3
	DNA clean-up NucleoSpin® Extract II	p. 4
	RNA NucleoSpin® RNA II	p. 4
	Genomic DNA NucleoSpin® Blood, NucleoSpin® Tissue, NucleoSpin® Plant II, NucleoSpin® Soil, and NucleoSpin® FFPE DNA	p. 5–6
	Viral RNA and DNA NucleoSpin® RNA Virus	p. 7
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Plasmid DNA

NucleoBond® Xtra Midi/Maxi (EF)

The new generation of anion exchanger kits

- **Ultra-fast** purification due to optimized column design (**Midi < 70 min** and **Maxi < 80 min**).
- **Transfection-grade** (highly pure, > 95 % ccc-form) plasmid DNA due to patented anion-exchange technology.
- **Column filter** included: high filter flow rates, parallel lysate clearing and loading!
- **Improved silica material**: typical yields of **250 µg (Midi)** and **1000 µg (Maxi)**.



The Plus version of the kit includes the NucleoBond® Finalizer:

- Syringe filter for easy desalting of the eluted DNA, eliminating time-consuming centrifugation for plasmid precipitation.
- 90 % time saving: **Midi < 30 min** and **Maxi < 35 min** (4 preparations).
- It yields highly concentrated plasmid DNA, avoiding loss of DNA or incomplete solubilization.



Ordering information

Products	Preps	REF
NucleoBond® Xtra Midi	10/50/100	740410.10/.50/.100
NucleoBond® Xtra Maxi	10/50/100	740414.10/.50/.100
NucleoBond® Xtra Midi Plus (incl. Finalizer)	10/50	740412.10/.50
NucleoBond® Xtra Maxi Plus (incl. Finalizer)	10/50	740416.10/.50

The endotoxin-free (EF) version of the kit allows:

- Endotoxin-free plasmid DNA purification with **< 0.05 EU/µg** for transfection of highly sensitive cells.
- Patented endotoxin removal by additional washing step – **no extra ice incubation necessary**.

Ordering information

Products	Preps	REF
NucleoBond® Xtra Midi EF	10/50	740420.10/.50
NucleoBond® Xtra Maxi EF	10/50	740424.10/.50
NucleoBond® Xtra Midi Plus EF (incl. Finalizer)	10/50	740422.10/.50
NucleoBond® Xtra Maxi Plus EF (incl. Finalizer)	10/50	740426.10/.50

Plasmid DNA

NucleoSpin® Plasmid/NucleoSpin® Plasmid (NoLid)

For rapid small scale preparation of up to 40 µg of high-purity plasmid DNA

- Fast procedure: 18 Mini preps in **25 min**.
- High capacity: up to **40 µg** of plasmid DNA.
- Choose to work with columns **with** or **without a lid**.
- Support protocols for Gram-positive bacteria, low-copy plasmids, and plasmid DNA clean-up.



Ordering information

Products	Preps	REF
NucleoSpin® Plasmid	10/50/250	740588.10/.50/.250
NucleoSpin® Plasmid (NoLid)	50/250	740499.50/.250

DNA clean-up

NucleoSpin® Extract II

The two-in-one kit for PCR clean-up and gel extraction

- 2 applications in one product: one single buffer for **PCR clean-up** and **gel extraction**.
- High recovery for fragments **50 bp–15 kbp** and efficient removal of primers.
- Elution volumes $\geq 15 \mu\text{L}$ result in highly concentrated DNA.



Ordering information

Product	Preps	REF
NucleoSpin® Extract II	10/50/250	740609.10/.50/.250

RNA

NucleoSpin® RNA II

All-round kit for the isolation of total RNA, including NucleoSpin® Filters and rDNase

- The **NucleoSpin® RNA II** kit is designed for the isolation of total RNA from cultured cells (5×10^6), tissue ($< 30 \text{ mg}$), bacterial ($< 10^9$), and yeast ($< 10^8$) cells.
- Efficient removal of contaminating DNA – **recombinant DNase** for on-column DNA digestion.
- Efficient sample homogenization – **NucleoSpin® Filter** (shredders) included.
- High binding capacity of the membrane (**200 μg**) with an elution volume of **40–120 μL** .



Other RNA purification kits specially developed for different applications are:

- **NucleoSpin® miRNA***: selective small RNA (containing miRNA), large RNA, and/or protein isolation.
- **NucleoSpin® RNA Plant**: RNA isolation from plant materials.
- **NucleoSpin® RNA/Protein**: simultaneous isolation of RNA and proteins.
- **NucleoSpin® RNA/DNA Buffer Set** together with a RNA kit: RNA and DNA isolation from the same sample.
- **NucleoSpin® TriPrep**: simultaneous isolation of RNA, DNA, and proteins.
- **NucleoSpin® FFPE RNA**: isolation of RNA from formalin-fixed, paraffin-embedded tissues.
- **NucleoSpin® FFPE RNA/DNA**: RNA and DNA isolation from the same FFPE sample.
- **NucleoTrap® mRNA Mini** and **NucleoTrap® mRNA Midi**: messenger RNA enrichment.

Ordering information

Products	Preps	REF
NucleoSpin® RNA II	10/50/250	740955.10/.50/.250
NucleoSpin® miRNA*	10/50/250*	740971.10/.50/.250
NucleoSpin® RNA Plant	10/50/250	740949.10/.50/.250
NucleoSpin® RNA/Protein	10/50/250	740933.10/.50/.250
NucleoSpin® RNA/DNA Buffer Set	100	740944
NucleoSpin® TriPrep	10/50/250	740966.10/.50/.250
NucleoSpin® FFPE RNA	10/50/250	740969.10/.50/.250
NucleoSpin® FFPE RNA/DNA	10/50/250	740978.10/.50/.250
NucleoTrap® mRNA Mini	12	740655
NucleoTrap® mRNA Midi	12	740656

* Kits for 10/50/250 preps are sufficient for 10/50/250 preps of small and large RNA when isolated in one fraction and are sufficient for 5/25/125 preps of small and large RNA when isolated separately.

Genomic DNA from blood

NucleoSpin® Blood

Kit for genomic DNA isolation from blood samples

- gDNA extraction from a **wide variety of blood types** (human, animal, fresh, frozen, stabilized with anticoagulants such as heparin, EDTA, citrate, or CPDA).
- Typical yield of **4–6 µg** (200 µL blood).
- Complete removal of PCR inhibitors.
- Choose **NucleoSpin® Blood QuickPure** (200 µL) for a faster procedure or the **NucleoSpin® Dx Blood** (200 µL) for *in vitro* diagnostics.
- Choose the **NucleoSpin® Blood L** (≤ 2 mL) or **NucleoSpin® Blood XL** (≤ 10 mL) to process larger blood volumes.



Ordering information

Products	Preps	REF
NucleoSpin® Blood	10/50/250	740951.10/.50/.250
NucleoSpin® Blood QuickPure	10/50/250	740569.10/.50/.250
NucleoSpin® Dx Blood	50/250	740899.50/.250
NucleoSpin® Blood L	20	740954.20
NucleoSpin® Blood XL	10/50	740950.10/.50

Genomic DNA from cells and tissue

NucleoSpin® Tissue

All-round kit for the reliable isolation of genomic DNA from a wide variety of starting materials

- gDNA from cells, tissues, bacterial and yeast cells, clinical and forensic samples, etc.
- **16 support protocols available** in the user manual for highest flexibility.
- Starting material < 25 mg tissue or 10²–10⁷ cultured cells.
- High yield (**20–35 µg**) and purity (A_{260}/A_{280} : 1.7–1.9).
- Rapid and easy protocol (20 min/prep excl. lysis).
- For forensic samples, choose **NucleoSpin® DNA Trace** kit and for food and feed samples, choose the **NucleoSpin® Food** kit.



Ordering information

Products	Preps	REF
NucleoSpin® Tissue	10/50/250	740952.10/.50/.250
NucleoSpin® DNA Trace	4/25	740942.4/.25
NucleoSpin® Food	10/50/250	740945.10/.50/.250

Genomic DNA from plant samples

NucleoSpin® Plant II

Kit for the extraction of genomic DNA from plants and fungi

- **Two alternative lysis buffers** included for optimal processing of various samples: Lysis Buffer PL1 (CTAB-based method) and Lysis Buffer PL2 (SDS-based method).
- Improved buffer chemistry for highest purity.
- **NucleoSpin® Filters** for clarification of lysate and **RNase A** are included.
- Use up to 100 mg plant tissue (wet weight) with **NucleoSpin® Plant II**, achieving a typical yield of 1–30 µg of gDNA.
- Choose the **NucleoSpin® Plant II Midi** (< 400 mg) or **NucleoSpin® Plant II Maxi** (< 1 500 mg) to process larger sample amounts.



Ordering information

Products	Preps	REF
NucleoSpin® Plant II	10/50/250	740770.10/.50/.250
NucleoSpin® Plant II Midi	20	740771.20
NucleoSpin® Plant II Maxi	10	740772.10

Genomic DNA from soil

NucleoSpin® Soil

Kit for the isolation of genomic DNA from diverse soil types

- gDNA isolation from the microbial ecology (Gram-positive bacteria, archaea, yeast, fungi, and algae) present in soil, sludge, or sediment.
- **Two alternative lysis buffers** and a **special additive (Enhancer SX)** for optimal processing of various soil samples: high yield and high purity.
- **NucleoSpin® Bead Tubes** (ceramic beads for most efficient cell disruption), **NucleoSpin® Inhibitor Removal Columns** (PCR inhibitors removal), and **NucleoSpin® Soil Column** (DNA binding and purification) are included.
- DNA is ready to use for PCR without previous dilution needed.



Ordering information

Products	Preps	REF
NucleoSpin® Soil	10/50/250	740780.10/.50/.250

Genomic DNA from formalin-fixed, paraffin-embedded samples

NucleoSpin® FFPE DNA

Kit for nucleic acid extraction from formalin-fixed, paraffin-embedded samples with high yield and purity

- Kit includes the odorless and non-toxic buffer **Paraffin Dissolver** (patent pending), which eases the deparaffinization and shortens down the protocol (**no xylene needed**).
- Overcome formalin crosslinking of DNA by incubating with the **Decrosslink Buffer**.
- Elution down to **5 µL** results in highly concentrated DNA.
- The simultaneous extraction of RNA and DNA is also possible (**NucleoSpin® FFPE RNA/DNA**).



Ordering information

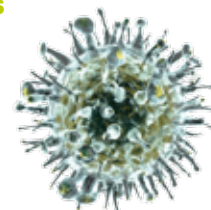
Product	Preps	REF
NucleoSpin® FFPE DNA	10/50/250	740980.10/.50/.250

Viral RNA and DNA

NucleoSpin® RNA Virus

Reliable kit for the purification of viral RNA and DNA from cell-free biological fluids

- Reliable and reproducible isolation of viral nucleic acids – free of impurities.
- Safe, fast (30 min), and well-established procedure.
- Proven for a large variety of viruses including influenza viruses, HCV, HIV, Bird Flu Virus, Blue Tongue Virus, and others.
- Choose the **NucleoSpin® RNA Virus** ($\leq 150 \mu\text{L}$), **NucleoSpin® Dx Virus** ($\leq 150 \mu\text{L}$) for *in vitro* diagnostics, or the **NucleoSpin® RNA Virus F** ($\leq 1 \text{ mL}$) in order to process cell-free body fluids.



Ordering information

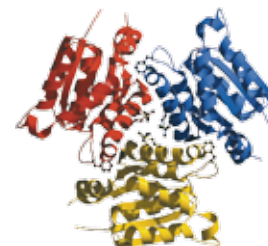
Products	Preps	REF
NucleoSpin® RNA Virus	10/50/250	740956.10/.50/.250
NucleoSpin® Dx Virus	50/250	740895.50/.250
NucleoSpin® RNA Virus F	25	740958

Proteins

Protino®

Resins and columns for the isolation of His-tag and GST-tag proteins

- Purification of His-tag proteins: **Protino® Ni-NTA** or **Protino® Ni-TED**.
- Purification of GST-tag proteins: **Protino® Glutathione Agarose 4B** or **Protino® GST/4B Columns**.



Ordering information

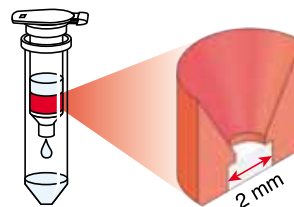
Products	Pack of	REF
His-tag protein purification (Ni-NTA) Highest yield with high purity		
Protino® Ni-NTA Agarose	25 mL/100 mL/500 mL	745400.25/.100/.500
Protino® Ni-NTA Columns 1 mL	5 x 1 mL	745410.5
Protino® Ni-NTA Columns 5 mL	1 x 5 mL/5 x 5 mL	745415.1/.5
His-tag protein purification (Ni-TED) Highest purity		
Protino® Ni-TED Resin	5/30/120/600 g	745200.5/.30/.120/.600
Protino® Ni-TED 150 Packed Columns	10/50	745100.10/.50
Protino® Ni-TED 1 000 Packed Columns	5/50	745110.5/.50
Protino® Ni-TED 2 000 Packed Columns	5/25	745120.5/.25
GST-tag protein purification Market-leading performance		
Protino® Glutathione Agarose 4B	10 mL/100 mL	745500.10/.100
Protino® GST/4B Columns 1 mL	5 x 1 mL	745510.5
Protino® GST/4B Columns 5 mL	1 x 5 mL/5 x 5 mL	745515.1/.5

MACHEREY-NAGEL innovations

XS technology

MACHEREY-NAGEL innovates with the XS technology

- MN has developed a funnel-shaped column design with minimized membrane diameter (2 mm), which allows the DNA/RNA extraction contained in very small materials, leading to nucleic acid isolation of high concentration (elution volume **5–30 µL**).
- Available for the isolation of RNA (**NucleoSpin® RNA XS**), gDNA from tissues and cells (**NucleoSpin® Tissue XS**), and circulating DNA in plasma (**NucleoSpin® Plasma XS**).



Ordering information

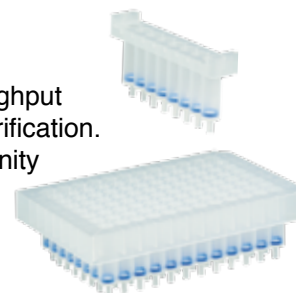
Products	Preps	REF
NucleoSpin® RNA XS	10/50/250	740902.10/.50/.250
NucleoSpin® Tissue XS	10/50/250	740901.10/.50/.250
NucleoSpin® Plasma XS	10/50/250	740900.10/.50/.250

MACHEREY-NAGEL innovations

HTP technologies

MACHEREY-NAGEL innovates with the HTP technologies

- For customers testing multiple samples at once, MN offers a variety of kits in medium-throughput (**8-well strips**) and high-throughput (**96-well plates**) formats for DNA, RNA, and protein purification.
- Technologies: Silica-membrane (**NucleoSpin®**), magnetic beads (**NucleoMag® 96**), and affinity chromatography (**Protino® 96**).
- The kits are available for both **manual** and **automated** use on common laboratory robotic platforms.



Available kits

NucleoSpin® 8/96 Plasmid	Plasmid isolation
NucleoSpin® 8/96 Extract II or NucleoMag® 96 PCR	DNA purification
NucleoSpin® 8/96 Tissue or NucleoMag® 96 Tissue	Isolation of gDNA from cells and tissues
NucleoSpin® 8/96 Blood/QuickPure or NucleoMag® 200 µL/3 mL	Isolation of gDNA from blood samples
NucleoSpin® 8/96 Trace or NucleoMag® 96 Trace	Isolation of gDNA from forensic samples
NucleoSpin® 8/96 Plant II or NucleoMag® 96 Plant	Isolation of gDNA from plant samples
NucleoSpin® 8/96 RNA or NucleoMag® 96 RNA	RNA isolation
NucleoSpin® 8/96 RNA Virus or NucleoMag® 96 Virus	Viral RNA and DNA isolation
Protino® 96 Ni-IDA	Purification of His-tag proteins

For further information on HTP products and its applications, please visit our webpage www.mn-net.com/htapplications

Your local distributor

www.mn-net.com

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