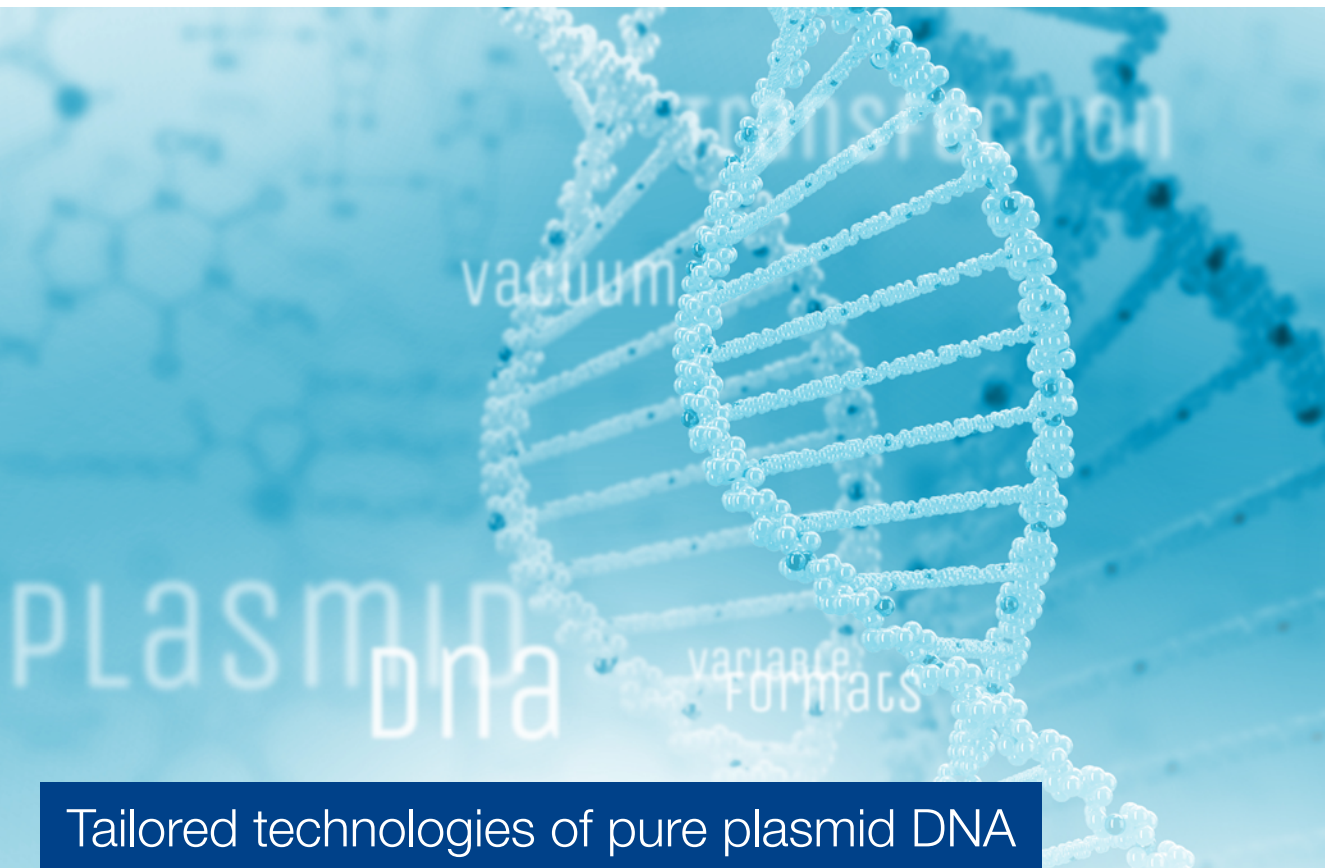


MACHEREY-NAGEL

# Plasmid DNA purification guide

Bioanalysis



Tailored technologies of pure plasmid DNA

Choose the product that matches your needs!

- Mini to Giga scale
- Molecular biology-grade to vaccine-grade quality
- Single prep to high throughput

**MACHEREY-NAGEL**

[www.mn-net.com](http://www.mn-net.com)



# Purity of plasmid DNA

## Plasmid DNA purification with MACHERY-NAGEL

Salts derived from purification procedures as well as proteins from the bacterial cells can lead to plasmid DNA contamination and poor downstream application results. Salts, as well as proteins, are efficiently depleted by MACHERY-NAGEL plasmid purification products. In addition, all our kits for plasmid DNA isolation contain RNase to avoid RNA contamination.

However, the majority of impurities in plasmid DNA preparations derive from endotoxins. Endotoxins are lipopolysaccharides from the bacterial cell wall that might be co-purified with the plasmid DNA. Endotoxins have cytotoxic effects and negatively influence cell viability and transfection efficiency. Additionally, endotoxins are known to influence gene expression in cell cultures, leading to false results in gene expression analyses. Endotoxin levels are measured by a standardized test, and the measurement unit is EU (endotoxin unit). MACHERY-NAGEL provides plasmid isolation products that enable the efficient removal of endotoxins.

## Why choose MN for your plasmid DNA application?

Since the development of kit-based plasmid isolation around 30 years ago, MACHERY-NAGEL has been a pioneer of supplying fast and highly reliable solutions for the purification of plasmid DNA. Today, a comprehensive portfolio of kits based on premium performance anion exchange chromatography or silica membrane technology is available to provide the most adequate solutions for individual requirements.

The plasmid purification product that best fits your needs will depend upon your downstream application. Routine molecular biology applications are not influenced by the presence of endotoxins. However, manipulation of standard eukaryotic cell lines such as HeLa or HEK cells require a higher purity. For these applications, we recommend our transfection-grade plasmid DNA isolation kits with endotoxin levels between 1 – 50 EU/ $\mu$ g DNA. For highly sensitive applications, we recommend our endotoxin-free kits. These applications include the transfection of precious cell lines, such as primary cells, stem cells or cells growing in low numbers. Our endotoxin-free products enable the isolation of plasmid DNA with endotoxin levels below 0.1 EU/ $\mu$ g DNA.

Emerging applications, such as mRNA-based vaccines and gene therapy treatments, rely heavily on superior plasmid DNA as a fundamental starting material. By employing the NucleoBond® RS workflow, you can achieve endotoxin levels  $\leq$  0.01 EU/ $\mu$ g DNA, ensuring compliance with stringent regulatory standards.

MN has developed high quality products for plasmid purification to match individual customer requirements.



## Icon annotation

**Mini** Mini spin column for microcentrifuge tubes (1.5 mL or 2 mL)



**Midi** Midi column for gravity flow (NucleoBond® Xtra/ NucleoBond® PC technology) or 15 mL midi spin columns for centrifuges



**Maxi** NucleoBond® Xtra Maxi/ NucleoBond® AX 500 Column for gravity flow



**Mega** NucleoBond® AX 2000 Columns for gravity flow



**Giga** NucleoBond® AX 10000 Columns for gravity flow



**PrepS** NucleoBond® PC Prep 100 Column for preparative scale



**8-well** Mini spin columns in 8-well strip format



**96-well** Mini spin columns in 96-well plate format



**Snap** Disposable funnel container combined with a mini spin column for vacuum processing (e.g., using NucleoVac 24 Vacuum Manifold), and subsequent centrifugation for elution in a microcentrifuge tubes (1.5 mL or 2 mL)



**Funnel** NucleoSpin® Funnel Column for concentration of large volumes










**Filter** NucleoBond® Finalizer (Large) for DNA precipitation and filtration




# MACHEREY-NAGEL plasmid purification products

## Kits for plasmid DNA isolation

Application	Scale	Culture volume* / Cell wet weight	Typical yield** / recovery	Product	Page
Sequencing, cloning	Mini	1–5 mL	25–45 µg	NucleoSpin® Plasmid	4
		1–5 mL	25–45 µg	NucleoSpin® Plasmid (NoLid)	4
		1–5 mL	15–30 µg	NucleoSpin® Plasmid EasyPure	5 
	8-well strip	1–5 mL	4–30 µg	NucleoSpin® 8 Plasmid	4
	96-well plate	1–5 mL	4–30 µg	NucleoSpin® 96 Plasmid	4
	96-well plate	1.1–1.3 mL	8 µg	NucleoSpin® 96 Flash	6
Transfection-grade plasmid DNA (≤ 50 EU/µg DNA) for transfection of non-sensitive cells	Mini	1–5 mL	15–30 µg	NucleoSpin® Plasmid Transfection-grade	7
	96-well plate	1–5 mL	5–20 µg	NucleoSpin® 96 Plasmid Transfection-grade	7
	Snap	50 mL	250 µg	NucleoSnap® Plasmid Midi	8  
	Midi	< 200 mL	500 µg	NucleoBond® Xtra Midi	9 
	Maxi	< 600 mL	1 mg	NucleoBond® Xtra Maxi	9 
		250–750 mL	10–150 µg	NucleoBond® Xtra BAC	9
	Mega	150–500 mL	0.5–2 mg	NucleoBond® PC 2000	10
Giga	500–2000 mL	2–10 mg	NucleoBond® PC 10000	10	
Endotoxin-free plasmid DNA (≤ 0.1 EU/µg DNA) for transfection of sensitive cells	Midi	< 200 mL	500 µg	NucleoBond® Xtra Midi EF	11 
	Maxi	< 600 mL	1 mg	NucleoBond® Xtra Maxi EF	11 
	Mega	150–500 mL	0.5–2 mg	NucleoBond® PC 2000 EF	12
	Giga	500–2000 mL	2–10 mg	NucleoBond® PC 10000 EF	12
	Preparative	5–20 L	80–100 mg	NucleoBond® PC Prep 100	12
	96-well plate	1–5 mL	2–50 µg	NucleoBond® 96 Xtra EF	11
Vaccine-grade plasmid DNA (≤ 0.01 EU/µg DNA) for high regulatory standards	Preparative	8 g	Up to 10 mg	NucleoBond® RS 10	13
	Preparative	40 g	Up to 50 mg	NucleoBond® RS 50	13
	Preparative	80 g	Up to 100 mg	NucleoBond® RS 100	13
	Preparative	145 g	Up to 200 mg	NucleoBond® RS 200	13
Desalting and concentration tools	Midi		90–100 %	NucleoSnap® Finisher Midi	14
	Maxi		90–100 %	NucleoSnap® Finisher Maxi	14
	Midi		90–100 %	NucleoSpin® Finisher Midi	14
	Midi	5 mL eluate	60–90 %	NucleoBond® Finalizer	15
	Maxi	15 mL eluate	60–90 %	NucleoBond® Finalizer Large	15

\* Culture volume for high copy plasmids

\*\* Typical yield for high copy plasmids.  fast and time saving procedure

## Plasmid purification technologies




	NucleoSpin®	NucleoSpin® 8	NucleoSpin® 96	NucleoSnap®	NucleoBond®	NucleoBond® 96
Technology	Silica membrane	Silica membrane	Silica membrane	Precipitation and filtration	Anion exchange chromatography	Anion exchange chromatography
Format	Mini spin column	8-well strip	96-well plate	Snap off column	Mini to preparative scale columns	96-well plate
Processing	Vacuum or centrifugation	Vacuum or centrifugation	Vacuum or centrifugation	Vacuum (centrifugation for elution)	Gravity flow (NucleoBond® RS columns and NucleoBond® PC Prep 100 intended for HPLC, FPLC)	Gravity flow

# Sequencing, cloning

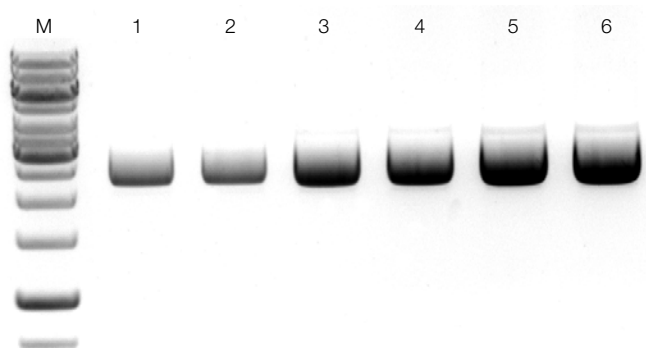
## NucleoSpin® Plasmid

Reliable preparation of plasmid DNA from low to high throughput

- High capacity – up to 50 µg plasmid DNA with NucleoSpin® Plasmid
- Optional washing step for highest plasmid quality
- Customized support for use of NucleoSpin® 8 / 96 Plasmid on various automation platforms available

	 NucleoSpin® Plasmid	 NucleoSpin® 8 Plasmid	 NucleoSpin® 96 Plasmid
Technology	Silica membrane technology	Silica membrane technology	Silica membrane technology
Endotoxin level	>> 50 EU/µg DNA	>> 50 EU/µg DNA	>> 50 EU/µg DNA
Vector size	< 25 kbp	< 15 kbp	< 15 kbp
Sample material	1–5 mL <i>E. coli</i> culture	1–5 mL <i>E. coli</i> culture	1–5 mL <i>E. coli</i> culture
Typical yield	25–45 µg	4–30 µg	4–30 µg
Elution volume	50 µL	75–150 µL	75–150 µL
Theoretical binding capacity	60 µg	30 µg	30 µg
Preparation time	20 min/6 preps	45 min/6 strips	45 min/plate

## Application data



### High yield plasmid Mini prep

Plasmid DNA isolation (pUC18) from *E. coli* DH5α using NucleoSpin® Plasmid. For the isolation 2 mL (lane 1–2), 5 mL (lane 3–4) and 8 mL (lane 5–6) LB cultures were used and analyzed on an agarose gel (2 µL of each eluate). Lane M: marker.

## Ordering information

Product	Preps	REF
■ NucleoSpin® Plasmid	10 / 50 / 250	740588.10 / .50 / .250
■ NucleoSpin® Plasmid (NoLid)	10 / 50 / 250	740499.10 / .50 / .250
■ NucleoSpin® 8 Plasmid	12 × 8 / 60 × 8	740621 / .5
■ NucleoSpin® 8 Plasmid Core Kit*	48 × 8	740461.4
■ NucleoSpin® 96 Plasmid	1 × 96 / 4 × 96 / 24 × 96	740625.1 / .4 / .24
■ NucleoSpin® 96 Plasmid Core Kit*	4 × 96 / 24 × 96	740616.4 / .24
<b>Related product</b>		
■ NucleoSpin® Plasmid Buffer Set	1	740953

\* Kits with basic content focusing on automation platforms. Additional accessories can be combined as needed.

# Sequencing, cloning

## NucleoSpin® Plasmid EasyPure

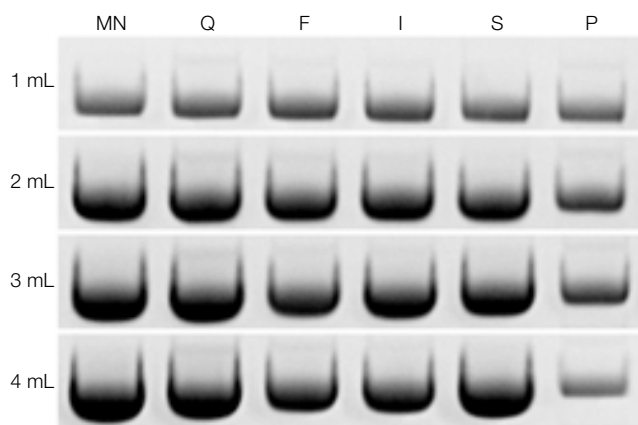
Rapid small scale preparation of plasmid DNA

- Ultrafast procedure with one combined washing and drying step
- Liquid RNase – easy handling without dissolving
- LyseControl for visualization of completed alkaline lysis



Technology	Silica membrane technology
Endotoxin level	> > 50 EU/μg DNA
Vector size	< 25 kbp
Sample material	1 – 5 mL <i>E. coli</i> culture
Typical yield	15 – 30 μg
Elution volume	50 μL
Theoretical binding capacity	35 μg
Preparation time	14 min/6 preps

### Application data



Time saving isolation of plasmid DNA with NucleoSpin® Plasmid EasyPure

Plasmid DNA was isolated from bacterial culture with the NucleoSpin® Plasmid EasyPure and competitor kits. The NucleoSpin® Plasmid EasyPure enables successful plasmid DNA isolation even with increasing culture volumes in a very short prep time.

Plasmid DNA was eluted in 50 μL elution buffer. 2.5 μL from each eluate were analyzed on a 1 % TAE agarose gel.

### Ordering information

Product	Preps	REF
NucleoSpin® Plasmid EasyPure	10 / 50 / 250	740727.10 / .50 / .250




# Sequencing, cloning

## NucleoSpin® 96 Flash

High throughput purification of small and large constructs

- Cost efficient solution for plasmid DNA isolation
- Protocol for large, low copy constructs available

	 NucleoSpin® 96 Flash
Product	
Technology	Alkaline lysis with subsequent filtration and precipitation
Processing	Manual or automated
Endotoxin level	> > 50 EU/μg DNA
Sample material	1.1 – 1.3 mL (high copy), 1.1 – 3.9 mL (low copy)
Vector size	< 250 kbp
Typical yield	8 μg (1.3 mL high copy), 1 μg (1.3 mL low copy)
Preparation time	90 min/2 plates

## Ordering information

Product	Preps	REF
■ NucleoSpin® 96 Flash	2 × 96 / 4 × 96 / 24 × 96	740618.2 / .4 / .24





# Transfection-grade plasmid DNA

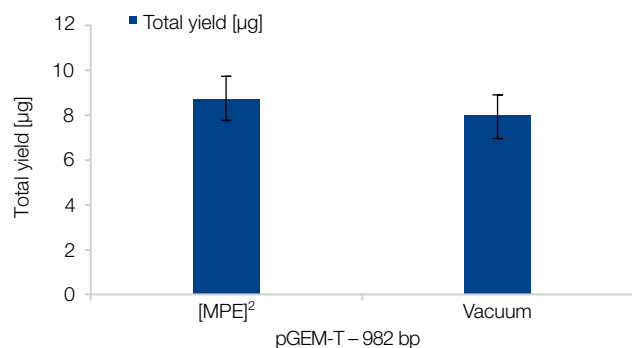
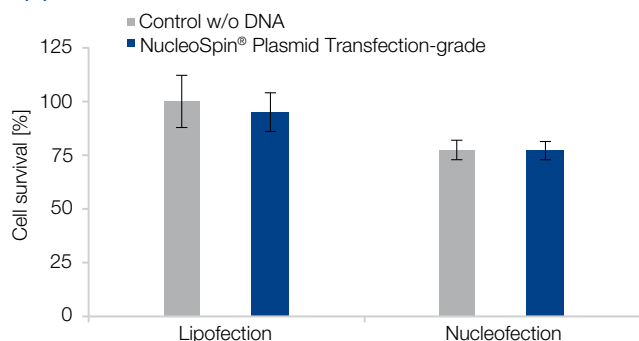
## NucleoSpin® Plasmid Transfection-grade

A fast way to purify plasmid DNA for transfections

- Diminished endotoxin content due to a novel technology (unique endotoxin removal buffer, patented)
- The mini spin and 96-well solution for plasmid DNA with low endotoxin levels

	 <b>NucleoSpin® Plasmid Transfection-grade</b>	 <b>NucleoSpin® 96 Plasmid Transfection-grade</b>
Technology	Silica membrane technology	Silica membrane technology
Endotoxin level	< 50 EU/µg DNA	1 – 50 EU/µg DNA
Sample material	1 – 5 mL <i>E. coli</i> culture	1 – 5 mL <i>E. coli</i> culture
Vector size	< 25 kbp	< 25 kbp
Typical yield	15 – 30 µg	5 – 20 µg
Elution volume	30 – 50 µL	100 – 200 µL
Theoretical binding capacity	35 µg	20 µg
Preparation time	20 min/6 preps	45 min/plate

## Application data



### Cell compatibility of eluted DNA

A pCMV-GFP plasmid (kindly provided by PlasmidFactory GmbH & Co. KG, Bielefeld, Germany) was purified from *E. coli* using NucleoSpin® Plasmid Transfection-grade. Plasmids were transfected into HEK239 cells by lipofection (Lipofectamine 2000) or Nucleofection™ with > 90% transfection efficiency in both cases. Cell survival was compared to controls without DNA addition. The results show that cell survival is not affected by DNA eluates purified with NucleoSpin® Plasmid Transfection-grade.

### Isolation of plasmid DNA from bacterial cultures

Plasmid DNA was isolated from 1.5 mL of bacterial cultures (*E. coli* DH5α, high copy plasmid pGEM®-T Easy; 982 bp insert; n = 24) using the NucleoSpin® 96 Plasmid Transfection-grade kit on an [MPE]<sup>2</sup> positive pressure module (dark blue) or a manual vacuum manifold (light blue). Total yield was determined by UV spectrometry showing comparable yields between positive pressure or vacuum processed samples.

## Ordering information

Product	Preps	REF
■ NucleoSpin® Plasmid Transfection-grade	10 / 50 / 250	740490.10 / .50 / .250
■ NucleoSpin® 96 Plasmid Transfection-grade	1 × 96 / 4 × 96 / 24 × 96	740491.1 / .4 / .24
■ NucleoSpin® 96 Plasmid Transfection-grade Core Kit*	4 × 96 / 24 × 96	740492.4 / .24

\* Kits with basic content focusing on automation platforms. Additional accessories can be combined as needed.

# Transfection-grade plasmid DNA

## NucleoSnap® Plasmid Midi

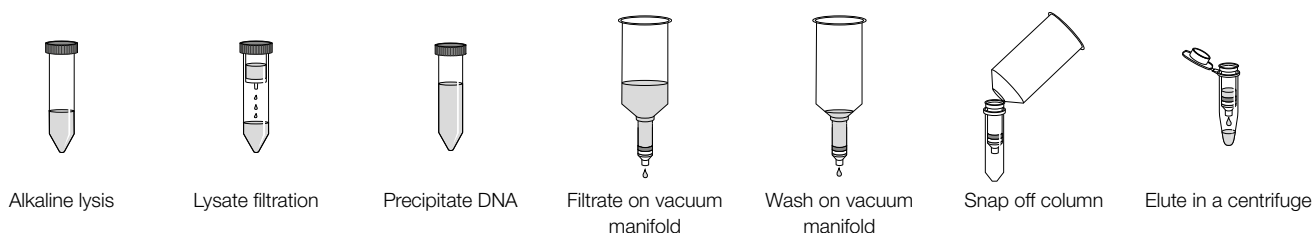
Ultrafast plasmid Midi prep due to vacuum processing

- New column design (snap off column) for vacuum processing of large sample volumes
- Isolate up to 250 µg plasmid DNA in only 35 minutes
- No need for time consuming DNA precipitation

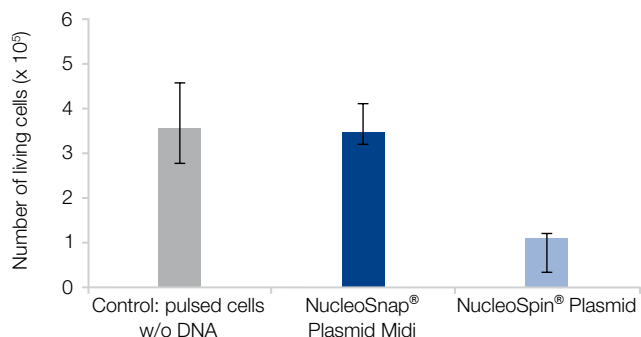


Technology	Precipitation and filtration
Processing	Vacuum, centrifugation for lysate clarification and elution
Endotoxin level	< 50 EU/µg DNA
Sample material	≤ 50 mL <i>E. coli</i> culture (OD600 = 5)
Vector size	< 25 kbp
Typical yield	250 µg
Elution volume	200 – 500 µL
Theoretical binding capacity	1.5 mg
Preparation time	35 min/6 preps

## Procedure



## Application data



### Superior performance in electroporation experiments

Eukaryotic cells were manipulated with the Nucleofector™ technology. The viability of cells treated with plasmid DNA isolated with the NucleoSnap® Plasmid Midi kit is comparable to the viability of cells in the mock control (grey bar), indicating that the plasmid DNA does not affect cell viability. In contrast, Nucleofection™ with plasmid DNA isolated with the molecular biology-grade NucleoSpin® Plasmid kit leads to a decrease in cell viability.

## Ordering information

Product	Preps	REF
■ NucleoSnap® Plasmid Midi	10/50	740494.10/.50
Related products		
■ NucleoVac 24 Vacuum Manifold	1	740299
■ NucleoVac Mini Adapter	100	740297.100
■ NucleoVac Valves	24	740298.24
■ NucleoVac Vacuum Regulator	1	740461






# Transfection-grade plasmid DNA

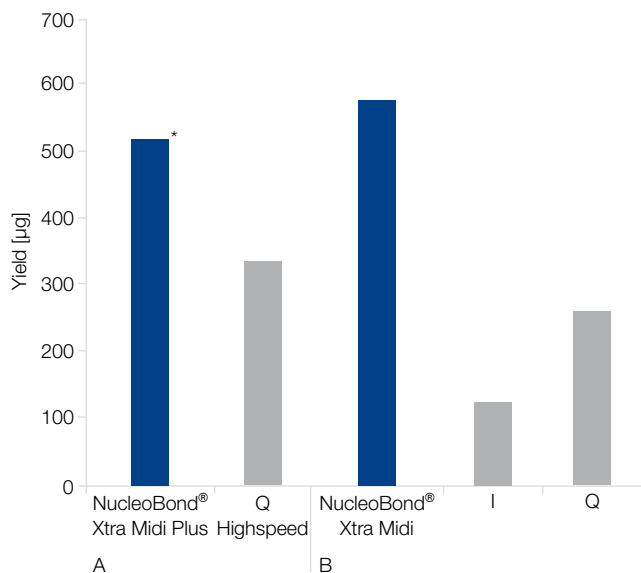
## NucleoBond® Xtra

2<sup>nd</sup> generation anion exchanger for fast purification of plasmid DNA

- Column filter for fast and easy lysate clarification included – high filter flow rates, parallel lysate clearing, and loading onto the column
- Midi and Maxi preps with extremely high yield
- BAC kit for large construct DNA

	Midi 	Maxi 	Maxi 
	NucleoBond® Xtra Midi / Plus*	NucleoBond® Xtra Maxi / Plus*	NucleoBond® Xtra BAC
Technology	Anion exchange chromatography	Anion exchange chromatography	Anion exchange chromatography
Endotoxin level	1 – 10 EU/µg DNA	1 – 10 EU/µg DNA	1 – 10 EU/µg DNA
Sample material	< 200 mL (high copy), < 400 mL (low copy)	< 600 mL (high copy), 1200 mL (low copy)	250 – 750 mL (low copy)
Vector size	< 300 kbp	< 300 kbp	< 300 kbp
Typical yield	500 µg	1000 µg	10 – 150 µg
Theoretical binding capacity	1000 µg	3000 µg	150 µg
Preparation time	70 min/prep, 30 min/prep*	75 min/prep, 35 min/prep*	75 min/4 preps

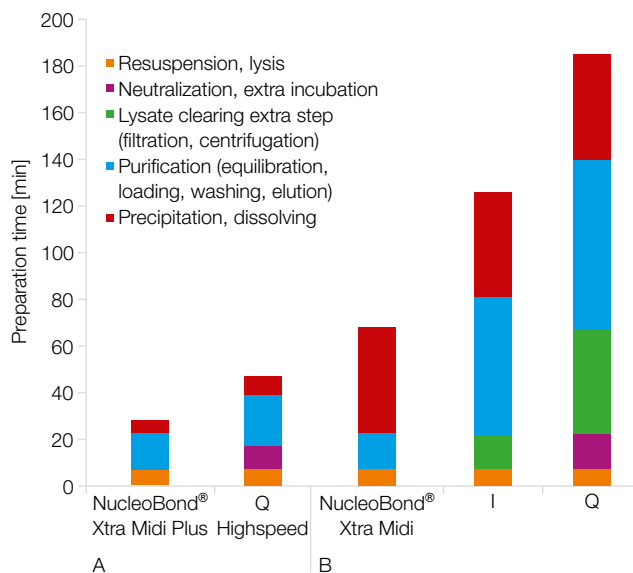
## Application data



\* Yield of plasmid DNA is slightly lower due to residual DNA remaining on the desalting tool (compared to kits without desalting tool).

### Yield in comparison to competitor anion exchange based kits

Plasmid DNA was isolated following each manufacturer's protocol using the maximum culture volume with high plasmid content. Yield of plasmid DNA was determined after DNA precipitation. Comparison: A) Kits including desalting tool, B) Kits without desalting tool.



### Shorter preparation time compared to competitors

NucleoBond® Xtra shows up to 60% time saving and up to 100% higher yields compared to competitor products. Comparison: A) Kits including desalting tool, B) Kits without desalting tool.

## Ordering information

Product	Preps	REF
 NucleoBond® Xtra Midi	10 / 50 / 100	740410.10 / .50 / .100
 NucleoBond® Xtra Midi Plus*	10 / 50	740412.10 / .50
 NucleoBond® Xtra Maxi	10 / 50 / 100	740414.10 / .50 / .100
 NucleoBond® Xtra Maxi Plus*	10 / 50	740416.10 / .50
 NucleoBond® Xtra BAC	10 / 25	740436.10 / .25



\* NucleoBond® Xtra Plus kits contain NucleoBond® Finalizer for plasmid desalination and concentration. See page 15 for details.

# Transfection-grade plasmid DNA

## NucleoBond® PC

1<sup>st</sup> generation anion exchanger for purification of plasmid DNA

- No centrifugation required for clarification of lysates with NucleoBond® Folded Filters, no shearing forces
- Separate kit components available: NucleoBond® AX Columns, RNase, and buffers

	 <b>NucleoBond® PC 2000</b>	 <b>NucleoBond® PC 10000</b>
Technology	Anion exchange chromatography	Anion exchange chromatography
Endotoxin level	1 – 10 EU/μg DNA	1 – 10 EU/μg DNA
Lysate clarification	Folded filters	Folded filters
Sample volume	150 – 500 mL (high copy), 500 – 2000 mL (low copy)	500 – 2000 mL (high copy), 1 – 4 L (low copy)
Typical yield	0.5 – 2 mg	2 – 10 mg
Theoretical binding capacity	2 mg	10 mg
Preparation time	90 – 120 min/4 – 6 preps	120 – 150 min/2 preps

## Ordering information




Product	Preps	REF
■ NucleoBond® PC 2000	5	740576
■ NucleoBond® PC 10000	5	740593
<b>Related products</b>		
■ NucleoBond® Buffer Set I	1	740601
■ NucleoBond® AX 2000	10	740525
■ NucleoBond® AX 10000	5	740534

# Endotoxin-free plasmid DNA

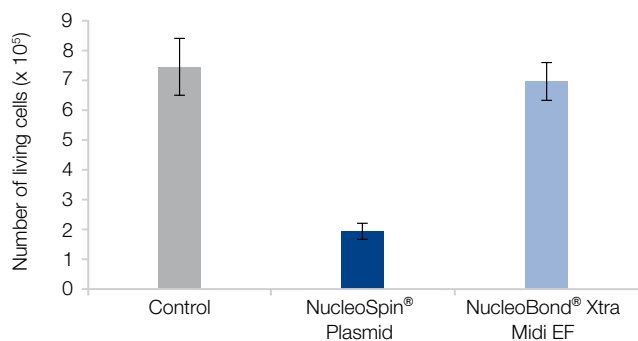
## NucleoBond® Xtra EF

2<sup>nd</sup> generation anion exchange technology for time saving endotoxin-free plasmid DNA

- Plasmid DNA for transfection of highly sensitive cells (e. g., primary cells, stem cells)
- Patented endotoxin removal by additional washing step
- Column filter included in Midi / Maxi columns – high filter flow rates, parallel lysate clearing and, loading onto the column ensures fast processing

	 NucleoBond® Xtra Midi / Plus* EF	 NucleoBond® Xtra Maxi / Plus* EF	 NucleoBond® 96 Xtra EF
Technology	Anion exchange chromatography	Anion exchange chromatography	Anion exchange chromatography
Endotoxin-level	≤ 0.05 EU/μg DNA	≤ 0.05 EU/μg DNA	< 0.1 EU/μg DNA
Processing	Gravity flow	Gravity flow	Gravity flow
Sample material	< 200 mL (high copy), < 400 mL (low copy)	< 600 mL (high copy), < 1200 mL (low copy)	1 – 5 mL
Vector size	< 300 kbp	< 300 kbp	< 25 kbp, < 300 kbp (without NucleoBond® Finalizer Plate)
Typical yield	500 μg	1000 μg	2 – 4 μg (1.5 mL culture in 96-well plate) 10 – 50 μg (5 mL culture in glass tube)
Theoretical binding capacity	1000 μg	3000 μg	50 μg
Preparation time	85 min/prep, 45 min/prep*	90 min/prep, 50 min/prep*	120 min/plate






## Application data



### Efficient transfection of endotoxin-sensitive eukaryotic cells

Huh-7 cells were transfected with Lipofectamine® 2000 reagent (Life Technologies). The viability of cells treated with plasmid DNA isolated with the NucleoBond® Xtra Midi EF kit is comparable to the viability of cells in the control, indicating that the plasmid DNA does not affect cell viability.

## Ordering information

Product	Preps	REF
 NucleoBond® Xtra Midi EF	10 / 50	740420.10 / .50
 NucleoBond® Xtra Midi Plus EF*	10 / 50	740422.10 / .50
 NucleoBond® Xtra Maxi EF	10 / 50	740424.10 / .50
 NucleoBond® Xtra Maxi Plus EF*	10 / 50	740426.10 / .50
 NucleoBond® 96 Xtra EF*	1 × 96 / 4 × 96	740430.1 / .4




\* NucleoBond® Xtra Plus kits contain NucleoBond® Finalizer for plasmid desalination and concentration. See page 15 for details.

# Endotoxin-free plasmid DNA

## NucleoBond® PC EF

1<sup>st</sup> generation anion exchange technology for endotoxin-free plasmid DNA from

- No centrifugation required for clarification of lysates with NucleoBond® Folded Filters, no shearing forces
- Separate kit components available: NucleoBond® AX Columns, RNase, and buffers

	 NucleoBond® PC 2000 EF	 NucleoBond® PC 10000 EF	 NucleoBond® PC Prep 100
Technology	Anion exchange chromatography	Anion exchange chromatography	Anion exchange chromatography
Endotoxin level	< 0.1 EU/µg DNA	< 0.1 EU/µg DNA	< 0.1 EU/µg DNA
Sample material	150–500 mL	500–2000 mL	5–20 L
Vector size	< 300 kbp	< 300 kbp	< 300 kbp
Typical yield	0.5–2 mg	2–10 mg	80–100 mg
Theoretical binding capacity	2000 µg	10000 µg	100 mg
Preparation time	150 min/2 preps	180 min/2 preps	20 h/prep

## References

Song et al. 2017 “Different antiviral effects of IFNα subtypes in a mouse model of HBV infection.” Scientific Reports

Adoro et al. 2015 “IL-21 induces antiviral microRNA-29 in CD4 T cells to limit HIV-1 infection.” Nature Communications

## Ordering information

Product	Preps	REF
■ NucleoBond® PC 2000 EF	5	740549
■ NucleoBond® PC 10000 EF	5	740548
■ NucleoBond® PC Prep 100	1	740594
<b>Related products</b>		
■ NucleoBond® AX 2000	10	740525
■ NucleoBond® AX 10000	5	740534







# Vaccine-grade plasmid DNA

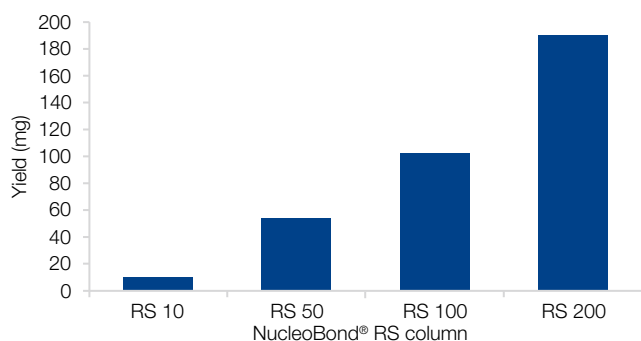
## NucleoBond® RS

Large-scale plasmid purification for processes with high regulatory standards

- Endotoxin levels  $\leq 0.01$  EU/ $\mu$ g DNA
- Closed columns for pump or FPLC processing
- Scalable system for up to 200 mg of plasmid DNA
- Flexible component configuration

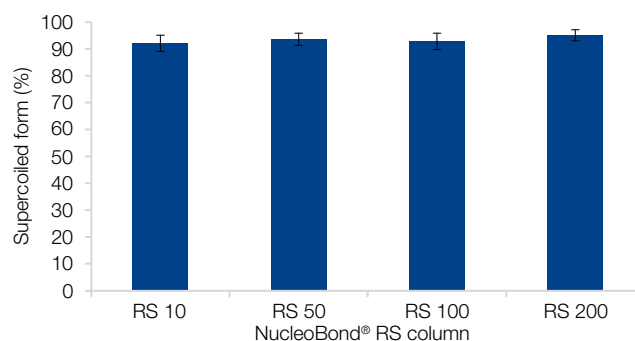
	 NucleoBond® RS 10	 NucleoBond® RS 50	 NucleoBond® RS 100	 NucleoBond® RS 200
Technology	Anion exchange technology	Anion exchange technology	Anion exchange technology	Anion exchange technology
Endotoxin level	$\leq 0.01$ EU/ $\mu$ g DNA	$\leq 0.01$ EU/ $\mu$ g DNA	$\leq 0.01$ EU/ $\mu$ g DNA	$\leq 0.01$ EU/ $\mu$ g DNA
Sample material	8 g	40 g	80 g	145 g
Theoretical binding capacity	Up to 10 mg	Up to 50 mg	Up to 100 mg	Up to 200 mg
Processing	Peristaltic pump/FPLC	Peristaltic pump/FPLC	Peristaltic pump/FPLC	Peristaltic pump/FPLC
$A_{260}/A_{280}$	1.8–2.0	1.8–2.0	1.8–2.0	1.8–2.0
Supercoiled form (ccc) in %	$\geq 90$ % supercoiled form	$\geq 90$ % supercoiled form	$\geq 90$ % supercoiled form	$\geq 90$ % supercoiled form

## Application data



The NucleoBond® RS purification workflow enables a straightforward scalability of your plasmid purification





Plasmid DNA was purified from E.coli with the four different sizes of our NucleoBond® RS columns. The figure shows the maximum amounts of plasmid DNA achieved per column size.



Plasmids isolated with NucleoBond® RS columns show very high structural integrity

The supercoiled form of plasmid DNA is considered to be the desirable form for applications like gene therapy or vaccination. Regulatory standards specify that plasmids have to be present with more than 90% supercoiled form. These data show that plasmids isolated with our NucleoBond® RS columns meet these standards.

## Ordering information




Product	Preps	REF
 NucleoBond® RS 10	5 columns	743502
 NucleoBond® RS 50	1 column	743503
 NucleoBond® RS 100	1 column	743504
 NucleoBond® RS 200	1 column	743505

## Desalination and concentration tools

### NucleoSnap® Finisher – NucleoSpin® Finisher

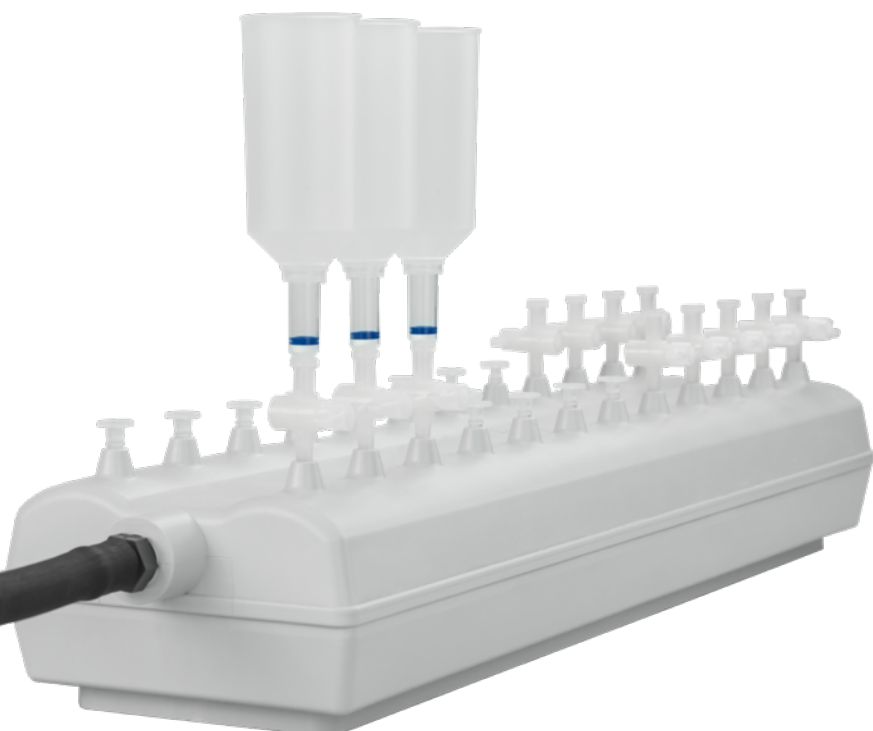
The fastest way to finish NucleoBond® Midi and Maxi preps

- No time consuming isopropanol precipitation
- Up to 24 samples in parallel
- Fast procedure for > 6 samples, vacuum or centrifugation

	 NucleoSnap® Finisher Midi	 NucleoSnap® Finisher Maxi	 NucleoSpin® Finisher Midi
Technology	DNA precipitation and filtration	DNA precipitation and filtration	DNA precipitation and filtration
Processing	Vacuum, centrifugation for elution	Vacuum, centrifugation for elution	Centrifugation
Vector size	< 25 kb	< 25 kb	< 25 kb
Sample material	DNA eluate	DNA eluate	DNA eluate
Compatibility	Eluates from NucleoBond® Xtra Midi (EF), NucleoBond® PC 20 / 100	Eluates from NucleoBond® Xtra Maxi (EF), NucleoBond® PC 500 (EF)	Eluates from NucleoBond® Xtra Midi / Maxi (EF), NucleoBond® PC 20 / 100 / 500 (EF)
Typical recovery	90 – 100 %	90 – 100 %	90 – 100 %
Elution volume	≥ 100 µL	≥ 100 µL	≥ 100 µL
Preparation time	< 10 min/12 preps	< 10 min/12 preps	15 min/6 preps

### Ordering information

Product	Preps	REF
■ NucleoSnap® Finisher Midi	10 / 50	740434.10 / .50
■ NucleoSnap® Finisher Maxi	10 / 50	740435.10 / .50
NucleoSpin® Finisher Midi	10 / 50	740439.10 / .50
<b>Related products</b>		
■ NucleoVac 24 Vacuum Manifold	1	740299
■ NucleoVac Mini Adapter	100	74097.100
■ NucleoVac Valves	24	740298.24
■ NucleoVac Vacuum Regulator	1	740641





## Desalination and concentration tools

### NucleoBond® Finalizer

Proven syringe filters for speeding up anion exchange plasmid preparations

- Eliminates centrifugation steps for precipitation – reduces prep time from 1 h to only 5 min
- Two sizes available, to be combined with Midi and Maxi preparations
- No loss of DNA pellets or incomplete solubilization of barely visible precipitates

	 <b>NucleoBond® Finalizer</b>	 <b>NucleoBond® Finalizer Large</b>
Technology	DNA precipitation and filtration	DNA precipitation and filtration
Vector size	2–50 kbp	2–50 kbp
Sample material	5 mL DNA eluate	15 mL DNA eluate
Compatibility	Eluates from NucleoBond® Xtra Midi (EF), NucleoBond® PC 100/500 (EF)	Eluates from NucleoBond® Xtra Midi (EF), NucleoBond® PC 2000 (EF)
Typical recovery	60–90 %	60–90 %
Elution volume	200–800 µL	400–1000 µL
Preparation time	5 min/prep	5 min/prep

### Ordering information

Product	Preps	REF
■ NucleoBond® Finalizer	20 / 100	740519.20 / .100
■ NucleoBond® Finalizer Large	20 / 100	740418.20 / .100



# Kits for plasmid DNA isolation

## Ordering information

Product	Preps / Pack of	REF
<b>Molecular biology-grade plasmid DNA</b>		
■ NucleoSpin® Plasmid	10 / 50 / 250	740588.10 / .50 / .250
■ NucleoSpin® Plasmid (NoLid)	10 / 50 / 250	740499.10 / .50 / .250
■ NucleoSpin® Plasmid EasyPure	10 / 50 / 250	740727.10 / .50 / .250
■ NucleoSpin® 8 Plasmid	12 × 8 / 60 × 8	740621 / .5
■ NucleoSpin® 8 Plasmid Core * Kit	48 × 8	740461
■ NucleoSpin® 96 Plasmid	1 × 96 / 4 × 96 / 24 × 96	740625.1 / .4 / .24
■ NucleoSpin® 96 Plasmid Core * Kit	4 × 96 / 24 × 96	740616.4 / .24
■ NucleoSpin® 96 Flash	2 × 96 / 4 × 96 / 24 × 96	740618.2 / .4 / .24
<b>Transfection-grade plasmid DNA</b>		
■ NucleoSpin® Plasmid Transfection-grade	10 / 50 / 250	740490.10 / .50 / .250
■ NucleoSpin® 96 Plasmid Transfection-grade	1 × 96 / 4 × 96 / 24 × 96	740491.1 / .4 / .24
■ NucleoSpin® 96 Plasmid Transfection-grade Core * Kit	4 × 96 / 24 × 96	740492.4 / .24
■ NucleoSnap® Plasmid Midi	10 / 50	740494.10 / .50
■ NucleoBond® Xtra Midi	10 / 50 / 100	740410.10 / .50 / .100
■ NucleoBond® Xtra Midi Plus (incl. Finalizer)	10 / 50	740412.10 / .50
■ NucleoBond® Xtra Maxi	10 / 25	740436.10 / .25
■ NucleoBond® Xtra Maxi Plus (incl. Finalizer)	10 / 50	740416.10 / .50
■ NucleoBond® Xtra BAC	10 / 50 / 100	740414.10 / .50 / .100
■ NucleoBond® PC 2000	5	740576
■ NucleoBond® PC 10000	5	740593
<b>Endotoxin-free plasmid DNA</b>		
■ NucleoBond® Xtra Midi EF	10 / 50	740420.10 / .50 / .100
■ NucleoBond® Xtra Midi Plus EF (incl. Finalizer)	10 / 50	740422.10 / .50
■ NucleoBond® Xtra Maxi EF	10 / 50	740424.10 / .50 / .100
■ NucleoBond® Xtra Maxi Plus EF (incl. Finalizer)	10 / 50	740426.10 / .50
■ NucleoBond® 96 Xtra EF	1 × 96 / 4 × 96	740430.1 / .4
■ NucleoBond® PC 2000 EF	5	740549
■ NucleoBond® PC 10000 EF	5	740548
■ NucleoBond® Prep 100	1	740594
<b>Vaccine-grade plasmid DNA</b>		
■ NucleoBond® RS 10	5	743502
■ NucleoBond® RS 50	1	743503
■ NucleoBond® RS 100	1	743504
■ NucleoBond® RS 200	1	743505
<b>Desalination and concentration tools for anion exchange eluates</b>		
■ NucleoSnap® Finisher Midi	10 / 50	740434.10 / .50
■ NucleoSnap® Finisher Maxi	10 / 50	740435.10 / .50
■ NucleoSpin® Finisher	10 / 50	740439.10 / .50
■ NucleoBond® Finalizer	20	740519.20
■ NucleoBond® Finalizer Large	20	740418.20
<b>Accessories</b>		
■ NucleoVac 24 Vacuum Manifold	1	740299
■ NucleoVac Mini Adapter	100	740297.100
■ NucleoVac Valves	24	740298.24
■ NucleoVac 96 Vacuum Manifold	1	740681
■ NucleoVac Vacuum Regulator	1	740461
■ NucleoBond® Xtra Combi Rack	1	740415
■ NucleoBond® Xtra Smart Rack	1	740413

\* Kits with basic content focusing automation platforms. Additional accessories can be combined as needed.  
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# Plasmid DNA purification guide

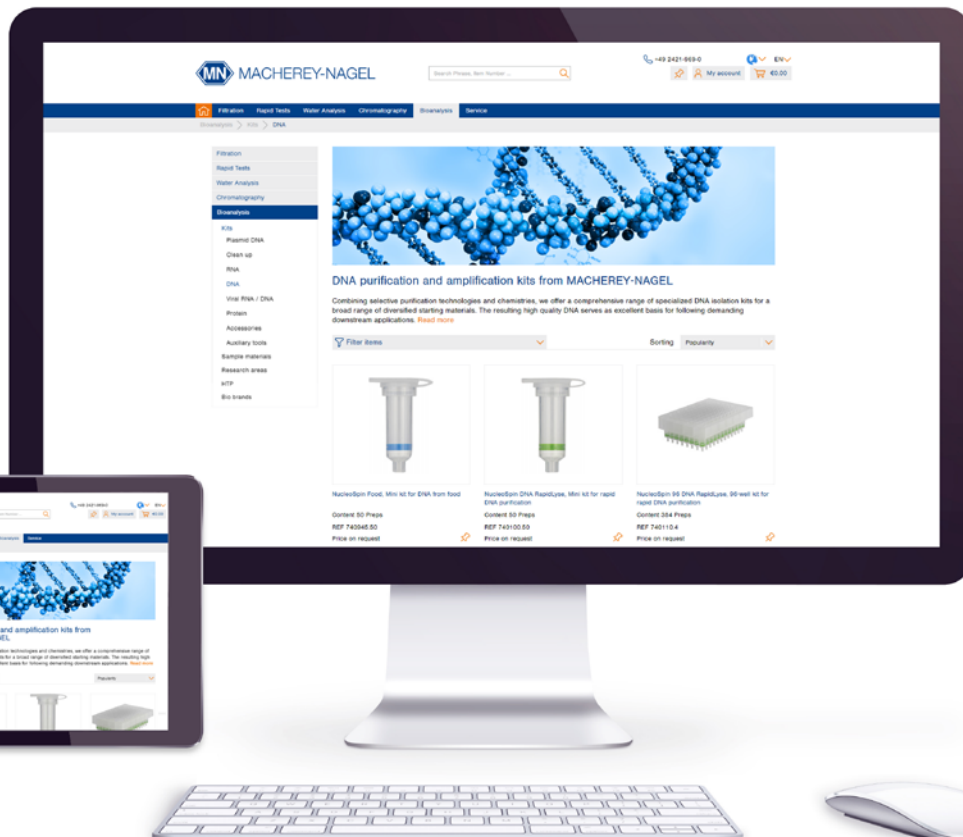
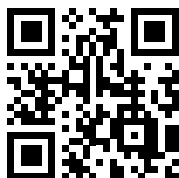
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Management System  
EN ISO 13485:2016  
ISO 9001:2015

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