USER GUIDE

EcoQprep™ Universal RNA Kit

Cat. No. K-3706

BIONEER
Innovation • Value • Discovery

EcoQprep™ Universal RNA Kit

Kit for the extraction of RNA from cultured cells, blood, bacteria, plant tissue, or animal tissue

User Guide

K-3706

Σ 50

Version No.: 0 (2025-06-23)

Please read all the information in booklet before using the unit

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Intended Use

EcoQprep™ Universal RNA Kit is developed and supplied for research purposes only. Certain applications possible with this kit may require special approval by appropriate local and/or national regulatory authorities in the country of use.

Safety Warning and Precaution

Wear appropriate protection when handling any irritant or harmful reagents. The use of a laboratory coat, protective gloves and safety goggles are highly recommended. For more information, please consult the appropriate Material Safety Data Sheet (MSDS).

Warranty and Liability

All BIONEER products undergo extensive Quality Control testing and validation. BIONEER guarantees quality during the warranty period as specified, when following the appropriate protocol as supplied with the product. It is the responsibility of the purchaser to determine the suitability of the product for its particular use. Liability is conditional upon the customer providing full details of the problem to BIONEER within 30 days.

Quality Management System ISO 9001 Certified

Every aspect of our quality management system from product development, production to quality assurance and supplier qualification meets the world-class standards.

Patent

EcoQprep™ and its kits are protected by the patents KR10-2015-0089172.

Trademark

EcoQprep™ is a trademark of BIONEER Corporation.

Copyright

Notice

BIONEER corporation reserves the right to make corrections, modifications, improvements and other changes to its products, services, specifications or product descriptions at any time without notice.

Contents

Product Information

Components

Components	Cat.No	Amount*	Storage
Magnetic Nanobead-RNA (50 mg/mL)	KB-7031	6 mL x 1 ea	Store at room temperature (15-25°C).
RD Buffer	KB-2120	30 mL x 1 ea	
RWMB1 Buffer	KB-3112C	25 mL x 1 ea	
RWB2 Buffer	KB-4023C	15 mL x 1 ea	
WE Buffer	KB-5016	40 mL x 1 ea	
ER Buffer	KB-6037	25 mL x 1 ea	
1.5 mL Tube	KA-1120	50 ea x 1 pack	
One-Page Protocol		1 ea	

* Mini – 50 rxn, Midi – 5 rxn

Storage

The kit will maintain performance for at least two years under standard storage conditions. All components of the kit should be stored at room temperature (15-25°C).

Specifications

Starting material & RNA extraction efficiency

Product specifications of scale

Scale	Mini	Midi
Expected RNA Yield	~ 100 µg	~ 500 µg
Minimum elution volume	50 µL	500 µL
Preparation time	~ 5 min	~ 10 min

Product details by sample type

Sample	Starting amount	RNA yield	Expected purity*
Cultured cells	10^4-10^8 cells	15-20 µg	A_{260}/A_{280} > 2.0, A_{260}/A_{230} > 1.7
Liver	25-50 mg	10-60 µg	
Spleen	100 mg	30-60 µg	
Plant tissues	100 mg	70-80 µg	

*** Note:** Measured values may vary depending on the sample type.

Precautions

- Take appropriate laboratory safety precautions and wear gloves when handling because RD Buffer contain chaotropic salts which are irritants/
- RNA is highly susceptible to degradation by exogenous RNase that may be introduced during the handling steps, all the steps must be conducted under sterile, RNase-free condition.
- RNase-free reagents, pipette tips, and tubes must be used with gloved hands while handling them.

Introduction

Product Description

EcoQprep™ Universal RNA Kit is designed for extraction of highly purified RNA from mammalian cultured cells, blood, bacteria, animal and plant tissues. The kit employs Magnetic Nano Beads to bind total RNA with the aid of EcoQprep™ Magnetic Separation Rack (Cat. No. TM-1012, TM-1021, TM-1031) and *ExiPrep*™ 96 Lite (Cat. No. A-5250). The use of EcoQprep™ Magnetic Separation Rack along with the kit greatly increases user convenience by shortening the extraction time without centrifugation. On the same principle, *ExiPrep*™ 96 Lite is designed for rapid extraction of nucleic acids delivering up to 96 extracted samples (including controls).
RNA extracted through this kit can be used for a variety of applications, including: reverse transcription PCR (RT-PCR), reverse transcription quantitative PCR (RT-qPCR), northern blot analysis, cDNA synthesis and RNA-sequencing (RNA-seq).

Principle

EcoQprep™ Universal RNA Kit uses Magnetic Nano Beads to extract nucleic acid. Buffers within the kit assist nucleic acid to bind to silica-coated magnetic nanobeads. As a result, high yield and highly purified nucleic acid is extracted from samples.

The kit consists of lysis & binding buffer, washing buffer, elution buffer, and magnetic nanobeads. Samples are lysed and homogenized in the presence of a guanidine-thiocyanate-containing buffer, which is a highly denaturing agent and inactivates RNase to isolate RNA. Extracted RNA is bound to silica-coated magnetic nanobeads. Cell debris and other contaminants are eliminated by subsequent washing, and highly purified RNA is eluted in an elution buffer or RNase-free water.

* **Note**: Some samples require pre-treatment step.

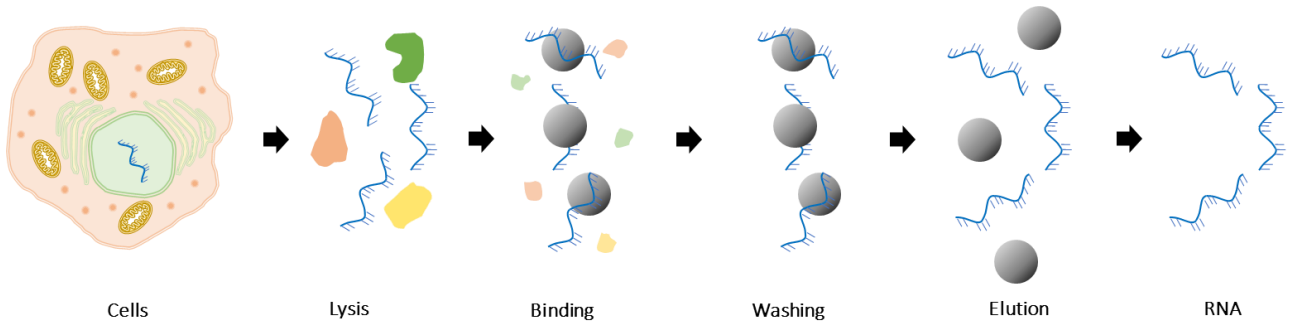


Figure 1. RNA extraction using silica-coated magnetic nanobeads.

Features & Benefits

- Comprehensive: High quality and yield of RNA extraction from various samples such as mammalian cultured cells, blood, bacteria, animal and plant tissues.
- Convenient: Broad coverage of scales for Mini and Midi isolation protocols with just a single kit.
- Rapid: Magnetic Nano Beads enable the rapid nucleic acid extraction. (Mini- ~ 5 min, Midi- ~ 10 min).
- Cost-effective: Can be applied to *ExiPrep*™ 96 Lite to automate RNA extraction.

Magnetic Nano Beads

Magnetic Nano Beads have been developed to overcome defects of existing resin and to automate purification process. The principle of extraction using the magnetic nanobeads is that coated functional group on the surface of it binds to nucleic acid. Magnetic nanobeads are then isolated using external magnetic field.

Specification

Silica-coated Magnetic Nano Beads	
Matrix	Silica-coated Fe_3O_4
Average size	200 nm
Ligand	- OH
Working Temperature	0-100°C
Storage	Store at room temperature.

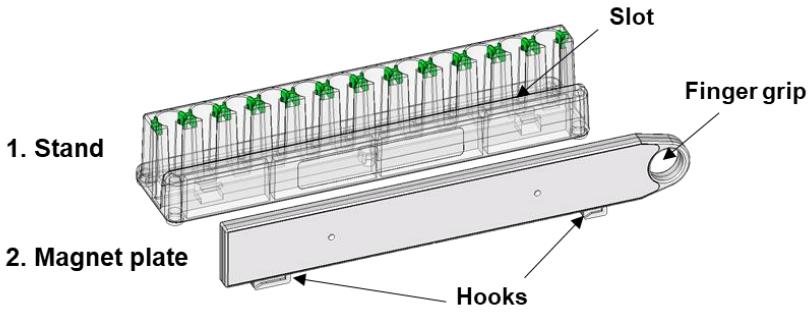
Features & Benefits

- Rapid: Fast binding guarantees high throughput automation.
- Effectiveness: Large surface area enables more sensitive assay.
- Specificity: Globular structure increases specificity by decreasing non-specific binding.

EcoQprep™ Magnetic Separation Rack

EcoQprep™ Magnetic Separation Rack (Cat. No. TM-1012) is designed for a fast and easy separation of the Magnetic Nano Beads. BIONEER offers various racks of different sizes for 1.5 or 2 mL tube (Cat. No. TM-1012), 15 mL tube (Cat. No. TM-1021), 50 mL tube (Cat. No. TM-1031). These racks consisting of different size allow user to choose the product according to their needs.

Components of EcoQprep™ Magnetic Separation Rack



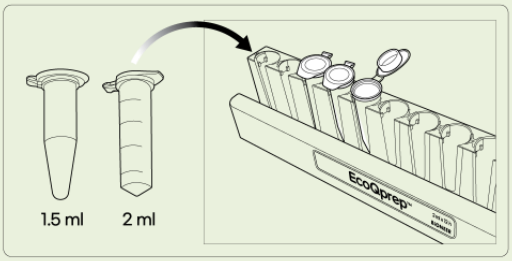
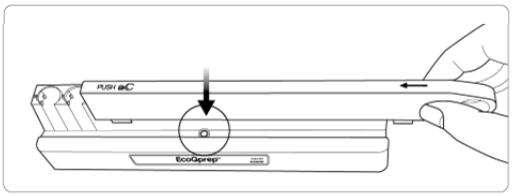
- **Stand**: Holds up to 12 tubes with a non-slip design.
- **Magnet plate**: Detachable from the stand's slot and contains a magnet.

Features & Benefits of EcoQprep™ Magnetic Separation Rack

- **Rapid**: Isolates plasmid DNA, genomic DNA, and/or RNA quickly (within 15 minutes) * and economically.

  *** Note:** The required time may differ depending on the type of samples and scale.
- **Convenient**: Simply disposes waste solution just by flipping the rack without centrifugation or pipetting as the silicon fixture secures the tube.

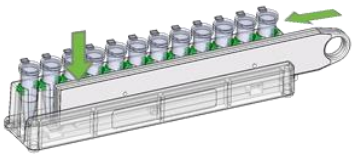
The followings are recommended when using the EcoQprep™ Magnetic Separation Rack.

Precautions for Use	
	Confirm the orientation of the tube and the Rack.
	Ensure that the front hook of the Magnet plate overlaps more than half of the Stand.

1. Attach the Magnet plate

① Align the Magnet plate half of the Stand.

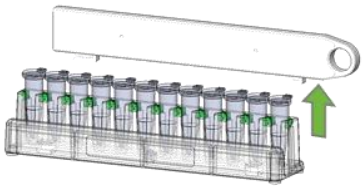
② Hold the finger grip of the Magnet plate and push.



2. Detach the Magnet plate

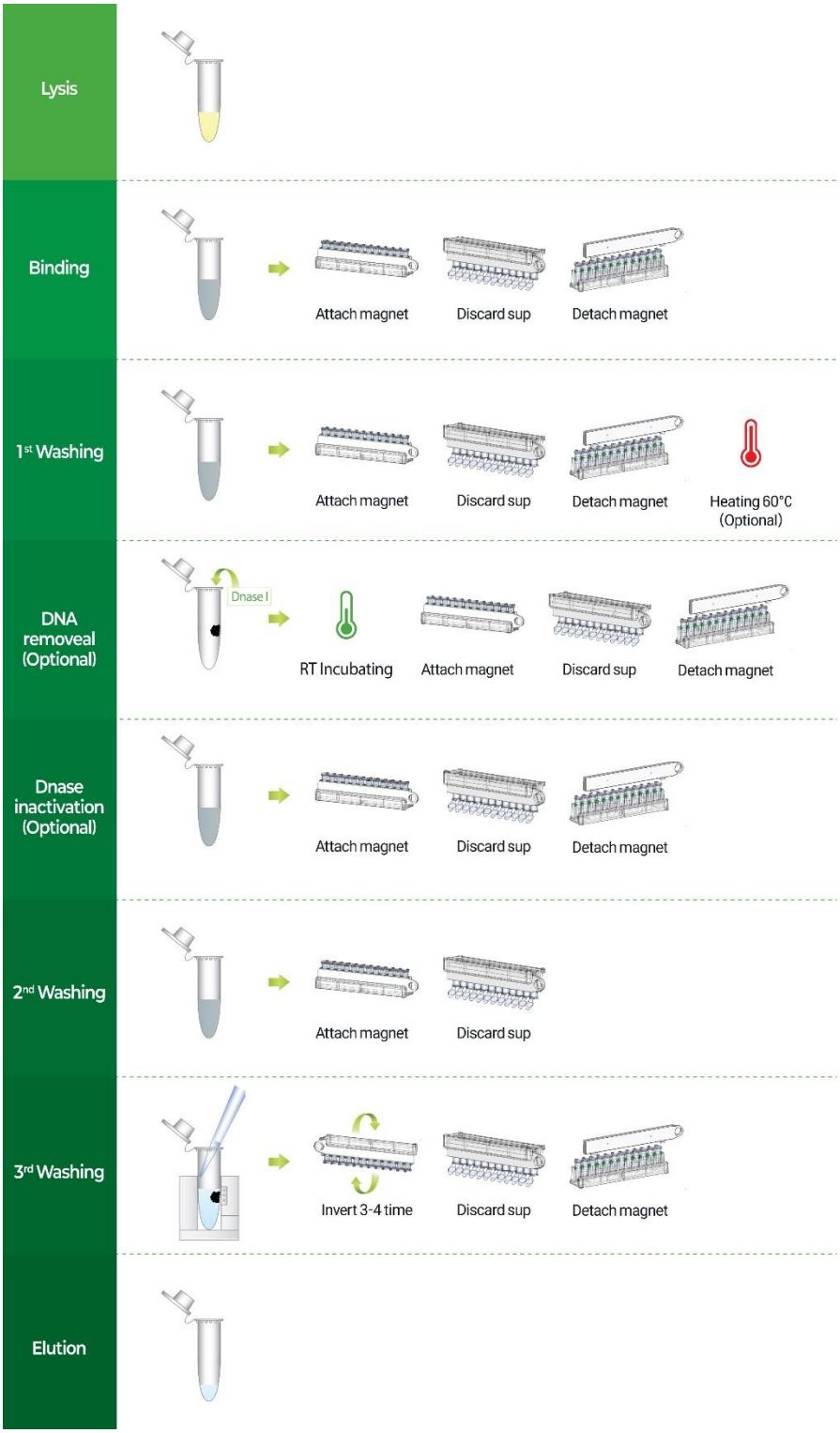
① Hold the finger grip of the Magnet plate and pull.

② Lift the Magnet plate



Experimental Procedures

RNA Extraction Procedure Overview



Sample Preparation

Several factors such as harvesting method and storage of starting samples can influence the yield and RNA purity. All specimens must be stored in a freezer or used immediately after collection. It is recommended to put the sample as soon as possible on ice and avoid repeated freezing and thawing.

Cultured cells

For RNA extraction, number of cells should be more than 1 x 10^4 cells, which is calculated with a cell counter. Cultured cells can easily be harvested by centrifugation. However, it might be difficult to extract RNA if cultured cells are too clustered. In this case, trypsin can be used to detach each cell from the cluster. It is recommended to keep the samples on ice until use.

Blood

Blood sample should immediately be used or collected in a tube containing anticoagulants for blood (EDTA and ACDs). Sample can be stored for several days at 4°C and for up to 1 year at -70°C. It is recommended to defrost the sample rapidly in a water bath (37°C) and store it on ice before use.

Red Blood Cells (RBC) lysis buffer (150-160 mM NH_4Cl, 10 mM $KHCO_3$, 0.1-1 mM EDTA; not provided) can be used to lyse RBCs from the blood, isolating white blood cells RNA.

Bacterial cells

Bacterial cells can be processed in a shaking incubator for 12-16 hours at 37°C. Optimal results can be obtained when harvested bacterial cells are immediately used or stored at between -20°C and -80°C. Especially for gram-positive bacteria, additional bacteriolytic agents like lysozyme or lysostaphin should be used to break down the multilayered cell wall. RS buffer (Not provided, KB-0041) can be used to extract RNA from bacteria.

Tissue

Several factors such as harvesting method and storage of starting samples can influence the yield and DNA purity. Freshly collected sample must be stored in a freezer or used immediately after collection. If immediate use of the plant tissue sample is not planned, store it in liquid nitrogen or at -70~80°C. Avoid repeated freezing and thawing.

Before Start

Before proceeding, please check the following:

1. Add 10 µL of β-mercaptoethanol (99% Purity; Molecular grade; 14.3 M) per 1 mL of RD Buffer.
   (Final concentration of β-mercaptoethanol: 143 mM)

2. Add specified volume of absolute ethanol (not provided) to RWMB1 Buffer and RWB2 Buffer, respectively before use (see bottle label).

3. g-force can be calculated as follows: rcf = 1.12 x r x $(rpm/1,000)^2$
   Note: Where 'rcf' is the relative centrifugal force (in g), 'r' is the radius of the rotor in centimeters, and rpm is the speed of the centrifuge in revolutions per minute.

Preparing Lysates from Cultured Cells or Blood

1. Cell harvesting

Harvest cells according to step 1), 2-A) or 2-B).

1) Suspension cell culture:

Harvest cultured cells (10^4-10^8 cells, Mini) * by centrifugation at 300 x g for 5 minutes to pellet cells. Discard the supernatant carefully without disturbing a cell pellet and go to step 2.

* **Note**: The amount of required sample may vary depending on the extraction scale.

2) Monolayer cell culture:

There are two different methods to collect cells grown in monolayer culture.

① Direct cell harvesting on the culture dishes:

Completely discard the cell culture medium and go to step 2.

* **Note**: Completely remove the cell culture medium to prevent inhibition of RNA extraction

② Cell harvesting with trypsin:

Remove the cell culture medium and wash the cell monolayer with DPBS. Add 0.1-0.25% trypsin to the washed cell monolayer to detach the cells. After the cells detach, add cell culture medium. Transfer the cells to an RNase-free tube (not provided) and centrifuge at 300 x g for 5 minutes. Discard the supernatant carefully and go to step 2.

3) Blood sample

① Prepare at least 200 µL of Blood in 1.5 mL tube.

② Add 400 µL * of RBC lysis buffer and incubate 10 min on ice. Invert or vortex 2~3 times during incubation.

* **Note**: The ratio of blood to RBC lysis buffer can vary depending on the condition of the blood, but it is generally applied in the range of 1:2 to 1:5.

③ Centrifuge at 300 x g for 5 minutes and discard the supernatant carefully.

④ Go to step 2

2. Lysis & homogenization

Resuspend the cell pellet from step 1 in 500 µL (Mini) / 5 mL (Midi) of RD Buffer by vortexing.

* **Note**: Ensure complete resuspension of the sample to maximize lysis efficiency.

3. RNA precipitation

Add 300 µL (Mini) / 3 mL (Midi) of absolute ethanol† (not provided) to the lysate and mix immediately by pipetting.

† When purifying RNA from certain cell lines, precipitates may be visible after addition of ethanol. This does not affect the procedure.

4. Proceed immediately to “RNA Extraction Using Magnetic Beads” on page 18.

Preparing Lysates from Bacteria

1. Cell harvesting

1) Calculate the volume of bacterial culture (1 volume) and apply it to a clean 1.5 mL tube.

2) Add 0.5 volume of RS Buffer to a bacterial culture from step 1. Mix briefly by vortexing for 5 seconds and incubate at room temperature for 5 minutes

3) Centrifuge at 7,500 rpm for 10 minutes to pellet cells. Discard the supernatant carefully.

4) Go to step 2

2. Lysis & homogenization

Resuspend the cell pellet from step 1 in 500 µL (Mini) / 5 mL (Midi) of RD Buffer by vortexing.

* Note: Ensure complete resuspension of the sample to maximize lysis efficiency.

3. RNA precipitation

Add 300 µL (Mini) / 3 mL (Midi) of absolute ethanol† (not provided) to the lysate and mix immediately by pipetting.

† When purifying RNA from certain cell lines, precipitates may be visible after addition of ethanol. This does not affect the procedure

4. Proceed immediately to “RNA Extraction Using Magnetic Beads” on page 18.

Preparing Lysates from Animal Tissue

1. Lysis & homogenization.

1) Grind (or homogenize) 20-30 mg (Mini)* / up to 1000 mg (Midi) of fresh or thawed animal tissue sample with a mortar and pestle (or homogenizer) and place it into appropriate tubes.

* **Note**: The amount of sample required may vary depending on the extraction scale.

2) Add 500 µL (Mini) / 5 mL (Midi) of RD Buffer to the sample and mix thoroughly by vortexing

3) Centrifuge at full speed for 3 minutes and carefully transfer the supernatant to a new 1.5 mL tubes (Mini) or 50 mL tubes (Midi) with a pipette.

2. RNA precipitation

Add 300 µL (Mini) / 3 mL (Midi) of absolute ethanol (not provided) to the lysate and mix immediately by pipetting.

* **Note**: Do not centrifuge.

3. Proceed immediately to “RNA Extraction Using Magnetic Beads” on page 18.

Preparing Lysates from Plant Tissue & Fungi

1. Lysis & homogenization.

1) Grind ≤ 100 mg of plant or fungi sample (Mini)* / up to 1000 mg (Midi) in liquid nitrogen† to a fine powder with a mortar and pestle and place them into an appropriately sized tube.

* **Note**: The amount of sample required may vary depending on the extraction scale. Do not allow the sample to thaw

2) Add 500 µL (Mini) / 5 mL (Midi) of RD Buffer to the sample and mix thoroughly by vortexing

3) Incubate at 60°C for 1-3 minutes. A short 1-3 minutes incubation at 60°C may help to disrupt the tissue.

4) Centrifuge at full speed for 2 minutes and transfer the supernatant to an appropriately sized tube.

2. RNA precipitation

Add 300 µL (Mini) / 3 mL (Midi) of absolute ethanol (not provided) to the lysate and mix immediately by pipetting.

* **Note**: Do not centrifuge.

3. Proceed immediately to “RNA Extraction Using Magnetic Beads” on page 18.

RNA Extraction Using Magnetic Beads

1. RNA binding

1) Add 100 µL (Mini)/ 1 mL (Midi) of Magnetic Nano Bead solution to each tube and mix thoroughly by vortexing until the beads are fully resuspended.

2) Place the tube and attach the Magnet plate to the Stand of EcoQprep™ Magnetic Separation Rack and invert the rack gently 3-4 times until the beads bind tightly to the magnet.

Figure 2. Attachment of the Magnet plate. Combine the magnet plate to the stand.

3) Discard the supernatant carefully without removing the tube from EcoQprep™ Magnetic Separation Rack. Completely remove the remaining supernatant using a paper towel by blotting.

*** Note:** Avoid strong impacts while blotting to prevent bead detachment.

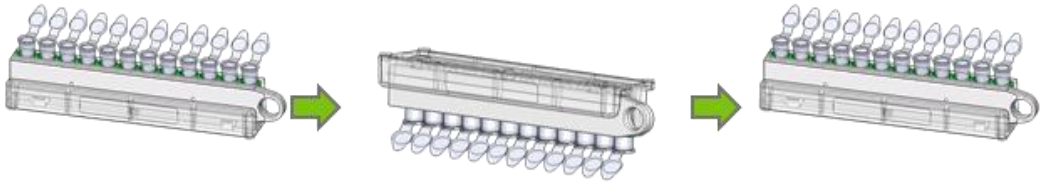


Figure 3. How to discard the supernatant. Discard the supernatant by inverting the EcoQprep™ Magnetic Separation Rack. The non-slip design on stand prevents the tubes from falling. When discarding the supernatant, invert the rack completely so that the solution does not spill on the rack.

4) Detach the magnet plate from EcoQprep™ Magnetic Separation Rack.

Figure 4. Detachment of the magnet plate. Pull the magnet plate up and gently separate it.

2. 1st Washing

1) Add 700 µL (Mini)/ 7 mL (Midi) of RWMB1 Buffer. Mix by vortexing until the beads are fully resuspended.

2) Repeat steps 1-2) to 1-4) to discard supernatant.

*** Note:** Do not detach the magnet plate from the Rack

3) **To perform the optional "DNA Removal", follow the steps below.**

①Completely dry the beads with the tube open at 60°C for at least 5 minutes.

②Add DNase I (Not provided) 50 Units/rxn and DNase reaction buffer (Not provided). Mix well by pipetting and incubate at RT for 15 minutes.

③Place the tube in EcoQprep™ Magnetic Separation Rack with the magnet plate attached and invert the rack gently 3-4 times until the beads bind tightly to the magnet

④Without removing the tube from EcoQprep™ Magnetic Separation Rack, discard the supernatant carefully and completely remove the remaining supernatant using a paper towel by blotting.

⑤Add 700 µL (Mini)/ 7 mL (Midi) of RWMB1 Buffer. Mix by vortexing until the beads are fully resuspended.

⑥Repeat steps 1-2) to 1-4) to discard supernatant.

Note: Do not detach the magnet plate from the Rack

3. 2nd Washing

1) Add 700 µL (Mini)/ 7 mL (Midi) of RWB2 Buffer. Mix thoroughly until the beads are fully

resuspended.

2) Repeat steps 1-2) to 1-4) to discard supernatant.

*** Note:** Do not detach the magnet plate from the Rack.

4. 3rd Washing

Remove residual ethanol according to step 1) or 2)

1) **Washing Beads**:

①Without removing the tubes from EcoQprep™ Magnetic Separation Rack, add 700 µL (Mini)/ 7 mL (Midi) of WE Buffer to the opposite side of beads.

②Close the cap and invert the rack twice to remove ethanol from the sample.

③Discard the supernatant carefully and completely remove the remaining supernatant using a paper towel by blotting

④Detach the Magnet plate from EcoQprep™ Magnetic Separation Rack.

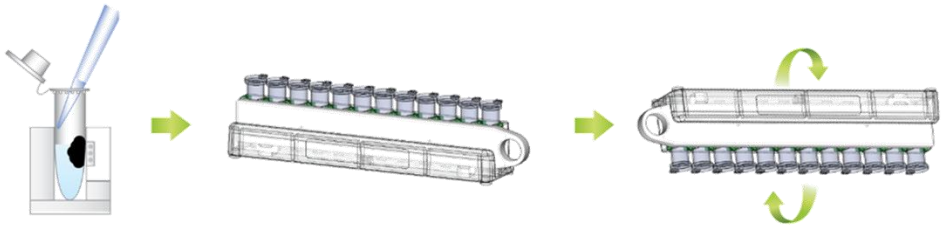


Figure 5. Washing the beads to remove residual ethanol.

***Note:** Direct pipetting of WE Buffer onto the beads, vortexing and/or vigorous shaking of the tubes may release nucleic acid from the beads, which may result in lower RNA yield.

2) **Drying Beads**:

①Add 700 µL (Mini)/ 7 mL (Midi) of 80% ethanol, mix thoroughly by vortexing, and repeat the steps 1-2) to 1-4).

②Completely dry the beads with the tube open at 60°C for at least 5 minutes.

③Remove the remaining supernatant with a pipette.

5. Elution

1) Add 50-100 µL (Mini)/ 500-1,000 µL (Midi) of ER Buffer to each tube and resuspend RNA by vortexing or pipetting.

2) Incubate tubes at 60°C for at least 1 minute, and then vortex thoroughly.

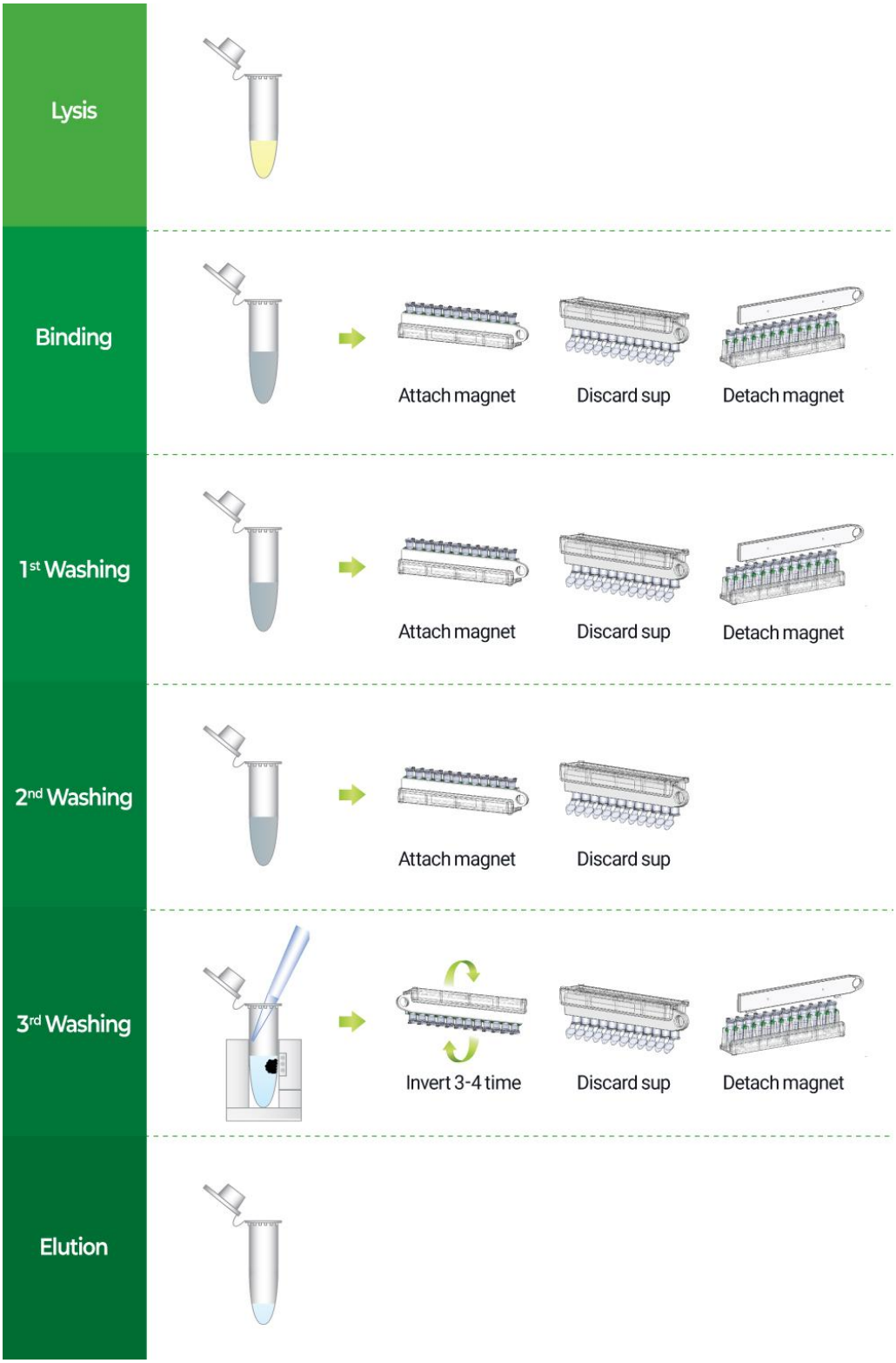
3) Attach the Magnet plate and carefully transfer the supernatant containing RNA to a new tube.

*** Note:** Do not reuse the beads.

RNA Extraction from Sample

Step	Buffer	Mini	Midi
Sample	Pellet Tissue	~ 1 x 10^6 < 100 mg	~ 1 x 10^8 < 1000 mg
Lysis	RD Buffer	500 µL	5.0 mL
Precipitation	Absolute ethanol (Not provided)	300 µL	3.0 mL
Binding	Magnetic Nano Bead-RNA (50 mg/mL)	100 µL	1.0 mL
1st Washing	RWMB1 Buffer	700 µL	7.0 mL
2nd Washing	RWB2 Buffer	700 µL	7.0 mL
3rd Washing	WE Buffer	700 µL	7.0 mL
Elution	ER Buffer	50-100 µL	500-1000 µL
Tube type		1.5 or 2 mL tube	15 mL tube

RNA Clean up Procedure Overview



RNA Clean up

RNA clean-up after nucleic acid extraction from sample is performed to remove impurities and improve accuracy in experiments requiring pure RNA, such as PCR, and RNA sequencing.

1. Sample preparing

1) If DNA-free RNA is required, add RNase-free DNase (Not provided) and DNase reaction buffer (Not provided) to each tube and adjust the volume up to 100 µL (Mini) / 1000 µL (Midi) with RNase-free water. Incubate at room temperature for 15 minutes.

2) Transfer the eluted RNA or enzyme reaction products into the indicated clean tube below.
① (Mini) Transfer the eluate to a 1.5 mL or 2 mL tube.
② (Midi) Transfer the eluate to a 15 mL tube.

3) Add 100 µL (Mini) / 1000 µL (Midi) of RD Buffer and mix well by pipetting.

2. RNA precipitation

Add 200 µL (Mini) / 2 mL (Midi) of absolute ethanol to the lysate and mix immediately by pipetting.

3. Proceed immediately to “RNA Extraction Using Magnetic Beads” on page 18.

Troubleshooting

Problem	Comments
Low RNA yield	• **Buffers or other reagents may have been exposed to conditions that reduce their effectiveness.** Store the reagents at room temperature (15-25°C) at all times upon arrival and keep all reagent bottles tightly closed after use to preserve pH and stability and avoid contamination.
	• **Excess amount of starting sample may have been used for RNA extraction.** Appropriate amount of starting sample should be used for efficient RNA extraction.
	• **Elution may have been incomplete.** Please expand the incubation time up to 3 minutes at elution step. In addition, make sure that Magnetic Nano Beads are suspended completely in the eluting solution during incubation.
	• **Insufficient shaking or vortexing during lysis step may lead to low RNA yield.** Shake or mix thoroughly by vortexing during lysis step.
	• **Cell culture medium may have been incomplete.** Remove the cell culture medium as much as possible. Any leftover in the medium can lead to an inhibition of RNA extraction
Low RNA purity	• **Magnetic Nano Beads may have been washed insufficiently.** Wash the beads properly in the 3rd washing step. Remaining ethanol can decrease the RNA purity. Take enough time to properly wash the beads.
Degraded RNA	• **There may have been RNase contamination.** Use a heat gun or blow dryer in a clean bench to

	prevent the RNase contamination in the air. Use RNase-free pipette tips and change the gloves frequently.
	• **The sample may have been stored inappropriately.** Cultured cell samples and lysed samples with RD Buffer should be stored at -80°C.
	• **Repeated freezing and thawing may degrade RNA.** Avoid repeated freezing and thawing.
Sample floating upon loading in an agarose gel	• **Sample may contain ethanol.** Floating is caused by remaining ethanol. Ensure that the 3rd washing (ethanol removing) step in the protocol is properly performed.

Appendix

Long term storage of RNA in formamide

1. Dissolve RNA pellet in deionized formamide

2. Add NaCl to the final concentration of 0.2 M followed by 4 volumes of ethanol to precipitate RNA from formamide

3. Incubate at room temperature for 10 minutes

4. Centrifuge at 12,000 rpm for 5 minutes at room temperature

Measurement of absorbance of RNA samples

The A_{260}/A_{280} ratio is a commonly used criterion for nucleic acid purity. Values for pure RNA are usually >2.0. However, the absorbance of nucleic acids at these wavelengths is dependent upon the ionic strength and pH of the medium. The change in the A_{260}/A_{280} ratio is primarily due to the decrease in the absorbance at 280 nm when the ionic strength or pH is increased. We recommend that diluting the RNA with a DEPC-DW for spectrophotometric assays

1. Measure the volume of the total RNA sample.

2. Transfer 1 µL of total RNA sample to a 1.5 mL tube

3. Add 999 µL of DEPC-DW and mix by pipetting

4. Measure A_{260} and A_{280} with DEPC-DW as a reference blank.

5. Calculate RNA yield as follows:
   1 A_{260} unit of RNA = 40 µg/µL
   Total A_{260} = (A_{260} of diluted sample) x (dilution factor)
   Concentration (µg/mL) = (total A_{260}) x (40 µg/µL)
   Yield (µg) = (total sample volume) x (concentration)

6. Calculate the A_{260}/A_{280} ratio. Pure RNA exhibits A_{260}/A_{280} > 2.0

References

Bonham, M. J., & Danielpour, D. (1996). Improved purification and yields of RNA by RNeasy®. *Biotechniques*, *21*(1), 57-60.

Coombs, N.J., Gough, A.C., and Primrose J.N. (1999) Optimisation of DNA and RNA extraction from archival formalin-fixed tissue. *Nucleic Acids Research*, *27*(16), e12.

Reno, C., Marchuk, L., Sciore, P., Frank, C.B., and Hart, D.A. (1997) Rapid isolation of total RNA from small samples of hypocellular, dense connective tissues. *Biotechniques*, *22*(6), 1082-1086.

Ordering Information

Description		Cat. No
EcoQprep™ Universal RNA Kit	50 reactions	K-3706

Related Products

Description	Cat. No
EcoQprep™ Magnetic Separation Rack (2 mL)	TM-1012
EcoQprep™ Magnetic Separation Rack (15 mL)	TM-1021
EcoQprep™ Magnetic Separation Rack (50 mL)	TM-1031

Explanation of Symbols

LOT Batch Code	Consult Instructions For Use	RUO Research Use Only	Caution
Do not Re-use	Contains Sufficient for <n> tests	Temperature Limitation	Manufacturer
REF Catalog Number	Use-by Date		

BIONEER Corporation - HQ

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