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The Beauty of Science is to Make Things Simple

INSTRUCTION MANUAL

Quick-RNA™ MidiPrep

Catalog No. R1056

Highlights

- *10 minute* method for isolating RNA (*up to 125 µg*) from a wide range of cell types and tissue samples.
- *Fast-Spin* column technology allows ultra clean RNA to be eluted into minimal volumes ($\geq 100 \mu\text{l}$).
- Omits the use of organic denaturants and proteases.

Contents

Product Contents.....	1
Specifications.....	1
Product Description.....	2
Buffer Preparation.....	3
Protocol.....	3
Ordering Information.....	4
Related Products.....	5

Satisfaction of all Zymo Research products is guaranteed. If you should be dissatisfied with this product please call 1-888-882-9682.

Product Contents

Quick-RNA™ MidiPrep (Kit Size)	R1056 (25 Preps.)	Storage Temperature
ZR RNA Buffer	100 ml	Room Temp.
RNA Pre-Wash Buffer	12 ml	Room Temp.
RNA Wash Buffer¹ (concentrate)	6 ml	Room Temp.
DNase/RNase-Free Water	10 ml	Room Temp.
Zymo-Spin™ V-E Columns w/ Reservoir	25	Room Temp.
Collection Tubes	50	Room Temp.
Instruction Manual	1	-

Note - Integrity of kit components is guaranteed for up to one year from date of purchase. Reagents are routinely tested on a lot-to-lot basis to ensure they provide the highest performance and reliability.

Specifications

- **Sample Sources** – Cells from culture or tissue samples, buffy coat, plasma, serum, and other biological liquids. *Not compatible with whole blood.*²
- **Sample Size** – ~10³ to 10⁷ cells.
- **Format** – Spin column.
- **RNA Purity** – High quality RNA ($A_{260}/A_{280} >1.8$, $A_{260}/A_{230} >1.8$) suitable for all downstream RNA-based manipulations.
- **RNA Recovery** – Up to 125 µg RNA can be eluted into ≥100 µl RNase-free water allowing for a highly concentrated sample.
- **RNA Storage** – RNA is eluted with RNase-free water and can be stored at ≤-70 °C. The addition of RNase inhibitors is highly recommended for prolonged storage.
- **Equipment Needed** – Vacuum manifold, microcentrifuge.

Notes:

¹ Add 24 ml 100% ethanol (26 ml of 95% ethanol) to the 6 ml **RNA Wash Buffer** concentrate before use.

² For purification of RNA from whole blood, see the **ZR Whole-Blood RNA MiniPrep (R1020)**.

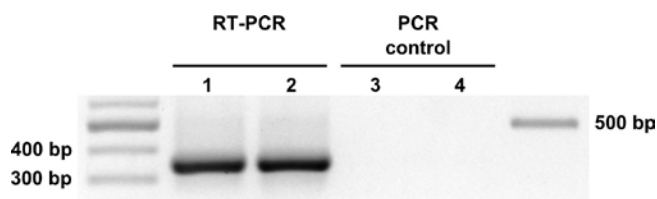
Note - ™ Trademarks of Zymo Research Corporation. This product is for research use only and should only be used by trained professionals. It is not intended for use in diagnostic procedures. Some reagents included with this kit are irritants. Wear protective gloves and eye protection. Follow the safety guidelines and rules enacted by your research institution or facility.

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Product Description

The **Quick-RNA™ MidiPrep** is an innovative product designed for the easy, reliable, and rapid isolation of up to ~125 mg total RNA from cultured cells or tissue samples. The procedure combines a unique, single-step RNA extraction/binding buffer with *Fast-Spin* column technology to yield high quality RNA in about 10 minutes. The **Quick-RNA™ MidiPrep** allows for the efficient recovery of total RNA from 10^3 to 10^7 cells or tissue (up to ~100 mg). The method is easy: simply add the provided **ZR RNA Buffer** to extract total RNA from the cells of interest then purify the RNA using the provided **Zymo-Spin™ V-E Columns**. The result is highly-concentrated, purified RNA that is suitable for subsequent RNA-based methods including RT-PCR, hybridization, etc.



PCR amplification of β -actin transcript (353 bp fragment shown) following RNA isolation from human epithelial cells (HCT 116) with the **Quick-RNA™ MidiPrep** kit: RT-PCR (lane 1, 2), PCR negative control (RNA template; lane 3, 4).

Quick-RNA™ - Fast-Spin column and plate technology overview



	Quick-RNA™ MicroPrep	Quick-RNA™ MiniPrep	Quick-RNA™ MidiPrep	ZR-96 Quick-RNA™
Format	Zymo-Spin™ IC Column	Zymo-Spin™ IIIC Column	Zymo-Spin™ V-E Column	Silicon-A™ Plate
Catalog	R1050/R1051	R1054/R1055	R1056	R1052/R1053
Preps	50/200	50/200	25	2x 96/4x 96
Input	~ $1 \cdot 10^5$ cells	~ 10^2 - $5 \cdot 10^6$ cells	~ 10^3 - 10^7 cells	~ $1 \cdot 10^5$ cells
Binding	~5 μ g	~25 μ g	~125 μ g	~5 μ g/well

For **Assistance**, please contact Zymo Research Technical Support at 1-888-882-9682 or e-mail tech@zymoresearch.com.

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Make sure guidelines are followed to ensure the RNA isolation procedure is performed in an RNase-free environment.

Buffer Preparation

Before starting, add 24 ml 100% ethanol (26 ml 95% ethanol) to the 6 ml **RNA Wash Buffer** concentrate.

Protocol

1. **Sample Homogenization and Cell Lysis:** Follow an applicable method (A-D).
 - A. **Adherent Cells:** Cells can be lysed directly in the culture container by removing liquid medium and adding **ZR RNA Buffer**¹ directly to the monolayer (e.g., 3 ml for 5×10^6 cells). Remove cells from culture surface by pipetting, scraping, etc.
 - B. **Cells in Suspension:** Pellet cells by gentle centrifugation (e.g., 5 minutes at 500 x g). Remove the supernatant completely and resuspend the cell pellet in 3 ml **ZR RNA Buffer**¹. Vortex briefly.
 - C. **Solid Tissue Samples:** Add 3 ml **ZR RNA Buffer**¹ to fresh or frozen tissue (up to ~100 mg) and homogenize the sample (e.g., using a Dounce or similar homogenizer). **Important!** To eliminate tissue debris, if present, sample lysates may be spun at $\leq 500 \times g$ for 1 minute.
 - D. **Liquid Samples:** Add 3 volumes of **ZR RNA Buffer**¹ to every volume of sample (e.g., 3 ml of buffer to 1 ml sample).

Notes:

¹ In order to lyse samples completely, the amount of the **ZR RNA Buffer** should be adjusted (i.e., more buffer can be added).

² Total RNA including small RNAs ≥ 17 nt is recovered. **Zymo-Spin**TM columns may be reloaded.

³ Total RNA without small RNAs (e.g., tRNAs and microRNAs) is recovered.

⁴ Set vacuum source at ≥ 500 mm Hg.

⁵ To maximize RNA yield, increase the elution volume (≥ 200 μ l) and/or repeat the elution.

Fast-Spin column technology efficiently removes the majority of DNA during RNA purification and is satisfactory for most RNA-based applications. However, if necessary, complete removal of DNA can be achieved by performing a DNase I digestion. See the **RNA Clean & Concentrator**TM.

For total RNA including small RNAs²

For total RNA without small RNAs³

Add 1 volume ethanol (95-100%) to the lysate and mix thoroughly by pipetting.

Go directly to *Step 2*.

2. Transfer lysate into the **Zymo-Spin**TM **V-E Column with Reservoir** mounted on a vacuum manifold and start vacuum⁴.
3. Remove the reservoir and transfer the **Zymo-Spin**TM **V-E Column** into a **Collection Tube**. Centrifuge the column at $\geq 12,000 \times g$ for 30 seconds.
4. Add 400 μ l **RNA Pre-Wash Buffer** to the column and centrifuge at $\geq 12,000 \times g$ for 1 minute. Discard the flow-through.
5. Add 400 μ l **RNA Wash Buffer** to the column and centrifuge at $\geq 12,000 \times g$ for 30 seconds. Discard the flow-through and repeat *Step 5*.
6. Centrifuge the **Zymo-Spin**TM **V-E Column** at $\geq 12,000 \times g$ for 2 minutes in the emptied **Collection Tube** to ensure complete removal of the wash buffer.
7. Place the **Zymo-Spin**TM **V-E Column** into an RNase-free tube. Add ≥ 100 μ l **DNase/RNase-Free Water**⁵ directly to the column matrix and let stand at room temperature for 1 minute. Centrifuge at top speed for 1 minute. Eluted RNA can be used immediately or stored at ≤ -70 °C.

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Ordering Information

Product Description	Catalog No.	Kit Size
Quick-RNA™ MicroPrep	R1050	50 Preps.
	R1051	200 Preps.
Quick-RNA™ MiniPrep	R1054	50 Preps.
	R1055	200 Preps.
Quick-RNA™ MidiPrep	R1056	25 Preps.
ZR-96 Quick-RNA™	R1052	2x 96 Preps.
	R1053	4x 96 Preps.

For Individual Sale	Catalog No.	Amount
ZR RNA Buffer	R1020-1-50	50 ml
	R1020-1-100	100 ml
	R1020-1-200	200 ml
RNA Pre-Wash Buffer	R1020-2-12	12 ml
	R1020-2-25	25 ml
	R1020-2-50	50 ml
	R1020-2-100	100 ml
RNA Wash Buffer (concentrate)	R1003-3-6	6 ml
	R1003-3-12	12 ml
	R1003-3-24	24 ml
	R1003-3-48	48 ml
Zymo-Spin™ V-E Columns w/ Reservoir	C1023-25	25
Collection Tubes	C1001-50	50
	C1001-500	500
	C1001-1000	1000
DNase/RNase-Free Water	W1001-1	1 ml
	W1001-4	4 ml
	W1001-6	6 ml
	W1001-10	10 ml

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Related Products

Product	Description	Prep/Format	Catalog
Total RNA Purification			
ZR Whole-Blood RNA MiniPrep™	whole blood, partitioned blood	50/column 100/column	R1020 R1021
ZR-96 Whole-Blood RNA Kit™		2x96/plate	R1022
ZR Viral RNA Kit™	plasma, serum, liquids, cells, tissue	50/column 200/column	R1034 R1035
ZR-96 Viral RNA Kit™		2x96/plate 4x96/plate	R1040 R1041
ZR Urine RNA Isolation Kit™	urine, liquid samples	50/column	R1039
Quick-RNA™ MicroPrep	cells, tissue, buccal cells, buffy coat, plasma, serum, biological liquids	50/column 200/column	R1050 R1051
Quick-RNA™ MiniPrep		50/column 200/column	R1054 R1055
Quick-RNA™ MidiPrep		25/column	R1056
ZR-96 Quick-RNA™		2x96/plate 4x96/plate	R1052 R1053
ZR RNA MicroPrep™	cells, tissue, buccal cells, buffy coat, plasma, serum, biological liquids; DNA removal column, small-RNA recovery (≥17nt), <i>in-column</i> DNase treatment protocol	50/column 200/column	R1060 R1061
ZR RNA MiniPrep™		50/column 200/column	R1064 R1065
Pinpoint™ Slide RNA Isolation System Kit I	fresh tissue sections	50/column	R1003
Pinpoint™ Slide RNA Isolation System Kit II	paraffin-embedded tissue	50/column	R1007
ZR Fungal/Bacterial RNA MicroPrep™	bacteria, yeast, fungi; BashingBead™ lysis	50/column	R2010
ZR Fungal/Bacterial RNA MiniPrep™		50/column	R2014
ZR Plant RNA MiniPrep™	plant parts and tissues; BashingBead™ lysis, RT/PCR inhibitor removal	50/column	R2024
ZR Tissue & Insect RNA MicroPrep™	insect, small tissue samples; BashingBead™ lysis	50/column	R2030
YeaStar RNA Kit™	yeast, fungi	50/column	R1002
RNA Clean-up, Concentration & Recovery			
RNA Clean & Concentrator™-5	modified/labeled/impure/diluted RNA; small-RNA recovery (≥17nt); <i>acid phenol</i> extracted RNA directly from aqueous phase, <i>in-column</i> DNase treatment protocol	50/column 200/column	R1015 R1016
RNA Clean & Concentrator™-25		50/column 100/column	R1017 R1018
RNA Clean & Concentrator™-100		25/column	R1019
ZR-96 RNA Clean & Concentrator™		2x96/plate	R1080
DNA-Free RNA Kit™	DNase I treatment; small-RNA recovery (≥17nt)	50/column 200/column	R1013 R1014
Zymoclean™ Gel RNA Recovery Kit	agarose gel separated RNA	50/column	R1011
ZR small-RNA™ PAGE Recovery Kit	polyacrylamide gel separated RNA; small-RNA recovery (≥17nt)	20/column	R1070
DNA/RNA Parallel Purification			
ZR-Duef™ DNA/RNA MiniPrep	cells, tissue, liquids; DNA/RNA separation, small-RNA recovery (≥17nt), <i>in-column</i> DNase treatment protocol	50/column	D7001

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