



# Genomic DNA from organs and cells

## User manual

### NucleoSpin<sup>®</sup> DNA RapidLyse

This product distributed by  
**Takara Bio USA, Inc.**

**Ordering information**  
1.800.662.2566  
ordersUS@takarabio.com

**Technical support**  
1.800.662.2566  
techUS@takarabio.com



[takarabio.com](http://takarabio.com)

For research use only. Not for resale. Unless otherwise indicated, all trademarks are the property of Takara Bio Inc. ©2017

February 2017 / Rev. 01

## **Contact MN**

### **Germany and international**

#### **MACHEREY-NAGEL GmbH & Co. KG**

Neumann-Neander-Str. 6–8 · 52355 Düren · Germany

Tel.: +49 24 21 969-0

Toll-free: 0800 26 16 000 (Germany only)

Fax: +49 24 21 969-199

E-mail: [info@mn-net.com](mailto:info@mn-net.com)

### **Technical Support Bioanalysis**

Tel.: +49 24 21 969-270

E-mail: [tech-bio@mn-net.com](mailto:tech-bio@mn-net.com)

## **USA**

### **MACHEREY-NAGEL Inc.**

2850 Emrick Blvd. · Bethlehem, PA 18020 · USA

Tel.: +1 484 821 0984

Toll-free: 888 321 6224 (MACH)

Fax: +1 484 821 1272

E-mail: [sales-us@mn-net.com](mailto:sales-us@mn-net.com)

## **France**

### **MACHEREY-NAGEL SARL à associé unique**

1, rue Gutenberg · 67722 Hoerdt · France

Tel.: +33 388 68 22 68

Fax: +33 388 51 76 88

E-mail: [sales-fr@mn-net.com](mailto:sales-fr@mn-net.com)

## **Switzerland**

### **MACHEREY-NAGEL AG**

Hirsackerstr. 7 · 4702 Oensingen · Switzerland

Tel.: +41 62 388 55 00

Fax: +41 62 388 55 05

E-mail: [sales-ch@mn-net.com](mailto:sales-ch@mn-net.com)

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

## Table of contents

1	Components	4
1.1	Kit contents	4
1.2	Reagents, consumables, and equipment to be supplied by user	5
1.3	About this user manual	5
2	Product description	6
2.1	The basic principle	6
2.2	Kit specifications	6
2.3	Handling, preparation, and storage of starting materials	6
2.4	Lysis of sample material	6
2.5	Elution procedures	7
3	Storage conditions and preparation of working solutions	8
4	Safety instructions	9
5	Protocols	11
5.1	Protocol for fresh, frozen, and ethanol-preserved samples	11
5.2	Protocol for challenging samples (e.g., spleen and lung)	13
6	Appendix	15
6.1	Troubleshooting	15
6.2	Ordering information	16
6.3	Product use restriction / warranty	18

# 1 Components

## 1.1 Kit contents

NucleoSpin® DNA RapidLyse			
REF	10 preps 740100.10	50 preps 740100.50	250 preps 740100.250
Lysis Buffer RLY	13 mL	13 mL	60 mL
Binding Buffer RLB	25 mL	25 mL	125 mL
Wash Buffer RLW (Concentrate)*	6 mL	12 mL	3 x 25 mL
Elution Buffer RLE**	13 mL	13 mL	30 mL
Liquid Proteinase K	120 µL	600 µL	2 x 1.5 mL
NucleoSpin® DNA RapidLyse Columns (light green rings)	10	50	250
Collection Tubes (2 mL)	20	100	500
User manual	1	1	1

\* For preparation of working solutions and storage, see section 3.

\*\*Composition of Elution Buffer RLE: 5 mM Tris/HCl, pH 8.5

## 1.2 Reagents, consumables, and equipment to be supplied by user

### Reagents

- 96–100 % ethanol (for preparation of Wash Buffer RLW)

### Consumables

- 2 mL microcentrifuge tubes for sample lysis
- 1.5 mL microcentrifuge tubes for DNA elution
- Disposable pipette tips

### Equipment

- Manual pipettors
- Centrifuge for microcentrifuge tubes
- Vortex mixer (e.g., Vortex-Genie® 2 from Scientific Industries)
- Thermomixer (e.g., ThermoMixer® C from Eppendorf for 2 mL tubes)
- Personal protection equipment (lab coat, gloves, goggles)
- For challenging samples (protocol 5.2): MN Bead Tube Holder and Bead Tubes Type F

## 1.3 About this user manual

It is strongly recommended for first time users to read the detailed protocol sections of the **NucleoSpin® DNA RapidLyse** kit before using this product. Experienced users, however, may refer to the Protocol-at-a-glance instead. The Protocol-at-a-glance is designed to be used only as a supplemental tool for quick referencing while performing the purification procedure.

All technical literature is available online at [www.mn-net.com](http://www.mn-net.com).

Please contact Technical Service regarding information about any changes to the current user manual compared with previous revisions.

## 2 Product description

### 2.1 The basic principle

The **NucleoSpin® DNA RapidLyse** kit is designed for fast and efficient isolation of genomic DNA from cells and organs like liver, kidney, heart, muscle, spleen, and lung. Processing of mouse tail and ear clippings is also possible. Fresh, frozen, and ethanol-preserved samples can be used.

The **NucleoSpin® DNA RapidLyse** kit lyses samples in maximal one hour agitated incubation at 56 °C. This is enabled by a thoroughly designed lysing setup with well balanced parameters that comprise a special lysis buffer in combination with Liquid Proteinase K. An incubation over night or for several hours is not necessary.

### 2.2 Kit specifications

#### Kit specifications at a glance

Parameter	NucleoSpin® DNA RapidLyse
Technology	Silica-membrane technology
Format	Mini spin column
Sample material	Fresh, frozen, dried, and ethanol preserved tissue samples (e.g., organs), eukaryotic cells
Sample amount	Up to 40 mg fresh weight (sample dependent)
Typical yield	Up to 4 µg DNA per mg tissue (sample dependent)
$A_{260}/A_{280}$	1.7–1.9
Elution volume	60–100 µL
Preparation time	25 min (6 preps, excluding lysis)
Lysis time	Maximal 1 h
Binding capacity	60 µg

### 2.3 Handling, preparation, and storage of starting materials

Fresh, frozen, and ethanol preserved samples can be used. Make sure not to use more than 40 mg sample.

### 2.4 Lysis of sample material

In order to obtain optimal DNA yields and a smooth processing, sample material should be thoroughly lysed. Most samples can be processed according to procedure 5.1. However, some sample materials (e.g., spleen or lung) need to be processed according to procedure 5.2 which requires additional material (see section 5.2 and 6.2).

## 2.5 Elution procedures

In addition to the standard method, several modifications are possible to increase yield, concentration, and convenience.

- **Convenient elution (standard elution):** Elution can be performed by a single addition of 100  $\mu$ L Elution Buffer onto the column.
- **High yield:** Elution can be performed in two serial elutions of 100  $\mu$ L each, resulting in a total volume of 200  $\mu$ L.
- **High concentration:** Elution can be performed by application of 100  $\mu$ L Elution Buffer, which is then re-used in a second elution step, resulting in 100  $\mu$ L eluate with a high DNA concentration. Alternatively, the elution volume can be reduced down to 60  $\mu$ L.

### 3 Storage conditions and preparation of working solutions

#### Attention:

*Binding Buffer RLB contains chaotropic salts! Wear gloves and goggles!*

CAUTION: Buffer RLB contains chaotropic salt which can form highly reactive compounds when combined with bleach (sodium hypochlorite). DO NOT add bleach or acidic solutions directly to the sample-preparation waste.

- All kit components can be stored at room temperature (18–25 °C) and are stable for at least one year.

Prior to the **NucleoSpin® DNA RapidLyse** procedure, prepare the following:

- **Wash Buffer RLW:** Add the indicated volume of ethanol (96–100 %) to **Wash Buffer RLW Concentrate**. Mark the label of the bottle to indicate that ethanol was added. Wash Buffer RLW can be stored at room temperature (18–25 °C) for at least one year.
- **Liquid Proteinase K** is ready to use. After first time use, store **Liquid Proteinase K** at 4 °C or -20 °C.

NucleoSpin® DNA RapidLyse			
REF	10 preps 740100.10	50 preps 740100.50	250 preps 740100.250
Wash Buffer RLW (Concentrate)	6 mL Add 24 mL ethanol	12 mL Add 48 mL ethanol	3 x 25 mL Add 100 mL ethanol to each bottle



## 4 Safety instructions

The following components of the **NucleoSpin® DNA RapidLyse** kits contain hazardous contents.

Wear gloves and goggles and follow the safety instructions given in this section.

### GHS classification

Only harmful features do not need to be labeled with H and P phrases up to 125 mL or 125 g.

*Mindergefährliche Eigenschaften müssen bis 125 mL oder 125 g nicht mit H- und P-Sätzen gekennzeichnet werden.*

Component	Hazard contents	GHS symbol	Hazard phrases	Precaution phrases
Inhalt	Gefahrstoff	GHS-Symbol	H-Sätze	P-Sätze
RLB	Guanidinium thiocyanate 30–60 % and ethanol 5–20 % <i>Guanidinhydrochlorid 30–60 % und Ethanol 5–20 %</i>  CAS 593-84-0, 64-17-5	 WARNING ACHTUNG	H226, H302, H412, EUH031	P210, P233, P260, P273, P301+312, P330, P370+378, P403+235
Proteinase K	Proteinase K, liquid 1–3 % <i>Proteinase K flüssig 1–3 %</i>  CAS 39450-01-6	 WARNING ACHTUNG	317	261, 272, 280, 302+352, 333+313, 363

### Hazard phrases

H226	Flammable liquid and vapour. <i>Flüssigkeit und Dampf entzündbar.</i>
H302	Harmful if swallowed. <i>Gesundheitsschädlich bei Verschlucken.</i>
H317	May cause an allergic skin reaction. <i>Kann allergische Hautreaktionen verursachen.</i>
H412	Harmful to aquatic life with long lasting effects. <i>Schädlich für Wasserorganismen, mit langfristiger Wirkung.</i>
EUH031	Contact with acids liberates toxic gas. <i>Entwickelt bei Berührung mit Säure giftige Gase.</i>

### Precaution phrases

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. <i>Von Hitze, heißen Oberflächen, Funken, offenen Flammen sowie anderen Zündquellenarten fernhalten. Nicht rauchen.</i>
P233	Keep container tightly closed. <i>Behälter dicht verschlossen halten.</i>
P260	Do not breathe dust/fume/gas/mist/vapours/spray. <i>Staub/Rauch/Gas/Nebel/Dampf/Aerosol nicht einatmen.</i>

P261	Avoid breathing dust/fume/gas/mist/vapours/spray. <i>Einatmen von Staub/Rauch/Gas/Nebel/Dampf/Aerosol vermeiden.</i>
P272	Contaminated work clothing should not be allowed out of the workplace. <i>Kontaminierte Arbeitskleidung nicht außerhalb des Arbeitsplatzes tragen.</i>
P273	Avoid release to the environment. <i>Freisetzung in die Umwelt vermeiden.</i>
P280	Wear protective gloves/protective clothing/eye protection/face protection. <i>Schutzhandschuhe/Schutzkleidung/Augenschutz/Gesichtsschutz tragen.</i>
P301+312	IF SWALLOWED: Call a POISON CENTER/ doctor/.../ if you feel unwell. <i>BEI VERSCHLUCKEN: Bei Unwohlsein GIFTINFORMATIONSZENTRUM/Arzt/... anrufen.</i>
P302+352	IF ON SKIN: Wash with plenty of water/... <i>BEI BERÜHRUNG MIT DER HAUT: Mit viel Wasser/... waschen.</i>
P330	Rinse mouth. <i>Mund ausspülen.</i>
P333+313	If skin irritation or rash occurs: Get medical advice/attention. <i>Bei Hautreizung oder -ausschlag: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.</i>
P363	Wash contaminated clothing before reuse. <i>Kontaminierte Kleidung vor erneutem Tragen waschen.</i>
P370+378	In case of fire: Use ... to extinguish. <i>Bei Brand: ... zum Löschen verwenden.</i>
P403+235	Store in a well-ventilated place. Keep cool. <i>An einem gut belüfteten Ort aufbewahren. Kühl halten.</i>

For further information please see Material Safety Data Sheets ([www.mn-net.com](http://www.mn-net.com)).  
Weiterführende Informationen finden Sie in den Sicherheitsdatenblättern ([www.mn-net.com](http://www.mn-net.com)).



The symbol shown on labels refers to further safety information in this section.  
Das auf Etiketten dargestellte Symbol weist auf weitere Sicherheitsinformationen dieses Kapitels hin.

## 5 Protocols

### 5.1 Protocol for fresh, frozen, and ethanol-preserved samples

#### Before starting the preparations:

- Check if Buffer RLW was prepared according to section 3.
- 

#### 1 Lyse sample

Place the sample into a 2 mL tube.

Add **150 µL Buffer RLY**.

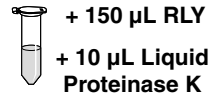
Add **10 µL Liquid Proteinase K**.

Incubate at **56 °C** on a thermomixer at maximum speed until the sample appears visually lysed.

*Note: Lysis time depends on sample material and may vary from a couple of minutes up to one hour.*

Do not use 1.5 mL conical tubes. The shape of the tube will impair thorough mixing. Use common 2 mL tubes which will facilitate proper sample and lysis buffer agitation. Make sure that the tissue sample is submerged in the lysis buffer!

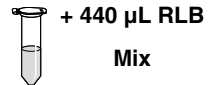
---



**56 °C,  
max. 1 h**

#### 2 Adjust DNA binding conditions

Add **440 µL Buffer RLB** and **mix** (e.g., vortex 3 s).



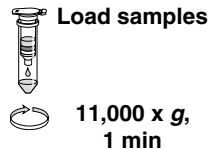
#### 3 Bind DNA

Apply the mixture (ca. 640 µL) onto the **NucleoSpin® DNA RapidLyse Column** placed into a 2 mL Collection Tube (provided).

Centrifuge for **1 min** at **11,000 x g**.

Discard Collection Tube with flow through. Put column into a fresh 2 mL Collection Tube (provided).

---



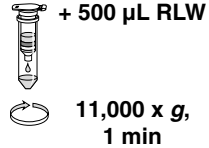
#### 4 Wash silica membrane

##### 1<sup>st</sup> wash

Add **500 µL Buffer RLW**.

Centrifuge for **1 min** at **11,000 x g**.

Discard flow-through and place column back into the Collection Tube.

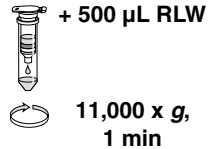


##### 2<sup>nd</sup> wash

Add **500 µL Buffer RLW**.

Centrifuge for **1 min** at **11,000 x g**.

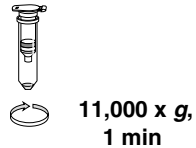
Discard flow-through and place column back into the Collection Tube.



#### 5 Dry silica membrane

Centrifuge for **1 min** at **11,000 x g**.

*Note: Residual wash buffer is removed in this step.*



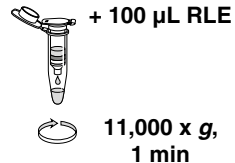
#### 6 Elute highly pure DNA

Place the NucleoSpin® DNA RapidLyse Column into a 1.5 mL nuclease-free tube (not provided) and add **100 µL Buffer RLE** onto the column.

Centrifuge for **1 min** at **11,000 x g**.

*Note: DNA yield can be increased by an incubation for 4 min at room temperature before centrifugation.*

*For alternative elution procedures see section 2.5.*



## 5.2 Protocol for challenging samples (e.g., spleen and lung)

### Before starting the preparations:

- The following items are additionally required for this protocol: MN Bead Tube Holder, Bead Tubes Type F (see ordering information).
- Check if Buffer RLW was prepared according to section 3.

#### 1 Lyse sample

Place the sample into a **Bead Tube Type F**.

Add **120 µL Buffer RLE**.

Add **20 µL Buffer RLB**.

Add **10 µL Proteinase K**.

Insert the Bead Tube into the **MN Bead Tube Holder** and **shake 20 min** at **full speed** on a Vortex-Genie® 2. Up to 30 mg of wet weight sample can be processed.

*Note: The use of other disruption devices is not recommended in conjunction with Bead Tube Type F. Due to the lysing matrix (corundum and steel balls) high impact disruption devices will cause steel abrasion and possible demolition of the bead tubes!*



+ 120 µL RLE  
+ 20 µL RLB  
+ 10 µL Liquid Proteinase K

**Shake 20 min,  
full speed**

#### 2 Adjust DNA binding conditions

Add **420 µL Buffer RLB** and **mix** (e.g., vortex 3 s).

Centrifuge the tube at **11,000 x g** for approx. **5 s** (short spin), in order to clean the lid and sediment the lysing matrix.

DO NOT centrifuge for longer times and/or higher g-force, as this might damage the Bead Tubes due to the high density of the steel balls.



+ 420 µL RLB  
**Mix**



**11,000 x g,  
5 s**

#### 3 Bind DNA

Apply cleared supernatant (approximately 500 µL) onto the **NucleoSpin® DNA RapidLyse Column** placed into a 2 mL Collection Tube (provided).

*Note: Do not disturb the lysing matrix. Make sure not to transfer corundum matter from the lysing tube onto the column!*

Centrifuge for **1 min** at **11,000 x g**.

Discard Collection Tube with flow through. Put column into a fresh 2 mL Collection Tube (provided).



**Load samples**



**11,000 x g,  
1 min**

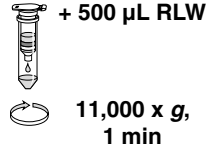
#### 4 Wash silica membrane

##### 1<sup>st</sup> wash

Add **500 µL Buffer RLW**.

Centrifuge for **1 min** at **11,000 x g**.

Discard flow-through and place column back into the Collection Tube.

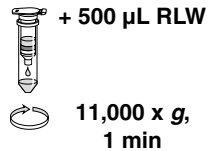


##### 2<sup>nd</sup> wash

Add **500 µL Buffer RLW**.

Centrifuge for **1 min** at **11,000 x g**.

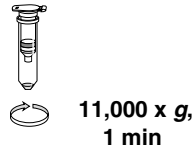
Discard flow-through and place column back into the Collection Tube.



#### 5 Dry silica membrane

Centrifuge for **1 min** at **11,000 x g**.

*Note: Residual wash buffer is removed in this step.*

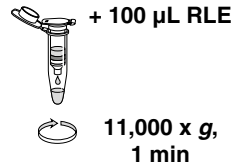


#### 6 Elute highly pure DNA

Place the NucleoSpin® DNA RapidLyse Column into a 1.5 mL nuclease-free tube (not provided) and add **100 µL Buffer RLE** onto the column.

Centrifuge for **1 min** at **11,000 x g**.

For alternative elution procedures see section 2.5.



## 6 Appendix

### 6.1 Troubleshooting

Problem	Possible cause and suggestions
Grayish lysate or membrane	<p><i>Lysis with Bead Tube Type F for 20 min on the MN Bead Tube Holder might cause a slight grayish color of the lysate, which is tolerable. Prolonged shaking or use of other disruption devices can cause steel abrasion.</i></p> <ul style="list-style-type: none"><li>• Do not perform prolonged incubation, do not use other disruption devices with Bead Tube Type F.</li></ul>
Clogged column	<p><i>Too much sample material used</i></p> <ul style="list-style-type: none"><li>• Reduce the sample amount or follow procedure 5.2 for the next preparation.</li><li>• Increase centrifugation time.</li></ul>
No or poor DNA yield	<p><i>Reagents not applied properly</i></p> <ul style="list-style-type: none"><li>• Prepare Buffer RLW according to the instructions (section 3).<p><i>Suboptimal elution of DNA from the column</i></p><ul style="list-style-type: none"><li>• For certain sample types, preheat Buffer RLE to 70 °C before elution. Apply Buffer RLE directly onto the center of the silica membrane.</li><li>• Elution efficiencies decrease dramatically if elution is done with buffers at a pH &lt; 7.0. Use slightly alkaline elution buffers like Buffer RLE (pH 8.5).</li><li>• Especially when expecting high yields from large amounts of material, we recommend elution with 200 µL RLE and incubation of the closed columns in an incubator at 70 °C for 5 min before centrifugation.</li></ul></li></ul>

Problem	Possible cause and suggestions
Poor DNA quality	<p><i>High <math>A_{260}/A_{280}</math> ratio</i></p> <ul style="list-style-type: none"> <li>Ratios &gt; 1.9 can be caused by RNA contamination. Usually, such RNA contamination does not interfere with downstream applications. Depending on sample type, amount, and disruption procedure, preparations might contain small amounts of RNA. If it is necessary to reduce RNA contamination to the lowest possible level, incubate the lysate after disruption for 5 min at 70 °C in order to inactivate the Proteinase K. After cooling to room temperature, add 20 µL RNase A (20 mg/mL) and incubate 5 min. Continue with the application of the lysate onto the column.</li> </ul> <p><i>Reagents not applied properly</i></p> <ul style="list-style-type: none"> <li>Prepare Buffer RLW according to instructions (see section 3).</li> </ul> <p><i>Carry-over of impurities</i></p> <ul style="list-style-type: none"> <li>Residual liquid can be removed from the lid at any step of the protocol by an additional brief centrifugation step (approx. 1 s at 2,000 x g).</li> </ul>
	<p><i>Carry-over of ethanol or salt</i></p> <ul style="list-style-type: none"> <li>Make sure to centrifuge <math>\geq 1</math> min at 11,000 x g in order to remove all of ethanolic Buffer RLW before eluting the DNA.</li> <li>If, for any reason, the level of Buffer RLW has reached the column outlet after drying, repeat the centrifugation.</li> </ul> <p><i>Contamination of DNA with inhibitory substances</i></p> <ul style="list-style-type: none"> <li>Do not elute DNA with TE buffer. EDTA may inhibit enzymatic reactions. Re-purify DNA and elute in Buffer BE.</li> </ul>

## 6.2 Ordering information

Product	REF	Pack of
NucleoSpin® DNA RapidLyse	740100.10/.50/.250	10/50/250 preps
NucleoSpin® DNA Insect	740470.10/.50	10/50 preps
NucleoSpin® Soil	740780.10/.50/.250	10/50/250 preps
NucleoSpin® DNA Stool	740472.10/.50/.250	10/50/250 preps
NucleoSpin® DNA Lipid Tissue	740471.10/.50	10/50 preps



Product	REF	Pack of
NucleoSpin® Microbial DNA	740235.10 / .50	10 / 50 preps
MN Bead Tube Holder	740469	1 piece
NucleoSpin® Bead Tubes Type A (0.6–0.8 mm ceramic beads, recommended for soil and sediments)	740786.50	50 pieces
NucleoSpin® Bead Tubes Type B (40–400 µm glass beads, recommended for bacteria)	740812.50	50 pieces
NucleoSpin® Bead Tubes Type C (1–3 mm corundum, recommended for yeast)	740813.50	50 pieces
NucleoSpin® Bead Tubes Type D (3 mm steel balls, recommended for insects)	740814.50	50 pieces
NucleoSpin® Bead Tubes Type E (40–400 µm glass beads and 3 mm steel balls, recommended for hard-to- lyse bacteria within insect samples)	740815.50	50 pieces
NucleoSpin® Bead Tubes Type F (1–3 mm corundum and 3 mm steel balls, recommended for challenging samples in conjunction with NucleoSpin® DNA RapidLyse – use only with MN Bead Tube Holder)	740816.50	50 pieces
Liquid Proteinase K	740396	5 mL
RNase A	740505 740505.50	50 mg 100 mg
Collection Tubes (2 mL)	740600	1000

Visit [www.mn-net.com](http://www.mn-net.com) for more detailed product information.

### 6.3 Product use restriction / warranty

**NucleoSpin® DNA RapidLyse** kit components are intended, developed, designed, and sold FOR RESEARCH PURPOSES ONLY, except, however, any other function of the product being expressly described in original MACHEREY-NAGEL product leaflets.

MACHEREY-NAGEL products are intended for GENERAL LABORATORY USE ONLY! MACHEREY-NAGEL products are suited for QUALIFIED PERSONNEL ONLY! MACHEREY-NAGEL products shall in any event only be used wearing adequate PROTECTIVE CLOTHING. For detailed information please refer to the respective Material Safety Data Sheet of the product! MACHEREY-NAGEL products shall exclusively be used in an ADEQUATE TEST ENVIRONMENT. MACHEREY-NAGEL does not assume any responsibility for damages due to improper application of our products in other fields of application. Application on the human body is STRICTLY FORBIDDEN. The respective user is liable for any and all damages resulting from such application.

DNA/RNA/PROTEIN purification products of MACHEREY-NAGEL are suitable for IN VITRO-USES ONLY!

ONLY MACHEREY-NAGEL products specially labeled as IVD are also suitable for IN VITRO-diagnostic use. Please pay attention to the package of the product. IN VITRO-diagnostic products are expressly marked as IVD on the packaging.

IF THERE IS NO IVD SIGN, THE PRODUCT SHALL NOT BE SUITABLE FOR IN VITRO-DIAGNOSTIC USE!

ALL OTHER PRODUCTS NOT LABELED AS IVD ARE NOT SUITED FOR ANY CLINICAL USE (INCLUDING, BUT NOT LIMITED TO DIAGNOSTIC, THERAPEUTIC AND/OR PROGNOSTIC USE).

No claim or representations is intended for its use to identify any specific organism or for clinical use (included, but not limited to diagnostic, prognostic, therapeutic, or blood banking). It is rather in the responsibility of the user or - in any case of resale of the products - in the responsibility of the reseller to inspect and assure the use of the DNA/RNA/protein purification products of MACHEREY-NAGEL for a well-defined and specific application.

MACHEREY-NAGEL shall only be responsible for the product specifications and the performance range of MN products according to the specifications of in-house quality control, product documentation and marketing material.

This MACHEREY-NAGEL product is shipped with documentation stating specifications and other technical information. MACHEREY-NAGEL warrants to meet the stated specifications. MACHEREY-NAGEL's sole obligation and the customer's sole remedy is limited to replacement of products free of charge in the event products fail to perform as warranted. Supplementary reference is made to the general business terms and conditions of MACHEREY-NAGEL, which are printed on the price list. Please contact us if you wish to get an extra copy.

There is no warranty for and MACHEREY-NAGEL is not liable for damages or defects arising in shipping and handling (transport insurance for customers excluded), or

out of accident or improper or abnormal use of this product; defects in products or components not manufactured by MACHEREY-NAGEL, or damages resulting from such non-MACHEREY-NAGEL components or products.

MACHEREY-NAGEL makes no other warranty of any kind whatsoever, and SPECIFICALLY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES OF ANY KIND OR NATURE WHATSOEVER, DIRECTLY OR INDIRECTLY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, AS TO THE SUITABILITY, REPRODUCTIVITY, DURABILITY, FITNESS FOR A PARTICULAR PURPOSE OR USE, MERCHANTABILITY, CONDITION, OR ANY OTHER MATTER WITH RESPECT TO MACHEREY-NAGEL PRODUCTS.

In no event shall MACHEREY-NAGEL be liable for claims for any other damages, whether direct, indirect, incidental, compensatory, foreseeable, consequential, or special (including but not limited to loss of use, revenue or profit), whether based upon warranty, contract, tort (including negligence) or strict liability arising in connection with the sale or the failure of MACHEREY-NAGEL products to perform in accordance with the stated specifications. This warranty is exclusive and MACHEREY-NAGEL makes no other warranty expressed or implied.

The warranty provided herein and the data, specifications and descriptions of this MACHEREY-NAGEL product appearing in MACHEREY-NAGEL published catalogues and product literature are MACHEREY-NAGEL's sole representations concerning the product and warranty. No other statements or representations, written or oral, by MACHEREY-NAGEL's employees, agent or representatives, except written statements signed by a duly authorized officer of MACHEREY-NAGEL are authorized; they should not be relied upon by the customer and are not a part of the contract of sale or of this warranty.

Product claims are subject to change. Therefore please contact our Technical Service Team for the most up-to-date information on MACHEREY-NAGEL products. You may also contact your local distributor for general scientific information. Applications mentioned in MACHEREY-NAGEL literature are provided for informational purposes only. MACHEREY-NAGEL does not warrant that all applications have been tested in MACHEREY-NAGEL laboratories using MACHEREY-NAGEL products. MACHEREY-NAGEL does not warrant the correctness of any of those applications.

Last updated: 07/2010, Rev. 03

Please contact:  
MACHEREY-NAGEL GmbH & Co. KG  
Tel.: +49 24 21 969-270  
tech-bio@mn-net.com

---

Trademarks:

NucleoSpin is a registered trademark of MACHEREY-NAGEL GmbH & Co KG

Vortex-Genie is a registered trademark of Scientific Industries

All used names and denotations can be brands, trademarks, or registered labels of their respective owner – also if they are not special denotation. To mention products and brands is only a kind of information (i.e., it does not offend against trademarks and brands and can not be seen as a kind of recommendation or assessment). Regarding these products or services we can not grant any guarantees regarding selection, efficiency, or operation.









**Plasmid DNA**

**Clean-up**

**RNA**

**Genomic DNA**

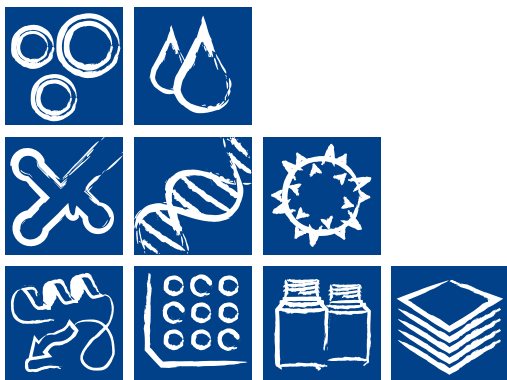
**Viral RNA and DNA**

**Protein**

**High throughput**

**Accessories**

**Auxiliary tools**



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

**MACHEREY-NAGEL**



MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6-8 · 52355 Düren · Germany

DE/International:

Tel.: +49 24 21 969-0  
Fax: +49 24 21 969-199  
E-mail: [info@mn-net.com](mailto:info@mn-net.com)

CH:

Tel.: +41 62 388 55 00  
Fax: +41 62 388 55 05  
E-mail: [sales-ch@mn-net.com](mailto:sales-ch@mn-net.com)

FR:

Tel.: +33 388 68 22 68  
Fax: +33 388 51 76 88  
E-mail: [sales-fr@mn-net.com](mailto:sales-fr@mn-net.com)

US:

Tel.: +1 484 821 0984  
Fax: +1 484 821 1272  
E-mail: [sales-us@mn-net.com](mailto:sales-us@mn-net.com)



A054648/0270.5