HANDBOOK

Total RNA Isolation

☐ **RNASure® Mini Kit**	NP-84105	50 Preps
☐ **RNASure® Mini Kit**	NP-84107	250 Preps

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COMPONENTS

Kit contents

RNASure Mini KIt

Cat. No.	NP-84105	NP-84107
Number of Preps	50 preps	250 preps
Lysis Buffer LBA1	25 mL	125 mL
Wash Buffer LBA2	15 mL	80 mL
Wash Buffer WBA3 (Concentrate)*	12.5 mL	3 x 25 mL
Desalting Buffer DSB	25ml	125ml
Reaction Buffer for rDNase	7ml	35ml
rDNase, RNase free (lyophilised)	1vial	5vials
RNase free water	15ml	65ml
RNASure® Shredder Column	50	250
RNASure® Mini Column	50	250
Collection Tube (2ml)	150	750
Collection Tube(1.5 ml)	50	250
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* Please see “Preparation of Reagents”

Reagents, consumables, and equipment not supplied with the kit

- 95 - 100 % ethanol (to prepare Wash Buffer WBA3)
- 70 % ethanol (to adjust RNA binding conditions)
- Reducing agent (ß-mercaptoethanol, or DTT (dithiothreithol), as supplement for Lysis Buffer LBA1
- 1.5 ml microcentrifuge tubes
- Sterile RNase-free pipette tips
- Manual pipette
- Centrifuge for microcentrifuge tubes
- Equipment for sample disruption and homogenization
- Personal protection equipment (e.g., lab coat, gloves, goggles)

SAFETY INSTRUCTIONS

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate material safety data sheets (MSDSs).

Buffers LBA1, LBA2 and DSB contain guanidine salts, which can form highly reactive compounds when combined with bleach. If liquid containing these buffers is spilt, clean with suitable laboratory detergent and water. If the spilt liquid contains potentially infectious agents, clean the affected area first with laboratory detergent and water, and then with 1% (v/v) sodium hypochlorite.
The following risk and safety phrases apply to components of the RNASure® Kit
Lysis Buffer LBA1
Contain Guanidine thiocyanate: R&S Phrases: R20/21/22, S13

Wash Buffer LBA2
Contain Guanidine thiocyanate: R&S Phrases: R10-20/21/22, S13-16

Desalting Buffer DSB
Contain Guanidine thiocyanate: R&S Phrases:R10,S16

rDNase, RNase free
Contain lyophilized DNase: R&S Phrases: R42/43, S22-24

R10: Flammable, R20/21/22: Harmful by inhalation, in contact with skin and if swallowed, R42/43: May cause sensitization by inhalation and skin contact, S13: Keep away from food, drink and animal foodstuffs, S16: Keep away from sources of ignition - No smoking, S22: Do not breathe dust, S24: Avoid contact with skin.

INTRODUCTION

Principle and Procedure

Samples are lysed and incubated with buffers containing chaotropic salts which are capable of stabilizing and protecting RNA from endogenous RNAses. The samples are then processed through a spin cartridge containing clear silica based membrane to which RNA binds. Any impurities or contaminants are removed by two subsequent washing steps. Pure RNA is then eluted using RNase free water supplied with the kit. Pure RNA can then be used in a variety of downstream applications. All RNA preparation steps are performed at room temperature. The final eluate needs to be kept frozen at -200C for short term storage and for long term storage keep it at -700C.

Specifications of RNASure Mini Kit

RNASure® Mini kit is simple reliable and rapid method for the isolation of total RNA from Cultured cells and tissues. With the help of supplementary protocol total RNA can be isolated from cell-free biological fluids, bacteria and yeast using RNASure® Mini kits. If used in RT-PCR applications we recommend using intron-spannig primers. These Kits allow RNA purification of high quality with an A260/A280 ratio generally exceeding 1.9 (measured in TE buffer, pH 7.5).
RNA purified can be used in further downstream applications like RT-PCR QRT-PCR, Northern Blotting, cDNA Synthesis, or RNase protection assays. Even Difficult biological materials like mouse tissue (liver, brain), different tumor cell lines, Streptococci and Actinobacillus pleuropneumoniae will give high quality of RNA.
RNA isolated with RNASure® Mini gives high integrity. The RNA Integrity Number of RNA isolated from fresh high quality sample material generally exceeds 9.0. However, RNA Integrity majorly depends on the sample quality.
The RNASure® Mini kit is supplied with rDNase for an On-column digestion to have minimal contamination.

Starting Material and Typical Yield

From upto 5 x 10^6 cells or 30mg tissue approximately 70ug of RNA can be extracted, which can be further used in downstream applications like RT-PCR, Northern Blotting, Primer Extension or RNase protection assays.

The kit is supplied with rDNase for an on-column digestion to have minimal contamination. However, an additional digestion with rDNAse for most demanding applications can be given. In order to minimize genomic DNA contamination use lesser amount of starting materials (e.g., 1 x 10^6 cultured cells or 10 mg of tissue resulting in about 20 µg of RNA).
The kit can be used for preparing RNA from different amounts of sample material.
For upto 20mg of tissue or 5x10^6 cultured animal or human cells upto 350ul of LBA1 (step 1) and 350ul of ethanol (step 4) should be used, for upto 30mg of tissue or the buffer and ethanol in respective steps can be increased to 600ul.

Wear gloves at all times during the preparation. Change gloves frequently.

Handling , preparation & storage of samples

RNA protection is an absolute prerequisite against digestion from RNases. Keep the samples flash frozen at -700C. Samples can also be stored in lysis buffer LBA1 after lysis at -700C for 12 months or at 4 0C up to 24 hours or at room temperature for few hours. Frozen samples in buffer LBA1 should be thawed with care and slowly.

Cultured animal cells are collected by centrifugation and directly lysed by adding Buffer LBA1

Cell lysis of adherent growing cells in a culture dish

Completely aspirate cell-culture medium, and continue immediately with the addition of
Lysis Buffer LBA1 to the cell-culture dish. Presence of cell culture medium affects the lysis procedure.

Animal Tissues

Complete disruption of cell walls and plasma membranes of cells and organelles is absolutely required to release all the RNA contained in the sample. Depending upon the sample type disruption can be done mechanically or with lytic enzymes. For disruption using a mortar and pestle, freeze the animal tissue immediately in liquid nitrogen and grind to a fine powder under liquid nitrogen. Transfer the suspension (tissue powder and liquid nitrogen) into a liquid-nitrogen–cooled, appropriately sized tube and allow the liquid nitrogen to evaporate without allowing the sample to thaw. Add lysis buffer LBA1 containing reducing agent and mix immediately. Then pass it through Sure spin filter (included in the kit) or through 0.9mm syringe needle.

Cell and tissue lysates can be homogenized using a syringe and needle. Lysate is passed through a 20-gauge (0.9 mm) needle attached to a sterile plastic syringe at least
5–10 times or until a homogeneous lysate is achieved. Increasing the volume of lysis buffer may be required to facilitate handling and minimize loss.

Rotor–stator homogenizers thoroughly disrupt and simultaneously homogenize, in the presence of lysis buffer LBA1, single samples of animal tissues in 15–90 seconds depending on the toughness and size of the sample. Rotor–stator homogenizers can also be used to homogenize cell lysates. The rotor turns at a very high speed, causing the sample to be disrupted and homogenized by a combination of turbulence and mechanical shearing. Foaming of the sample should be kept to a minimum by using properly sized vessels, keeping the tip of the homogenizer submerged, and holding the immersed tip to the side of the tube. Rotor–stator homogenizers are available in different sizes and operate with differently sized probes. Probes with diameters of 5 mm and 7 mm are suitable for volumes up to 300 µl and can be used for homogenization in microcentrifuge tubes. Probes with a diameter of 10 mm or above require larger tubes. In addition, round-bottomed tubes allow more efficient homogenization than conical bottomed.

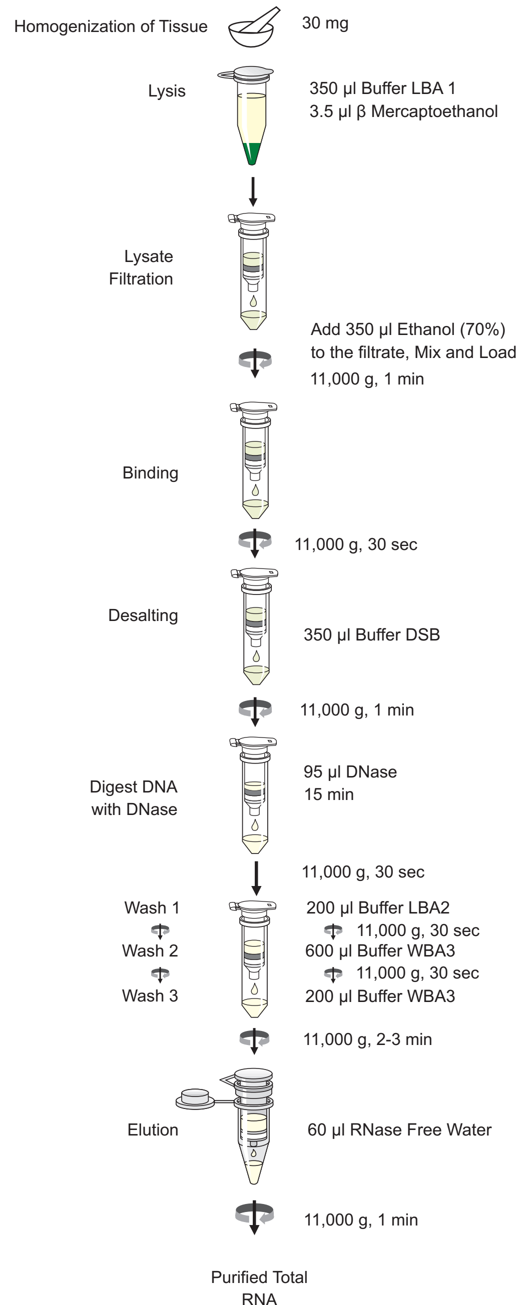
Enzymatic lysis: This method requires digestion of the cell wall with lysozyme or zymolase/lyticase to lyse the cell wall. After enzyme treatment it is further lysed in lysis buffer LBA1. After lysis homogenization is achieved by use of Sure spin filter or by syringe needle as described above.
Maintain RNase free environment during all the process.

Preparation and storage of reagents

- All buffers & kit components should be stored will sealed and dry at room temperature and are stable for at least 12 months under these conditions.
- Keep lyophilized rDNase (RNase free) at +4oc on arrival (it is stable upto 12 months)
- Keep up 70% ethanol ready for use in protocol.
- Keep reducing agent (ß-ME or DTT) ready.

rDNase (RNase-free): Add RNase-free H2O to the rDNase vial with the indicated volume (540ul to each vial) and incubate for 1 min at room temperature. Gently mix to dissolve the rDNase completely dispense into the aliquot and store at - 20 °C. The frozen sample is stable for 6 months. Do not freeze thaw more than 3 times.

Wash Buffer WBA3: To the buffer WBA3 concentrate add indicated volume of 95-100% ethanol (50ml in kits NP-84105 and 100ml in NP-84107). Mark and label the bottle as ' ethanol added'. Store the bottle at room temperature it is stable upto 1 year.



Protocol for Total RNA purification from cultured cells and tissue

Total RNA purification with RNASure Mini Kit

Things to do before starting:

- Check if Wash Buffer WBA3 and rDNase were prepared as per instructions
- Keep up 70% ethanol ready for use in protocol.
- Keep reducing agent (ß-ME or DTT) ready.

Procedure

1. **Homogenize upto 30mg of tissues (please see handling and homogenization) or collect upto 5 x 10^6 eukaryotic cultured cells by centrifugation and lyse directly by addition of buffer LBA1**

2. **Add 3.5 µl ?-mercaptoethanol and 350µl buffer LBA1 to cells pellet or homogenized tissues and vortex rigorously.**
   Note: As alternative to ß-ME the reducing agent DTT may be used. Use a final concentration of 10 - 20 mM DTT within the Lysis Buffer LBA1 or RAP.

3. **Place the RNASure Shredder Column in collection tube (2ml), apply the mixture and centrifuge at 11,000 x g for 1 min. Transfer the filtrate to a new centrifuge tube 1.5 ml capacity.** The lysate may be passed alternatively 4-5 times through a 0.9 mm needle (20 gauge) fitted to a syringe.

4. **To the above solution add 350 l of ethanol (70%) and mix thoroughly by pipetting.** After addition of ethanol a stringy precipitate may become visible which will not affect the RNA isolation. Be sure to disaggregate any precipitate by mixing and load all of the precipitate on the column as described in step 5. Do not centrifuge the ethanolic lysate before loading it onto the column in order to avoid pelleting the precipitate

5. **Take fresh RNASure Mini Column in collection tube and load the lysate . Centrifuge at 11,000 x g for 30 seconds. Then place the column in new collection tube (2ml).** Maximum loading capacity of RNASure® Mini Columns are 750 µl. Repeat the procedure if larger volumes are to be processed

6. **Add 350 µl DSB (Desalting Buffer) and centrifuge at 11,000 x g for 1 min to dry the membrane.** If the column outlet has come into contact with the flow-through for any reason, discard the flow-through and centrifuge again for 30 s at 11,000 x g.

7. **In a sterile centrifuge tube (not provided but available from genetix brand) prepare DNase reaction mixture for each reaction add 10 µl reconstituted rDNase (see section 3) to 90 µl Reaction Buffer for rDNase. Mix properly by flicking the tube.** Apply 95 µl DNase reaction mixtures directly onto the center of the silica membrane of the column. Incubate at room temperature for 15 min.

8. **To the RNASure Mini column add 200 l of buffer LBA2 and centrifuge for 30 seconds at 11000 x g. Now discard the filtrate. This step will inactivate the rDNase. Place the column in new collection tube.**

9. **To the RNASure Mini column add 600 l of buffer WBA3 & Centrifuge for 30 Seconds at 11,000 x g. Now discard the filtrate. Transfer the column into a new collection tube.**

10. **Add 200 l of buffer WBA3 to the column & centrifuge it for 2-3 min at 11000 x g .This step will dry the membrane. Place the RNASure Mini column in new nuclease free 1.5 ml collection tube (provided).** If for any reason, the liquid level in the Collection Tube has reached the RNASure® Mini Column after centrifugation, discard flow-through, and centrifuge again.

11. **Elute the RNA in 60 µl RNase-free H2O, (supplied) and centrifuge at 11,000 x g for 1 min.** If higher RNA concentrations are desired, elution can be done with 40 µl, this will decrease the yield slightly.

Supplementary protocol for total RNA preparation from biological fluids (e.g., serum, culture medium)

Things to do before starting:

- Check if Wash Buffer WBA3 and rDNase were prepared as per instructions.
- Keep up 70% ethanol ready for use in protocol.
- Keep reducing agent (ß-ME or DTT) ready.

No homogenization is required

Procedure

1. **Add 350 µl Buffer LBA1 and 3.5 µl ?-mercaptoethanol to 100 µl of sample and vortex vigorously.**
   Note: As alternative to ß-ME the reducing agent DTT may be used. Use a final concentration of 10 – 20 mM DTT within the Lysis Buffer LBA1.

2. Add 350 µl of ethanol (70 %) to the lysate and mix by vortexing.

   Proceed with step 5 of the RNASure® Mini standard protocol

Supplementary Protocol For Total RNA Preparation From Up To 10^9 Bacterial Cells

Things to do before starting:

- Check if Wash Buffer WBA3 and rDNase were prepared as per instructions.
- Pre set your incubator /water bath
- Keep up 70% ethanol ready for use in protocol.
- Keep reducing agent (ß-ME or DTT) ready.

Procedure

1. **Pellet the bacterial cells and resuspend the cell pellet (Gram-negative strains) in 100 µl TEbuffer (10 mM Tris-HCl, 1 mM EDTA; pH 8) containing 1 mg/ml lysozyme (not provided) by vortexing vigorously. Incubate the mixture at 37 C for 10 min.**
   Note: For preparation of RNA from Gram-positive bacteria, resuspend cells in 100 µl TE containing 2 mg / ml lysozyme. depending on the bacterial strain. It may be necessary to optimize incubation time and lysozyme concentration, Depending on the bacterial strain type.

2. **Add 350 µl Buffer LBA1 and 3.5 µl ?-mercaptoethanol to the suspension and vortex vigorously.**
   Note: As alternative to ß-ME the reducing agent DTT may be used at a final concentration of 10 – 20 mM DTT within the Lysis Buffer LBA1.

3. **Place RNASure Shredder Columns in Collection Tubes (2 mL),apply mixture, and centrifuge for 1 min at 11,000 x g to reduce viscosity and turbidity of the solution.** Alternatively, the lysate may be passed ≥5 times through a 0.9 mm needle (20 gauge) fitted to a syringe.

4. **To the lysate add 350 µL of ethanol (70 %) and mix by vortexing.**

   Proceed with step 5 of the RNASure® Mini standard protocol.

Supplementary Protocol for Total RNA preparation from up to 5 x 10^7 yeast cells

Additional reagents and components to be supplied by user:

ß-mercaptoethanol, or DTT (dithiothreithol), or Sorbitol and lyticase (or zymolase) for homogenization by enzymatic digestion or glass beads for homogenization by mechanical disruption

Things to do before starting:

- Check if Wash Buffer WBA3 and rDNase were prepared as per instructions.
- Keep up 70% ethanol ready for use.

Two homogenization protocols are given

Mechanical and enzymatic digestion. Mechanical is recommended for yeast cells pellets stored at -70 °C and enzymatic for fresh harvested cells.

Note: Compare to cultured cells and tissues lesser amount of yeast cells need to be used because of higher genomic nucleic acid content.

Procedure

A) Mechanical disruption

1. Harvest 2 – 5 ml of YPD culture at about 5,000 x g for 10 min and wash with ice-cold water. Resuspend the cell pellet in a mixture of 350 µl Buffer LBA1 and 3.5 µL ß-mercaptoethanol. Add glass beads (e.g., 300 mg glass beads, 425 – 600 µm,)

2. Shake samples in a swing-mill at 30 Hz for 15 min.

Continue with step 3.

OR

B) Enzymatic Digestion

1. Harvest 2 – 5 ml of YPD culture at about 5,000 x g for 10 min. Resuspend pellet in an appropriate amount of fresh prepared sorbitol / lyticase buffer (50 – 100 U lyticase or zymolase in 1 M sorbitol / 100 mM EDTA) and incubate at 30 °C for 30 min. Pellet the resulting spheroplasts by centrifugation at 1,000 x g for 10 min.
   Discard supernatant carefully. It may be necessary to optimize incubation time and lyticase / zymolase concentration, depending on the yeast strain.

Continue with step 2

3 **To lyse spheroplasts add 350 µl Buffer LBA1 and 3.5 µl ?-mercaptoethanol and vortex vigorously.**
Note: As alternative to ß-ME the reducing agent DTT may be used. Use a final concentration of 10 – 20 mM DTT within the Lysis Buffer LBA1.

4 **Place the Sure Spin filter (violet ring) in collection tube (2ml), apply the mixture and centrifuge at 11,000 x g for 1 min. Transfer the filtrate to a new centrifuge tube 1.5 ml capacity (not provided but available from genetix brand).**
Note : Do not disturb the pellet , which may be visible after centrifugation. Transfer the pellet or supernatant to a new 1.5ml centrifuge tube (not provided).

5 **To the above solution add 350 l of ethanol (70%) and mix thoroughly by vortexing (10-15 s).**

Proceed with step 5 of the RNASure® Mini standard protocol.

Supplementary protocol for Clean-up of RNA from reaction mixtures

Things to do before starting:

- Check if Wash Buffer WBA3 was prepared as per instructions.
- Keep up 70% ethanol ready for use in protocol.
- Keep reducing agent (ß-ME or DTT) ready.

Procedure

1 **Make up RNA samples smaller than 100 µl with RNase-free H_2O to 100 µl. If different samples with varying volumes between 100 and 200 µl are purified, RNA samples should be filled up with RNase-free water to a uniform volume (e.g., 200 µl).**

2 **Prepare a Buffer LBA1 - ethanol premix with ratio 1 : 1.For each 100 µl RNA sample mix 300 µl Buffer LBA1 and 300 µl ethanol (95 100%).** If multiple samples are processed, the preparation of a master-premix is recommended (e.g., 2 ml LBA1 + 2 ml 98 % ethanol for approximately 6 preparations).

3 **Lysate Filtration**
Not Required.

5. **Add 600 µl (6 volumes) of Buffer LBA1 ethanol Premix to 100 µL of RNA sample. Mix sample with premix by vortexing.** (For Eg.If 200 µl of RNA samples are processed, add 1200 µl of LBA1 - ethanol premix.)
Note: Maximal loading capacity of RNASure Columns is 750 µl. Repeat the procedure if larger volumes are to be processed.

Proceed with step 5, 8, and 9 of the RNASure® Mini standard protocol. Steps 6 and 7 of the respective protocols may be omitted in this case.

Supplementary Protocol for Total RNA preparation from RNAlater treated samples

Things to do before starting:

- Check if Wash Buffer WBA3 and rDNase were prepared as per instructions.
- Keep up 70% ethanol ready for use in protocol.
- Keep reducing agent (ß-ME or DTT) ready.

Procedure

1. **Take an appropriate amount of tissue stored in RNAlater .**

2. **Add 350 µl Buffer LBA1 and 3.5 µl ?-mercaptoethanol to the suspension and vortex vigorously to disrupt the sample material.**
   Note: As alternative to ß-ME the reducing agent DTT may be used at a final concentration of 10 – 20 mM DTT within the Lysis Buffer LBA1.

Proceed with step 3 (filtrate lysate) of the RNASure® Mini standard protocol

Wash Supplementary Protocol for rDNase digestion in solution

This section provides a protocol for removing DNA from your samples after RNA purification. Although, on column rDNase digestion is very efficient in DNA removal. But in certain application even traces of DNA need to be removed. The high quality recombinant RNase free (rDNase) in the RNASure® Mini kits helps digestion in solutions.

Things to do before Starting

- Check if rDNase was prepared as per instructions.
- Keep up 70% ethanol ready for use in protocol.
- Keep reducing agent (ß-ME or DTT) ready.

Procedure

1. Take of 60µl of eluted RNA and add 0.6µlof rDNase along with 6µl reaction buffer for rDNase. Swirl the tube and gently and mix it well. Gently spin down (approximately 11,000 x g for few second) and collect every droplet of the solution at the bottom of the tube.
   Note:Alternatively 100ul of reaction buffer for rDNase and 10ul of rDNase and add 1/10 volume to one volume of RNA eluate)

2. **Incubate the mixture for 10 min at 37 C.**

3. **Repurify the RNA with a suitable RNA cleanup procedure or by ethanol precipitation.**

a) **Ethanol Precipitation, Exemplary:To one volume of sample add 0.1 volume of 3M sodium acetate pH 5.2 and 2.5 volumes of 95-100 % ethanol and mix thoroughly.**

b) **Incubate several minutes to several hours at - 20 C or +4 C.**
   Note: For low concentration of RNA long incubation time should be selected.

c) **Centrifuge for 10 min at maximum speed.**

d) **Wash RNA pellet with 70 % ethanol.**

e) **Dry RNA pellet and resuspend RNA in RNase-free Water.**

TROUBLESHOOTING GUIDE

RNA is Degraded/ No RNA is obtained

Possible cause

- RNase contamination

Suggestion(s):

- Use sterile individually wrapped plastic wares
- Use only sterile, disposable RNase free pipette tips and microcentrifuge tube.
- Wear disposable gloves and keep changing the gloves frequently
- Always use proper microbiological technique
- Maintain RNase free working environment
- Glassware should be oven baked for at least 2 hours at 25 °C before use

Poor RNA Quality or Yield

Possible cause:

- Reagents not reconstituted properly

Suggestion(s)

- Follow protocol guidelines of each sample type, buffers preparation etc
- Mix and vortex reagent properly
- Binding of RNA is effective in presence of ethanol only make sure to add ethanol to lysis buffer

Possible cause:

- Improper Kit Storage

Suggestion(s)

- Please refer protocol and follow recommendation stated for kit storage.

Possible cause:

- Excess Sample Material

Suggestion(s):

- Too much of starting material may give low yield. If require buffer LBA1 can be increased.
- Clear homogenate and remove any particulate by use of Sure Spin filters.

Contamination of RNA with Genomic DNA

Possible cause

- rDNase solution not properly applied

Suggestion(s):

- Pipette rDNase solution directly to the center of the silica membrane
- Reconstitute and store lyophilized rDNase as per instruction
- Perform optional DNase digestion step during the sample preparation or after purification.

Possible cause:

- Too much of cell material used

Suggestion(s):

- Reduce quantity of cells or tissue used

Possible cause:

- Decrease of PCR amplicon Size

Suggestion(s):

- Use longer PCR target (e.g > 500bp)
- Use intron-spanning primer if possible.

Suboptimal performance of RNA in downstream experiments

Possible cause

- Store isolated RNA properly

Suggestion(s)

- Finally eluted RNA properly should always be kept at - 20 °C and for long term storage freeze at - 70°C.

Possible cause:

- Presence of ethanol or salt

Suggestion(s)

- Increase centrifugation time
- Do not let flow-through touch the column outlet after the second buffer WBA3 wash.
- Buffer WBA3 should be equilibrated at room temperature only.
- Use correct order of wash buffer.

ORDERING INFORMATION

Description	Pack Size	Cat. No.
DNASure® Tissue Mini Kit	50 preps	NP-61305
DNASure® Plant Mini Kit	50 preps	NP-79105
DNASure® Plant Mini Kit	250 preps	NP-79107
DNASure® Plant Midi Kit	20 preps	NP-78153
DNASure® Plant Maxi Kit	10 preps	NP-78164
DNASure® Blood Mini Kit	50 preps	NP-61105
DNASure® Blood Mini Kit	250 preps	NP-61107
DNASure® Blood Midi Kit	20 preps	NP-61184
DNASure® Blood Maxi Kit	10 preps	NP-61193
DNASure® Blood FastPure Kit	50 preps	NP-62205
DNASure® Blood FastPure Kit	250 preps	NP-62207
SureSpin® Plasmid Mini Kit	50 preps	NP-37105
SureSpin® Plasmid Mini Kit	250 preps	NP-37107
SureSpin® Plasmid FastPrep Kit	50 preps	NP-47105
SureSpin® Plasmid FastPrep Kit	250 preps	NP-47107
SureSpin® Buffer Set*	1	37107-BS
SurePrep® Plasmid Mini Kit	20 preps	NP-15123
SurePrep® Plasmid Mini Kit	100 preps	NP-15125
SurePrep® Plasmid Midi Kit	20 preps	NP-15143
SurePrep® Plasmid Midi Kit	100 preps	NP-15145
SurePrep® Plasmid Maxi Kit	10 preps	NP-15161
SurePrep® Plasmid Maxi Kit	25 preps	NP-15162
SurePrep® Plasmid Mega Kit	5 preps	NP-15183
SurePrep® Plasmid Giga Kit	5 preps	NP-15191

***SureSpin Buffer Set**

For the isolation of low-copy plasmids, buffers PA1, PA2, PA3, RNase A, sufficient for 300 preps

ORDERING INFORMATION

Description	Pack Size	Cat. No.
SurePrep® Buffer Set**	1	15143-BS
SurePrep® Plasmid Endofree Maxi Kit	10 preps	NP-15363
SurePrep Plasmid Endofree Mega Kit	5 preps	NP-15365
SurePrep® Plasmid Endofree Giga Kit	5 preps	NP-15367
SureSpin® 96 PCR Kit	4x96	NP-38151
SureTrap® Gel Extraction Kit	50 preps	NP-38705
SureTrap® Gel Extraction Kit	250 preps	NP-38707
SureTrap® PCR Cleanup Kit	50 preps	NP-38105
SureTrap® PCR Cleanup Kit	250 preps	NP-38107
SureExtract® Spin PCR/Gel Extraction Kit	50 preps	NP-36105
SureExtract® Spin PCR/Gel Extraction Kit	250 preps	NP-36107
SureSEQ® Cleanup Kit	50 preps	NP-73205
RNASure® Mini Kit	50 preps	NP-84105
RNASure® Mini Kit	250 preps	NP-84107
RNASure® Plant Kit	50 preps	NP-84905
RNASure® Plant Kit	250 preps	NP-84907
miRNASure® Mini Kit	50 preps	NP-71002
SureTrap® mRNA Mini Kit	12 preps	NP-80033
SureTrap® mRNA Midi Kit	12 preps	NP-80043
RNASure® Virus Kit	50 preps	NP-67705
RNASure® Virus Kit	250 preps	NP-67707

****SureSpin Buffer Set**

For isolation of low-copy plasmids, cosmids, BACs, PACs, and P1 constructs, only applicable with SurePrep® Plasmid kits, sufficient for 10 SurePrep Maxi Columns (Maxi preps), 20 SurePrep® Midi Columns (Midi preps), set incl. RNase A

Product Warranty

RNASure® Mini Kit components are intended for research purposes only. They are suitable for *in vitro* uses only. The purchaser must determine the suitability of the product for its particular use. Should any product fail to perform satisfactorily due to any reason other than misuse, Genetix will replace it free of charge or refund the purchase price. Genetix reserve the right to change, alter, or modify any product to enhance its performance and design. It is the responsibility of the user to verify the use of the RNASure® Mini Kit for a specific application range as the performance characteristic of this kit has not been verified to a specific organism. No claim or representation is intended for its use to identify any specific organism or for clinical or therapeutic use.

Genetix does not warrant against 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.

In accordance with Genetix ISO-certified Quality Management System, each lot of RNASure® Mini Kit is tested against predetermined specifications to ensure consistent product quality.

In no event shall Genetix 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 Genetix products to perform in accordance with the stated specifications.

Product claims are subject to change. Therefore please contact our Technical Support Department for updated information on Genetix products.

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Trademarks:

RNASure® is a registered trademark of Genetix Biotech Asia (P) Ltd.

NOTE:

NOTE: