Instructions for use
RNAsure®

INVITEK diagnostics



Language: EN

RUO

REF 2010100100
2010100500
2010101000

Σ 100 ml
500 ml
1000 ml

ALS Life Sciences Portugal, S.A.
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Portugal

Important notes

Thank you for purchasing **RNAsure®** from Invitek Diagnostics.

RNAsure® is a specialized reagent developed to stabilize RNA in biological tissue samples immediately after collection. Usually, RNA molecules degrade rapidly due to endogenous RNases. RNAsure® penetrates tissue and inactivates RNases, preserving RNA integrity for downstream applications such as RT-PCR, RNA sequencing, and gene expression analysis.

Unlike conventional freezing, RNAsure® allows short-term storage at room temperature, simplifying sample handling in clinical and field environments. For long-term storage, samples should equilibrate in RNAsure® overnight at 4°C, excess solution removed, and then stored at –80°C.

WARNING! Improper handling and use for other than the intended purpose can cause danger and damage. Therefore, we ask you to read through these instructions for use and follow them carefully. Always keep them handy. To avoid personal injury, also observe the safety instructions.

All versions of the instructions for use can be found on our website for download or can be requested from us: www.invitek.com

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Table of Contents

1. **Safety instructions** 3
2. **Product information** 3
   - **2.1 Kit contents** 3
   - **2.2 Reagents and equipment to be supplied by user** 3
   - **2.3 Storage, appearance and shelf life** 3
   - **2.4 Intended use** 4
   - **2.5 Product information and specifications** 4
   - **2.6 Principle and procedure** 5
3. **Sample stabilisation using RNAsure®** 5
   - **3.1 Short Protocol RNAsure®** 5
   - **3.2 Protocol: RNA stabilization with RNAsure®** 6
   - **3.3 RNA isolation from tissue stabilized with RNAsure®** 7
4. **Appendix** 7
   - **4.1 Troubleshooting** 7
   - **4.2 Warranty** 8
   - **4.3 Symbols used on product and labelling** 8
   - **4.4 Further documents and supplementary information** 8
   - **4.5 Ordering information** 9

1. Safety instructions

RNAsure® contains no harmful chemicals. The safety data sheet (MSDS) it available online at www.invitek.com.

Ensure that anyone using this product has received instructions in general safety practices for laboratories and the safety information provided in this document.

- When and while working with chemicals, always wear protective clothing, disposable gloves and safety glasses.
- Work in an RNase-free environment to prevent RNA degradation.
- Change pipette tips between transfers and use aerosol-barrier tips to avoid contamination.
- Discard gloves if they become contaminated.

2. Product information

2.1 Kit contents

	100 mL	500 mL	1000 mL
Catalogue No.	2010100100	2010100500	2010101000
RNAsure	100 ml/bottle	500 ml/bottle	1000 ml/bottle

2.2 Reagents and equipment to be supplied by user

Lab equipment:

- Disposable gloves
- Pipette and pipette tips

2.3 Storage, appearance and shelf life

Shelf life: RNAsure® should be stored at room temperature and has a shelf life as indicated on the outer kit package label.

After opening, RNAsure® has a shelf life of 3 months.

Room temperature is defined as a range from 15-30°C.

2.4 Intended use

RNAsure® is a specialized reagent developed to stabilize RNA in biological tissue samples immediately after collection. Usually, RNA molecules degrade rapidly due to endogenous RNases. RNAsure® penetrates tissue and inactivates RNases, preserving RNA integrity for downstream applications such as RT-PCR, RNA sequencing, and gene expression analysis.

Unlike conventional freezing, RNAsure® allows short-term storage at room temperature, simplifying sample handling in clinical and field environments. For long-term storage, samples should equilibrate in RNAsure® overnight at 4°C, excess solution removed, and then stored at –80°C.

2.5 Product information and specifications

Specifications	
Downstream application	Standard RNA isolation methods, as well as acid phenol extraction, or oligo(dT) selection of mRNA, RT-PCR, RNA sequencing, gene expression analysis, array hybridisation
Recommended extraction kit	For RNA extraction we recommend using the **InviTrap® Spin Universal RNA Mini Kit** for animal tissue, or the **InviTrap® Spin Plant RNA Mini Kit** for plant tissue.
Stabilized targets	RNA
Starting material	Animal tissues, plant tissue, cultured cells, bacteria
Storage/stabilisation	Samples in RNAsure® can be stored as follows without compromising RNA quality: • 37°C: up to 1 day • 25°C: up to 1 week • 4°C: up to 1 month • -20°C to -80°C: long-term storage
Certification	RUO

Compatible RNA isolation methods:
RNAsure® is compatible with standard RNA isolation methods using Silica Binding, as well as acid phenol extraction, or oligo(dT) selection of mRNA.

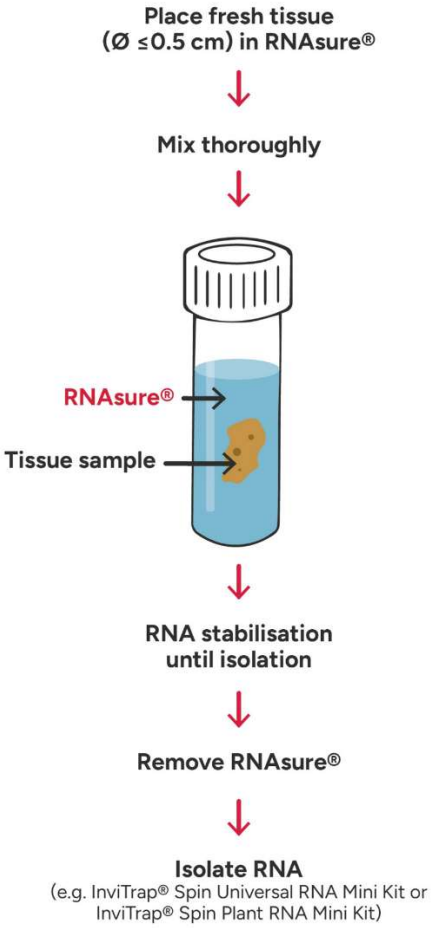
Downstream Applications:
RT-PCR, RNA sequencing, and gene expression analysis, array hybridisation.

2.6 Principle and procedure

RNAsure® works by rapidly penetrating biological tissue and inhibiting endogenous RNases, which are the primary cause of RNA degradation after sample collection. When cells are disrupted during dissection or handling, RNases become active and can degrade RNA within minutes. RNAsure® prevents this by inhibiting RNases and stabilizing RNA molecules without altering the tissue's structural integrity.

3. Sample stabilisation using RNAsure®

3.1 Short Protocol RNAsure®



Note: *Wear gloves and use appropriate RNase-free precautions throughout sample handling.*

1. Select a vial of appropriate size and add RNAsure® at **5-10 times the sample volume**.
2. Cut tissue into pieces with a diameter of **≤ 0.5 cm**.

   Note: *Larger tissue pieces may result in RNA degradation due to insufficient penetration of RNAsure® into the tissue.*
3. Place the tissue into the vial containing RNAsure®.
4. Mix thoroughly, e.g. by flicking the vial or by inversion, to ensure that RNAsure® fully contacts the entire tissue surface.
5. Samples in RNAsure® can be stored as follows without compromising RNA quality:
   - 37°C: up to 1 day
   - 25°C: up to 1 week
   - 4°C: up to 1 month
   - -20°C to -80°C: long-term storage

Note: *Do not freeze samples in RNAsure® immediately after immersion. Store samples at 4°C overnight to allow thorough penetration of the solution into the tissue. If storage at 4°C is not available, samples may be kept at room temperature for several hours. After incubation, remove the supernatant and transfer the samples to -20°C or -80°C for long-term storage.*

3.2 Protocol: RNA stabilization with RNAsure®

- Wear gloves and use appropriate RNase-free precautions throughout sample handling.
- Use RNAsure® only with fresh tissue. Do not freeze tissue prior to placing it in RNAsure®.
- Before storage in RNAsure®, cut tissue into pieces **not exceeding 0.5 cm in diameter**.
  Note: *Larger tissue pieces may result in RNA degradation due to insufficient penetration of RNAsure® into the tissue.*
- Submerge fresh tissue completely in **5-10 volumes** of RNAsure®.
- Samples in RNAsure® can be stored as follows without compromising RNA quality:
  - 37°C: up to 1 day
  - 25°C: up to 1 week
  - 4°C: up to 1 month
  - -20°C to -80°C: long-term storage
- Do not freeze samples in RNAsure® immediately after immersion. Store samples at 4°C overnight to allow thorough penetration of the solution into the tissue. If storage at 4°C is not available, samples may be kept at room temperature for several hours. After incubation, remove the supernatant and transfer the samples to –20°C or –80°C for long-term storage.
- RNAsure® does not change the structure of tissues; thus, tissue that has been equilibrated in RNAsure® can be aliquoted, sectioned into smaller pieces, and returned to RNAsure®, if required for subsequent applications.

a) Animal Tissue:

1. Select a vial of appropriate size and add RNAsure® at **5–10 times the sample volume**.
2. Cut the animal tissue into pieces with a diameter of **≤ 0.5 cm**.
   Note: *Small organs such as mouse liver, kidney and spleen can be stored whole in RNAsure®.*
3. Place the tissue into the vial containing RNAsure®.
4. Mix thoroughly, e.g. by flicking the vial or by inversion, to ensure that RNAsure® fully contacts the entire tissue surface.
5. Samples in RNAsure® can be stored as outlined above.

b) Plant Tissue:

1. Select a vial of appropriate size and add RNAsure® at **5–10 times the sample volume**.
2. Cut plant tissue into pieces with a diameter of **≤ 0.5 cm**.
   Note: *Most other plant tissues, however, can be submerged whole in RNAsure®; however, some plant tissues have natural diffusion barriers, such as waxy leaf surfaces, and may require mechanical disruption to ensure adequate penetration of RNAsure®.*
3. Place the tissue into the vial containing RNAsure®.
4. Mix thoroughly, e.g. by flicking the vial or by inversion, to ensure that RNAsure® fully contacts the entire tissue surface.
5. Samples in RNAsure® can be stored as outlined above.

3.3 RNA isolation from tissue stabilized with RNAsure®

- Wear gloves and use appropriate RNase-free precautions throughout sample handling.
- RNAsure® is compatible with standard RNA isolation methods using commercial extraction kits as well as acid phenol extraction, or oligo(dT) selection of mRNA.
- Before RNA Isolation remove RNAsure® as good as possible for example by tapping on filter paper
- Homogenize the sample following the protocol of your extraction method.
- Using rigid material pretreatment with Proteinase K may help (1 mg/ml in TE Solution, added directly and incubated for 10 min at 45°C). Use the whole lysis mix tissue + proteinase solution for extraction.

For RNA extraction we recommend using the following kits:

- Animal tissue: **InviTrap® Spin Universal RNA Mini Kit**
- Plant tissue: **InviTrap® Spin Plant RNA Mini Kit**

(for ordering information see section 4.5)

We have successfully isolated intact RNA from various animal tissues, such as liver, intestine, muscle, lung kidney, skin, trachea, heart and spleen as well as from plant tissues, such as carrot, pumpkin, and spinach.

4. Appendix

4.1 Troubleshooting

Problem	Possible cause	Recommendation
Degraded RNA	Sample stored at without RNAsure® at temperatures higher than -80°C.	Sample should be stored in RNAsure®.
	Storage at wrong temperature.	Store samples in RNAsure® at temperature as indicated in the IFU.
	Storage for too long time.	Store samples in RNAsure® as indicated in the IFU.
Problems during RNA Isolation	Too much residual RNAsure® in the preparation	Before RNA Isolation, remove RNAsure® as completely as possible, e.g. by tapping on filter paper or by short centrifugation.

4.2 Warranty

Invitek Diagnostics guarantees the correct function of the kit for applications described in this manual and in accordance with the intended use. In accordance with Invitek Diagnostic's EN ISO 13485 and ISO 9001 certified Quality Management System the performance of all kit components has been tested to ensure product quality.
Any problems, incidents or defects shall be reported to Invitek Diagnostics immediately upon detection. Immediately upon receipt, inspect the product to ensure that it is complete and intact. In the event of any discrepancies, you must inform Invitek Diagnostics immediately in writing. Modifications of the kit and protocols and use that deviate from the intended purpose are not covered by any warranty.

Invitek Diagnostics reserves the right to change, alter, or modify any product to enhance its performance and design at any time.
Invitek Diagnostics warrants products as set forth in the General Terms and Conditions available at www.invitek.com. If you have any questions, please contact techsupport@invitek.com.

4.3 Symbols used on product and labelling

 Manufacturer



Lot number



Research Use Only



Catalogue number

 Expiry date

 Consult operating instructions

 Temperature limitation

 Do not reuse

 Amount of sample preparations

4.4 Further documents and supplementary information

Visit www.invitek.com for further information on:

- FAQs and troubleshooting tips
- Manuals in different languages
- Safety data Sheets (MSDS)
- Web support
- Product videos

If, despite careful study of the operating instructions and further information, you still require assistance, please contact us at techsupport@invitek.com or the dealer responsible for you.

4.5 Ordering information

Product	Package Size	Catalogue No.
RNAsure®	100 ml	2010100100
	500 ml	2010100500
	1000 ml	2010101000

Related Products:

Product	Package Size	Catalogue No.
InviTrap® Spin Universal RNA Mini Kit	50 purifications	1060100200
	250 purifications	1060100300
InviTrap® Spin Plant RNA Mini Kit	50 purifications	1064100300
	250 purifications	1064100400

Revision history

Revision	Date	Description
DE 656.01_EN	2026-04-08	New document

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