



**A&A BIOTECHNOLOGY**  
innovating life science

## *Manual*

# Total RNA Mini Plus

Kit for total RNA purification. Chloroform free procedure.

catalog #	size
036-25	25 isolations
036-100	100 isolations

For research use only.

### **Guarantee**

A&A Biotechnology provides a guarantee on this product.

The company does not guarantee the correct performance of this kit in the event of:

- not adhering to the supplied protocol
- use of not recommended equipment or materials
- use of other reagents than recommended or which are not a component of the product
- use of expired or improperly stored product or its components



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## Specification

<b>form</b>	minicolumn
<b>binding capacity</b>	100 µg of RNA
<b>sample size</b>	<ul style="list-style-type: none"> <li>• up to 3 ml of bacterial culture</li> <li>• up to 1 ml of yeast culture</li> <li>• up to 2 ml of blood</li> <li>• up to <math>1 \times 10^9</math> of cell culture</li> <li>• up to 50 mg of plant or animal tissue</li> </ul>
<b>elution volume</b>	from 100 µl
<b>elution solution</b>	ultrapure water

## Contents

component	25 isolations	100 isolations	storage
Minicolumns	25 pcs	100 pcs	15–25 °C
2 ml tubes	50 pcs	200 pcs	15–25 °C
A1 wash solution	50 ml	200 ml	15–25 °C
Fenozol Plus	15 ml	50 ml	2–8 °C
Isopropanol	15 ml	50 ml	15–25 °C
Ultrapure water	8 ml	30 ml	-20–25 °C

## Additional equipment and reagents

### Necessary

- 1.5 ml sterile Eppendorf tubes
- Microcentrifuge
- Heatblock or incubator set to 50 °C

### Optional

- RBCL (cat. # 213-100, 213-250)
- DNase (cat. # 1009-10, 1009-100)
- Clean-Up RNA Concentrator (cat. # 039-25C, 039-100C)

## Important notes

When working with RNA, use RNase-free consumables. Work sterile, use disposable gloves and change them whenever good laboratory practice requires it.

## Material preparation

### Bacterial culture

1. Centrifuge **1-3 ml** of overnight bacterial culture. Discard supernatants.
2. Follow point 1. of the protocol.

### Yeast culture

1. Centrifuge **1 ml** of yeast culture. Discard supernatants.
2. Follow point 1. of the protocol.

### Cell culture

1. Centrifuge cell culture containing up to **1 x 10<sup>6</sup>** of cells. Discard supernatants.
2. Follow point 1. of the protocol.

### Plant / animal tissue

1. Homogenize tissue sample (**20-50 mg**) in liquid nitrogen.
2. Transfer the sample into 1.5 ml Eppendorf tube (not included).
3. Follow point 1. of the protocol.

### Fresh blood (not frozen)

1. Add the appropriate amount of RBCL (not included) to **1-2 ml** of blood sample.  
We recommend using 5 volumes of RBCL to 1 volume of blood sample.
2. Mix and incubate on ice for **15 min**.  
Note the changing appearance of the sample during the incubation.  
The initially opaque solution should turn to a completely transparent ruby-red at the incubation end.
3. Centrifuge for **10 min** at **3000 x g**. Carefully discard supernatants.
4. Follow point 1. of the protocol.

## Isolation protocol

1. Add **400 µl** of **fenozol Plus** and lyse cells by repetitive pipetting.

Fenozol Plus deactivates endogenous RNAses. Sample suspended in fenozol Plus can be stored:

- at -20 °C, -80 °C up to one year
- from +2 °C to +8 °C up to one week
- in room temperature up to 24 hours

Fenozol Plus contains phenol. Avoid contact with skin. Wear suitable protective gloves.

2. Incubate sample for **5 min** at **50 °C**.

3. Add **150 µl** of **ultrapure water**.  
Intensively vortex for **15 s**.

4. Keep the sample for **5 min** at **room temp**.  
Centrifuge the sample for **15 min** at **10 000-12 000 RPM**.

During the centrifugation step the DNA and proteins are collected at the bottom tube while RNA stays dissolved in the supernatant.

5. Transfer **400 µl** the supernatant to a **new 1.5 ml** tube (not included).  
Add **400 µl** of **isopropanol**.

6. Thoroughly mix and apply onto the minicolumn.

7. Centrifuge for **1 min** at **10 000-12 000 RPM**.

8. Transfer the minicolumn to a **new 2 ml** tube (included).  
Add **700 µl** of **A1** wash solution.

9. Centrifuge for **1 min** at **10 000-12 000 RPM**.

10. Transfer the minicolumn to a **new 2 ml** tube (included).  
Add **700 µl** of **A1** wash solution.

11. Centrifuge for **1 min** at **10 000-12 000 RPM**.

12. Remove the minicolumn from the tube and discard the filtrate.  
Place the minicolumn into the same tube. Add **300 µl** of **A1** wash solution.

13. Centrifuge for **2 min** at **10 000-12 000 RPM**.
14. Transfer the dry minicolumn to a **new** 1.5 ml elution tube (not included). Add **50-100 µl** of **ultrapure water** directly onto the minicolumn resin.
15. Keep for **2 min** at **room temp**.  
Centrifuge for **1 min** at **10 000-12 000 RPM**.
16. Remove the **minicolumn** and store the tube with purified RNA at **-20 °C, -80 °C** until later use.

## Additional clean-up / concentration of isolated RNA sample (optional)

Total RNA Mini Plus kit effectively isolates and purifies RNA for most downstream applications.

In case of the highest possible RNA sample purity being required, as for example supreme DNA removal, we recommend to additionally process RNA sample, as follows:

### Use of the DNase (cat. # 1009-10, 1009-100)

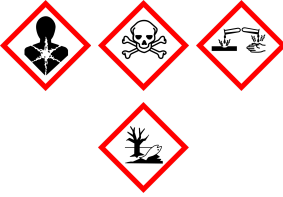
1. To **100 µl** of **RNA eluate** add:
  - 1 µl** of **DNase** (10 U/µl)
  - 10 µl** of **10x reaction buffer** (included with DNase)
2. Incubate for **15 min** at **37 °C**.
3. Incubate for **10 min** at **65 °C** - inactivation of DNase.

### Use of Clean-Up RNA Concentration Kit (cat. # 039-25C, 039-100C)

Kit for removal and concentration of RNA samples. Elution from 15 µl. Microcolumns (included with the kit) effectively bind RNA. Most contaminations flow through the microcolumns.

# Safety information

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**DANGER**

## Fenozol Plus

H301+H311+H331 Toxic if swallowed, in contact with skin or if inhaled.  
H314 Causes severe skin burns and eye damage.  
H341 Suspected of causing genetic defects.  
H373 May cause damage to organs through prolonged or repeated exposure.  
H411 Toxic to aquatic life with long-lasting effects.  
P261 Avoid breathing dust.  
P273 Avoid release to the environment.  
P280 Wear protective gloves, protective clothing, eye protection, face protection.  
P301+P310 If swallowed: immediately call a Poison Center or doctor/physician.  
P305+P351+P338 If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a Poison Center or doctor/physician.

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**DANGER**

## Isopropanol

H225 Highly flammable liquid and vapor.  
H319 Causes serious eye irritation.  
H336 May cause drowsiness or dizziness.  
P210 Keep away from heat, sparks, open flames, hot surfaces. No smoking.  
P261 Avoid breathing vapors.  
P305+P351+P338 If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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**DANGER**

## A1 wash solution

H225 Highly flammable liquid and vapor.  
H319 Causes serious eye irritation.  
H336 May cause drowsiness or dizziness.  
P210 Keep away from heat, sparks, open flames, hot surfaces. No smoking.  
P261 Avoid breathing vapors.  
P305+P351+P338 If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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