

## RNA purification products from MACHERY-NAGEL

*RNA Mini spin kit for small RNA from plasma*  
*Isolate miRNA easily for reliable monitoring*  
NucleoSpin<sup>®</sup> miRNA Plasma



**Efficient and selective isolation**  
**Without phenol/chloroform**  
**Fast procedure**  
**... for superior performance**

**BIOKÉ**  
sharing knowledge

Plesmanlaan 1d  
2333 BZ Leiden  
The Netherlands  
T. +31 (0)71 568 10 00  
T. Belgium: 0800 71640  
F. +31 (0)71 568 10 10  
info@bioke.com  
www.bioke.com

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



# NucleoSpin® miRNA Plasma

## Reliable miRNA isolation

### ▶ *Efficient isolation of small RNA from plasma or serum samples*

Superior recovery for small RNA

### ▶ *Increased sensitivity in downstream applications*

Optional on-column DNA digestion, rDNase included

### ▶ *Optional DNA isolation*

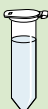
Genomic DNA (<1000 bp) can be isolated from plasma / serum by omitting optional DNA digestion

### ▶ *Simple and fast procedure*

Without phenol / chloroform

## Procedure

### Sample preparation and protein precipitation



Mix sample and lysis buffer.  
Add precipitation buffer and centrifuge to remove contaminating proteins.

### RNA and DNA binding



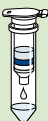
Add isopropanol to the cleared lysate and bind RNA and DNA to binding column.

### Optional DNA digestion



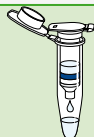
For complete removal of DNA background perform rDNase digestion on column.  
Omit this step for DNA isolation.

### Washing



Efficient washing with two different wash buffers.

### Elution



Elute pure small RNA/DNA with RNase-free water.

## Product at a glance

Technology	Silica-membrane technology
Sample material	300 µL blood plasma or serum (up to 900 µL with multiple loading)
Fragment size	< 1000 nt/bp
Binding capacity	200 µg
Elution volume	20–50 µL
Preparation time	40 min / 10 preps (without rDNase digestion) 70 min / 10 preps (with rDNase digestion)



# NucleoSpin® miRNA Plasma

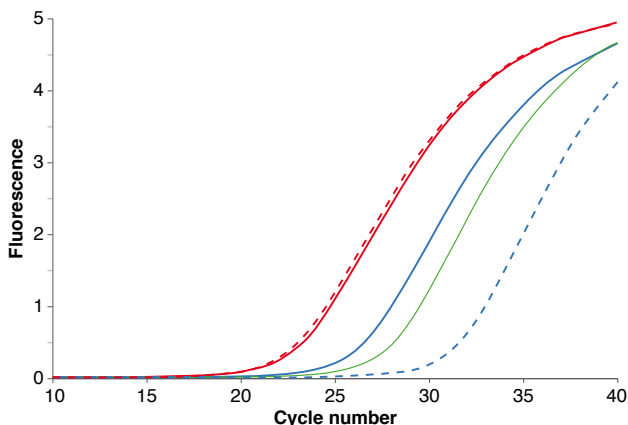
## Reliable miRNA isolation

### Application data

#### Higher yield – Higher quality – Quicker procedure

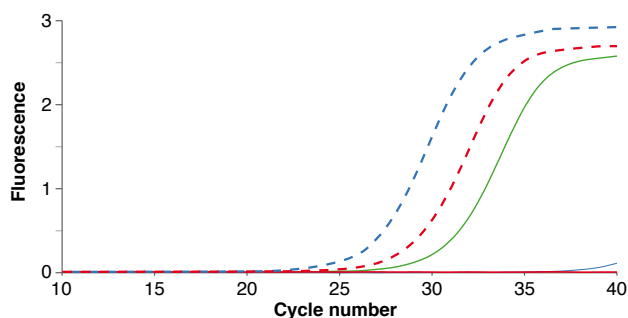
Comparison of NucleoSpin® miRNA Plasma with competitor kits.

MN (NucleoSpin® miRNA Plasma): miRNA was isolated from 300 µL human blood plasma. Competitor Q: sample volumes of 1000 µL and 200 µL were used with kits for circulating nucleic acids (Q-CNA) and miRNA (Q-miRNA), respectively, according to Q's supplementary protocols. Competitor A: 300 µL plasma were processed according to the tissue protocol (6 volumes of lysis buffer) of a miRNA kit (A-miRNA).



#### Higher miRNA yields

Purified miRNA (2 µL of each eluate) was used as template in quantitative real-time RT-PCR for miR-16 miRNA (Applied Biosystems, TaqMan® MicroRNA RT Kit, hsa-miR-16 MicroRNA Assay). The results show that  $C_T$  values are lowest for NucleoSpin® miRNA Plasma, indicating highest miRNA yields. As a result, NucleoSpin® miRNA Plasma shows superior performance with or without optional DNase digestion.



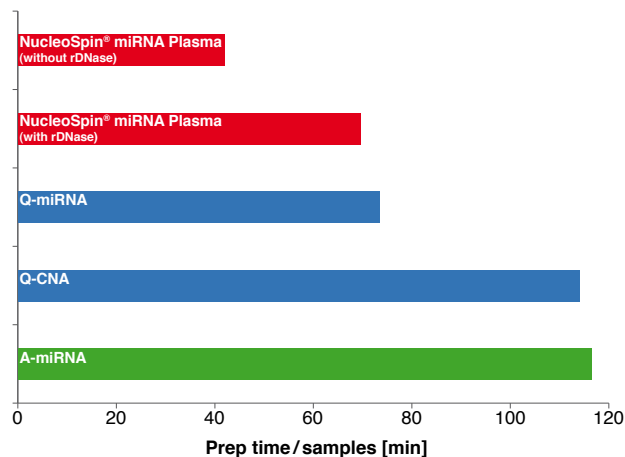
#### Higher miRNA quality

Residual genomic DNA was estimated by qPCR of a 102 bp fragment of the elongation factor 1 gene using the 2x DyNAmo™ Capillary Master Mix (Finnzymes). There was no genomic DNA background detectable when performing the optional DNase digestion of the NucleoSpin® miRNA Plasma kit. The results show that  $C_T$  values are very high for NucleoSpin® miRNA Plasma, indicating very low gDNA background (—).

#### Optional DNA isolation

By omitting the DNA digestion predominantly small genomic DNA can be isolated from plasma and serum. Up to 1000 bp fragments are purified very efficiently while very large fragments from lysed white blood cells are removed in the protein precipitation step.

- - - NucleoSpin® miRNA Plasma (without rDNase)
- NucleoSpin® miRNA Plasma (with rDNase)
- - - Q-CNA
- Q-miRNA
- A-miRNA

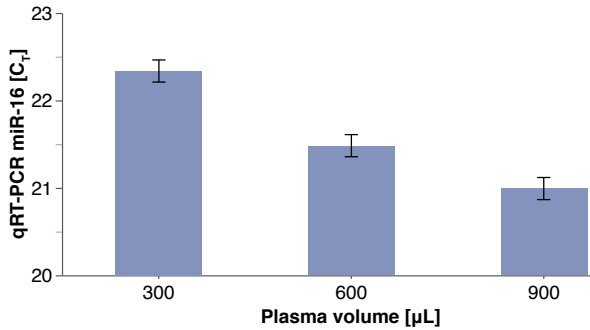


#### Quicker procedure

By performing 10 preparations each, the quickest results were obtained by NucleoSpin® miRNA Plasma both with and without rDNase digestion.

# NucleoSpin® miRNA Plasma

## Reliable miRNA isolation



### Consistent scale up of sample volume

Standard sample volume of 300 µL can be scaled up to 900 µL by multiple loading. Purified miRNA was used as template in quantitative real-time RT-PCR for miR-16 miRNA (Applied Biosystems, TaqMan® MicroRNA RT Kit, hsa-miR-16 MicroRNA Assay). The results show that C<sub>t</sub> values decrease with increasing sample volume, indicating a consistent rise in miRNA yields.

## Ordering information

Single prep (spin columns)	Preps	REF
<b>NucleoSpin® miRNA Plasma</b> Mini spin kit for isolation of small RNA and DNA from plasma and serum	10 / 50 / 250	740981.10 / .50 / .250

## Related products

Single prep (spin columns)	Preps	REF
<b>NucleoSpin® miRNA</b> Mini spin kit for parallel isolation of small and large RNA from tissue, cells and plant samples	10 / 50 / 250	740971.10 / .50 / .250
<b>NucleoSpin® Plasma XS</b> Mini spin kit (XS column design) for the isolation of circulating DNA from plasma and serum	10 / 50 / 250	740900.10 / .50 / .250
<b>NucleoSpin® RNA II</b> Mini spin kit for isolation of total RNA	10 / 50 / 250	740955.10 / .50 / .250
<b>NucleoSpin® RNA XS</b> Mini spin kit (XS column design) for the isolation of total RNA in small elution volumes	10 / 50 / 250	740902.10 / .50 / .250

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

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# MACHEREY-NAGEL



**MACHEREY-NAGEL GmbH & Co. KG** · Neumann-Neander-Str. 6–8 · 52355 Düren · Germany  
**Germany and international:**  
 Tel.: +49 24 21 969-0  
 Fax: +49 24 21 969-199  
 E-mail: [info@mn-net.com](mailto:info@mn-net.com)

**Switzerland:**  
**MACHEREY-NAGEL AG**  
 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)

**France:**  
**MACHEREY-NAGEL EURL**  
 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)

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

