

TGuide Smart Micro Cell Total RNA Kit

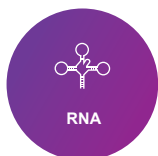
(Prefilled 96-Deepwell Plate)

For extraction of total RNA from low number of cells.

TECHNICAL MANUAL

Cat. no. GDP670-E

Note: To use the TGuide Smart Micro Cell Total RNA Kit, you must have the TGuide Smart Micro Cell Total RNA Kit (program no. DP670) installed on the TGuide S16/S32/S32 Pro/S96 Dex Nucleic Acid Extractor.



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For Research Use Only. Not for use in diagnostic procedures.

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TGuide Smart Micro Cell Total RNA Kit

Cat. no. GDP670-E

Kit Contents

Contents	GDP670-E (96 preps)
RNA Lock Reagent	3 ml
Buffer TSA1	16 ml
Buffer ST	1 ml
Proteinase K	2×1 ml
Cell RNA Reagents	6 plates
RNase-Free ddH ₂ O	15 ml
TGuide Smart Tip Comb	12 pcs

Cell RNA Reagents Composition

Column 1/7	Column 2/8	Column 3/9	Column 4/10	Column 5/11	Column 6/12
Buffer IC 160 µl	Buffer RDP 900 µl	Buffer RWP 700 µl	Buffer RWP 700 µl	None	MagAttract Suspension BESP4 360 µl

Storage

All components of this kit should be stored under dry conditions at room temperature (15-30°C).

Introduction

This kit utilizes magnetic beads with unique separation properties and a proprietary buffer system to isolate and purify high-quality total RNA from low number of cells. The specially embedded magnetic beads exhibit strong affinity for nucleic acids under certain conditions, and release the bound nucleic acids when conditions are altered, thereby enabling rapid isolation and purification of nucleic acids.

This product is compatible with multiple automatic nucleic acid extractors, including TGuide S16/S32/S32 Pro/S96 Dex. Through specially designed magnetic rods that adsorb, transfer, and release magnetic beads, automated nucleic acid extraction is achieved. The entire experimental process is safe and convenient, and the extracted total RNA is of high purity.

RNA purified with this kit is suitable for various downstream applications, including RT-PCR, Real-Time RT-PCR, microarray analysis, Northern Blot, Dot Blot, PolyA selection, in vitro translation, RNase protection assay, and molecular cloning.

Features

Simple and Fast: Combined with TGuide S16/S32/S32 Pro/S96 Dex automated extraction, high-quality RNA can be obtained in a short time.

Safe and Non-Toxic: No toxic reagents such as phenol/chloroform are required.

High Purity: High-purity RNA can be obtained from low number of cells for downstream experiments.

Notes Please read these notes carefully before using this kit.

1. This product can be used with the TGuide S16/S32/S32 Pro/S96 Dex Automatic Nucleic Acid Extractor.
2. Wear a mask during the experiment and change gloves frequently. Avoid RNase contamination.
3. Use RNase-free plasticware and pipette tips to avoid cross-contamination.
4. Pay attention to optimal sample storage and pretreatment conditions to avoid degradation of extracted RNA.

Protocol

1. Preparation of Cell RNA Reagents

- 1.1 Take out the prefilled 96-deepwell plate from the kit. Invert and mix the plate several times to resuspend the magnetic beads. Remove the packaging bag and gently flick the plate to collect the reagents and magnetic beads at the bottom (Alternatively, use a plate centrifuge at 500 rpm for 1 minute). Carefully remove the sealing film to prevent plate vibration and liquid spillage.
- 1.2 Add an appropriate volume (60-100 μ l) of RNase-Free ddH₂O to Wells 5/11.

2. Sample Pretreatment

2.1 Cell Collection

Note: The number of cells collected should not exceed 5×10^5 .

- a. Suspension Cell Collection: Estimate the cell number, centrifuge at $300 \times g$ for 5 min, collect the cells into a centrifuge tube, and carefully aspirate all culture medium supernatant.
- b. Adherent Cell Processing: Determine the cell number, aspirate the culture medium, wash the cells with PBS solution, and aspirate the PBS solution.

Note: Ensure that the cell culture medium is completely removed during cell collection; otherwise, incomplete lysis may occur, affecting RNA binding to the magnetic beads and resulting in reduced RNA yield. For adherent cell processing, if PBS solution is not available, this washing step can be omitted, but it may affect the quality of the extracted RNA.

- 2.2 Add 25 μ l of RNALock reagent, 150 μ l of Buffer TSA1, 10 μ l of Buffer ST, and 20 μ l of Proteinase K to the cell pellet. Vortex immediately to mix thoroughly, incubate at room temperature for 5 min, and carefully take the supernatant and proceed to subsequent steps.

Note: RNALock reagent, Buffer TSA1, Buffer ST, and Proteinase K can be premixed proportionally, and 205 μ l of the mixture can be added per sample. Prepare fresh immediately before use.

3. Operation Steps for TGuide S16/S32/S32 Pro/S96 Dex Automatic Nucleic Acid Extractor

- 3.1 Add approximately 200 μ l of the supernatant from the processed sample to the well columns 1 and 7 of the 96-deepwell plate.
- 3.2 Mount the 96-deepwell plate onto the base platform inside TGuide S16/S32/S32 Pro/S96 Dex instrument. Insert tip combs into the corresponding comb rack slots and fully lock the buckles in place.
- 3.3 Select the corresponding program and press the Start button to initiate the extraction protocol.

The specific experimental procedure is shown in the following table:

Table 1: Micro Cell Total RNA Extraction Procedure for TGuide S16 Automatic Nucleic Acid Extractor

Step	Slot	Name	Mixing time (min)	Mixing speed	Air-Dry Time (min)	Volume (μl)	Temperature (°C)	Magnetic Separation Segments	Magnetic Separation Time per Segment (sec)	Liquid Surface Magnetic Separation Time (sec)	Cycle Times	Magnetic Separation Speed (mm/s)
1	6	Transfer Beads	0.5	7	0	360	--	5	5	3	2	2
2	1	Binding	5	8	0	360	--	5	5	3	2	2
3	2	Wash 1	3	7	0	900	--	5	5	0	2	2
4	3	Wash 2	3	7	0	700	--	5	5	3	2	2
5	4	Wash 3	3	7	5	700	--	5	5	0	2	2
6	5	Elution	5	7	0	60	45	5	5	5	2	2
7	6	Discard Beads	0.5	5	0	360	--	1	0	0	--	--

Table 2: Micro Cell Total RNA Extraction Procedure for TGuide S32/S32 Pro Automatic Nucleic Acid Extractor

Step	Slot	Name	Waiting time (min)	Mixing time (min)	Magnetic Separation time (min)	Mixing speed	Volume (μl)	Temperature (°C)	Adsorption Mode
1	6	Transfer Beads	0	0.5	1	Fast	360	--	Cycle
2	1	Mixing	0	5	1	Fast	360	--	Cycle
3	2	Wash 1	0	3	1	Fast	900	--	Cycle
4	3	Wash 2	0	3	1	Fast	700	--	Cycle
5	4	Wash 3	0	3	1	Fast	700	--	Cycle
6	5	Elution	5	5	2	Fast	60	45	Cycle
7	6	Discard Beads	0	0.5	0	Fast	360	--	--

Table 3: Micro Cell Total RNA Extraction Procedure for TGuide S96 Dex Automatic Nucleic Acid Extractor

Step	Well	Name	Waiting Time Before Mixing (mm:ss)	Mixing Speed	Mixing time (mm:ss)	Mixing mode	Liquid Volume (μl)	Magnetic Separation Time (mm:ss)	Magnetic Separation Times	Heating Temperature (°C)	Pause After Completion
1	6	Transfer Beads	0	Fast	0:30	Normal Mode	360	0:30	2	-	-
2	1	Binding	0	Fast	5:00	Normal Mode	360	0:30	2	-	-
3	2	Wash 1	0	Fast	3:00	Normal Mode	900	0:30	2	-	-
4	3	Wash 2	0	Fast	3:00	Normal Mode	700	0:30	2	-	-
5	4	Wash 3	0	Fast	3:00	Normal Mode	700	0:30	2	-	-
6	5	Elution	5:00	Fast	5:00	Normal Mode	60	0:30	3	45	-
7	6	Discard Beads	0	Fast	0:30	Normal Mode	360	0	0	-	-

3.4 After completion of the automated extraction procedure, collect RNA from well columns 5/11 of the 96-deepwell plate and store under appropriate conditions.

Appendix

Related Products

1. Instrument and Accessories

Product name	Packing Size	Cat.No
TGuide S16 Nucleic Acid Extractor	1 set	OSE-S16-AM
TGuide Smart Magnetic Tip Comb	200 pieces/box	OSE-TGA-S03
TGuide Single Sample Tank Bracket	5 pieces/box	OSE-TGA-S32

2. TGuide Smart Reagents Kits

Product name	Cartridge	Cat.No
TGuide Smart Viral DNA/RNA Kit	48 preps	GDP604-DE
TGuide Smart Universal DNA Kit	48 preps	GDP605-DE
TGuide Smart Envir-DNA Kit	48 preps	GDP613-DE
TGuide Smart Hi-Plant DNA Kit	48 preps	GDP617-DE
TGuide Smart DNA Purification Kit	48 preps	GDP642-DE
TGuide Smart Micro Cell Total RNA Kit	48 preps	GDP670-DE
TGuide Smart Universal RNA Kit	48 preps	GDP671-DE
TGuide Smart Hi-Plant RNA Kit	48 preps	GDP672-DE
TGuide Smart Processed Food DNA Kit	48 preps	GDP680-DE
TGuide Smart Viral DNA/RNA Kit	96 preps	GDP604-E
TGuide Smart Universal DNA Kit	96 preps	GDP605-E
TGuide Smart Envir-DNA Kit	96 preps	GDP613-E
TGuide Smart Hi-Plant DNA Kit	96 preps	GDP617-E
TGuide Smart DNA Purification Kit	96 preps	GDP642-E
TGuide Smart Micro Cell Total RNA Kit	96 preps	GDP670-E
TGuide Smart Universal RNA Kit	96 preps	GDP671-E
TGuide Smart Hi-Plant RNA Kit	96 preps	GDP672-E
TGuide Smart Processed Food DNA Kit	96 preps	GDP680-E