

## RNA purification products from MACHERY-NAGEL

*RNA Mini/Midi kits for whole blood*

*The easy way to get more RNA*

NucleoSpin<sup>®</sup> RNA Blood

NucleoSpin<sup>®</sup> RNA Blood Midi

NucleoSpin<sup>®</sup> 8/96 RNA Blood



Superior RNA yield and quality

Very convenient handling

Flexible sample volume and throughput

... for the most reliable results!

**MACHERY-NAGEL**

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



Since 1911

# NucleoSpin® RNA Blood • NucleoSpin® RNA Blood Midi NucleoSpin® 8 RNA Blood • NucleoSpin® 96 RNA Blood RNA from whole blood

## ▶ **Direct total blood lysis: Very simple and convenient procedure**

Without selective erythrocyte lysis at 4 °C – complete processing at room temperature

## ▶ **Outstanding RNA yield from up to 1.3 mL blood**

Typical yield 3–20 µg per mL whole blood

## ▶ **Efficient DNA removal**

Convenient on-column DNA digestion

High quality DNase (recombinant) included

## ▶ **Compatible with common blood collection tubes and anticoagulants**

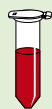
Suitable for EDTA, citrate, and heparin blood collecting systems



## Procedure

### Sample lysis

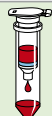
Efficient lysis of fresh or frozen blood  
(EDTA, citrate, or heparin treated)



Mix blood, lysis buffer, and Proteinase K  
Incubate 3–15 min at RT

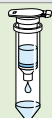
### Binding of RNA

Add ethanol to the lysate and bind RNA to  
NucleoSpin® RNA Blood Binding Column



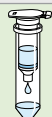
### DNA digestion

For efficient removal of DNA background  
perform an on-column rDNase digestion



### Washing

Remove inhibitors and contaminants  
by two washing steps



### Elution

Elute pure RNA in RNase-free water



## Product at a glance

Kit name*	NucleoSpin® RNA Blood	NucleoSpin® RNA Blood Midi	NucleoSpin® 8/96 RNA Blood
Technology	Silica-membrane	Silica-membrane	Silica-membrane
Format	Mini spin column	Midi spin column	8-well strip; 96-well plate
Processing	Manual, centrifugation	Manual, centrifugation	Manual or automated, vacuum or centrifugation
Sample material	Up to 400 µL blood	400–1300 µL blood	Up to 400 µL blood
Typical RNA yield	1.2–8 µg (400 µL blood)**	3.9–26 µg (1.3 mL blood)**	1.2–8 µg (400 µL blood)**
Typical RNA quality	Ratio $A_{260}/A_{280} > 1.9$	Ratio $A_{260}/A_{280} > 1.9$	Ratio $A_{260}/A_{280} > 1.9$
Elution volume	40–120 µL	200–400 µL	50–130 µL
Preparation time	55 min/6 preps	75 min/6 preps	60 min/6 strips; 100 min/plate

\* Kits to be used for research purposes only.

\*\* RNA yield strongly depends on the leukocyte number in each individual blood sample.

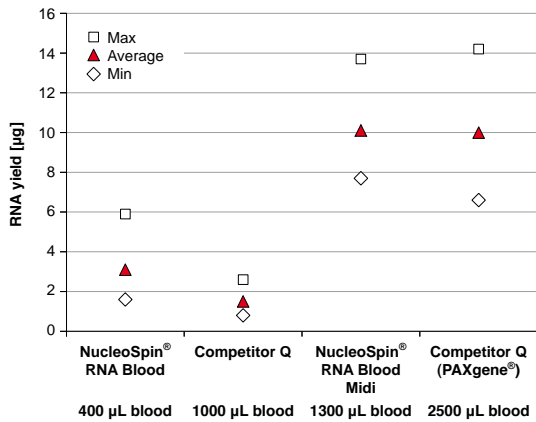
# NucleoSpin<sup>®</sup> RNA Blood • NucleoSpin<sup>®</sup> RNA Blood Midi NucleoSpin<sup>®</sup> 8 RNA Blood • NucleoSpin<sup>®</sup> 96 RNA Blood

## RNA from whole blood

### Application data

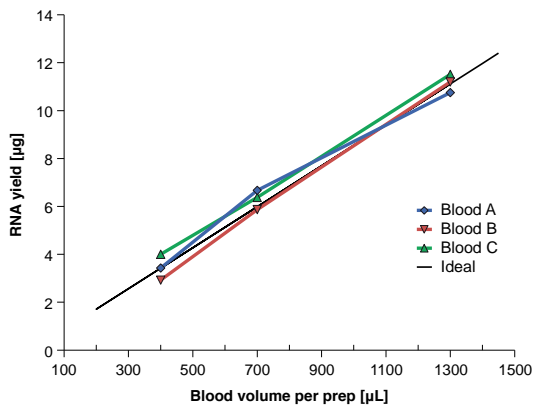
#### High yield and quality – very convenient handling – high flexibility in sample volume and sample type

NucleoSpin<sup>®</sup> RNA Blood kits are based on a simple and convenient direct blood lysis. This procedure allows a very effective blood cell lysis at room temperature without an upstream selective erythrocyte lysis at 4 °C. Compared with competitor kits, NucleoSpin<sup>®</sup> RNA Blood kits show higher yields from smaller sample volume. In addition it is possible to obtain a linear increase of yield in regard to sample volume. Both fresh and frozen blood samples can be used to purify RNA with comparable yield and quality.



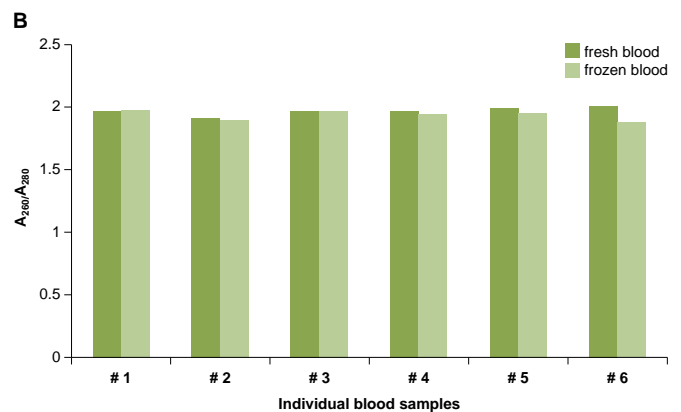
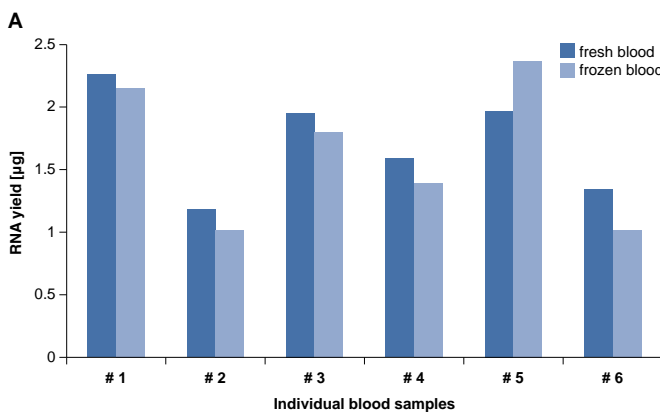
#### Higher yield from smaller sample volume – comparison to competitor kits

RNA was isolated from the indicated blood volumes following each manufacturer's protocol. The quality of isolated RNA is comparable. Average RIN numbers (data not shown) were: 7.5 (Q); 7.7 (NucleoSpin<sup>®</sup> RNA Blood); 8.8 (NucleoSpin<sup>®</sup> RNA Blood Midi); 8.9 (Q, PAXgene<sup>®</sup>).



#### Proportional increase of yield in regard to sample volume

NucleoSpin<sup>®</sup> RNA Blood Midi has been used to isolate RNA from 400, 700, and 1300 µL blood (EDTA) aliquots from three different donors (Blood A-C). Yield increases proportionally to the sample volume used, indicating the high efficiency and reliability of this procedure.

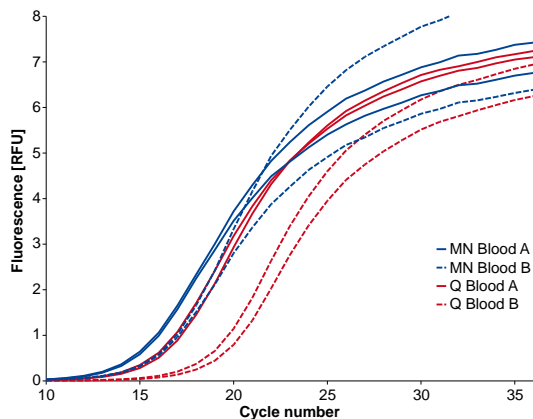


#### Consistent RNA yield and quality from fresh or frozen blood samples

NucleoSpin<sup>®</sup> 96 RNA Blood has been used to isolate RNA in triplicate from 400 µL fresh and frozen blood (EDTA) samples under vacuum. Samples originated from six individual blood donors. Frozen sample aliquots have been stored at -20 °C. RNA yield and quality were determined by spectrophotometric measurement of absorption at 260 nm and 280 nm. The diagrams show the average yield (A) and  $A_{260}/A_{280}$  ratio (B) calculated for every triplicate.

# NucleoSpin® RNA Blood • NucleoSpin® RNA Blood Midi NucleoSpin® 8 RNA Blood • NucleoSpin® 96 RNA Blood RNA from whole blood

## Application data (continued)



**Direct lysis results in higher yields compared to selective erythrocyte lysis**  
RNA was isolated from 400 µL blood (EDTA) from two different donors (Blood A, B) with the NucleoSpin® RNA Blood kit and a kit from Competitor Q (based on selective erythrocyte lysis). Samples have been analyzed in duplicates. For both samples,  $C_p$  values are lower for NucleoSpin® RNA Blood indicating a higher RNA yield. Analysis of RNA with LightCycler® RT-PCR,  $\beta$ -actin specific primer, 73 nt amplification target.

## Ordering information

Single prep (spin columns)	Preps	REF
<b>NucleoSpin® RNA Blood</b> Mini spin kit for total RNA isolation from up to 400 µL whole blood	10 / 50	740200.10 / .50
<b>NucleoSpin® RNA Blood Midi</b> Midi spin kit for total RNA isolation from 400–1300 µL whole blood	20	740210.20
Medium- and high-throughput (8-well strips and 96-well plates)	Preps	REF
<b>NucleoSpin® 8 RNA Blood</b> Medium-throughput kit for total RNA isolation from up to 400 µL whole blood	12 x 8 / 60 x 8	740220 / .5
<b>NucleoSpin® 96 RNA Blood</b> High-throughput kit for total RNA isolation from up to 400 µL whole blood	2 x 96 / 4 x 96	740225.2 / .4

## Related Products

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
<b>NucleoSpin® Blood</b> Mini spin kit for isolation of genomic DNA from 200 µL whole blood	10 / 50 / 250	740951.10 / .50 / .250
Medium- and high-throughput (8-well strips and 96-well plates)	Preps	REF
<b>NucleoSpin® 8 Blood</b> Medium-throughput kit for genomic DNA isolation from 200 µL whole blood	12 x 8 / 60 x 8	740664 / .5
<b>NucleoSpin® 96 Blood</b> High-throughput kit for genomic DNA isolation from 200 µL whole blood	1 x 96 / 4 x 96 / 24 x 96	740665.1 / .4 / .24

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

Your local distributor

**Trademarks:** NucleoSpin® is a registered trademark of MACHEREY-NAGEL, PAXgene® is a registered trademark of PreAnalytiX GmbH, LightCycler® is a registered trademark of Roche.

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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)

