



**ZYMO RESEARCH**

*The Beauty of Science is to Make Things Simple*

# INSTRUCTION MANUAL

## **ZR Viral RNA Kit™**

Catalog Nos. **R1034 & R1035**

### **Highlights**

- Quick, 5-minute recovery of viral RNA from plasma, serum and other samples.
- Omits the use of organic denaturants and proteases.
- High-quality RNA is eluted in  $\geq 6 \mu\text{l}$  and ready for RT-PCR and other downstream analyses.

### **Contents**

Product Contents .....	1
Specifications .....	1
Product Description .....	2
Buffer Preparation .....	3
Protocol .....	3
Ordering Information .....	4
Related Products .....	5-6

Satisfaction of all Zymo Research products is guaranteed. If you are dissatisfied with this product please contact us.

## Product Contents

<b>ZR Viral RNA Kit™ (Kit Size)</b>	<b>R1034 (50 Preps)</b>	<b>R1035 (200 Preps)</b>
<b>Viral RNA Buffer<sup>1</sup></b>	50 ml	2 x 100 ml
<b>Viral Wash Buffer<sup>2</sup> (concentrate)</b>	6 ml	24 ml
<b>DNase/RNase-Free Water</b>	1 ml	4 ml
<b>Zymo-Spin™ IC Columns</b>	50	200
<b>Collection Tubes</b>	100	400
<b>Instruction Manual</b>	1	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.

**Storage Temperature** – Store all kit components (*i.e.*, buffers, columns) at room temperature.

<sup>1</sup> Add beta-mercaptoethanol to 0.5% (v/v) *i.e.*, add 250 µl per 50 ml or 500 µl per 100 ml.

<sup>2</sup> Add 24 ml of 100% ethanol (26 ml of 95% ethanol) to the 6 ml **Viral Wash Buffer** concentrate (R1034) or 96 ml of 100% ethanol (102 ml of 95% ethanol) to the 24 ml **Viral Wash Buffer** concentrate (R1035) before use.

## Specifications

- **Sample Sources** – Plasma, serum, culture supernatants, animal cells and tissue.
- **Sample Size** – ≤200 µl
- **RNA Purity** – High-quality RNA suitable for reverse transcription, *etc.*
- **RNA Recovery** – Up to 10 µg RNA can be eluted into as little as 6 µl RNase-free water allowing for a highly concentrated sample.
- **Equipment Needed** - Microcentrifuge.

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.

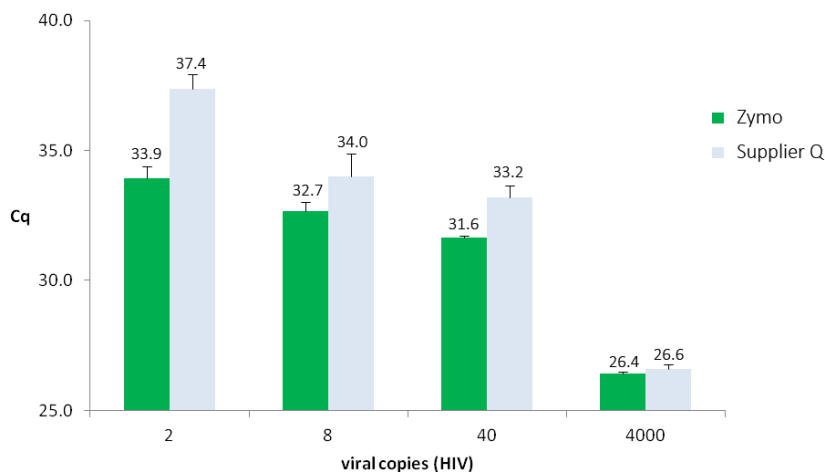
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## Product Description

The **ZR Viral RNA Kit™** provides for rapid isolation of high-quality viral RNA from a wide range of biological sources. It can be used to successfully isolate viral RNA from cell-free body fluids as well as cellular suspensions at concentrations  $\leq 1 \times 10^5$  cells/ml. The kit has been rigorously tested and used to isolate viral RNA from samples containing enteroviruses, rhinoviruses, coronaviruses, HIV, HCV, influenza A virus, flaviviruses, measles virus, parainfluenza virus and parvovirus (a ssDNA virus).

The **ZR Viral RNA Kit™** employs a single buffer system that facilitates viral particle lysis and allows for RNA adsorption onto the matrix of the **Zymo-Spin™ Column**. The RNA is washed then eluted with **DNase/RNase-Free Water**. The eluted RNA is suitable for use in various subsequent procedures including RT-PCR.

*The entire RNA isolation procedure typically takes about 5 minutes.*



The **ZR Viral RNA Kit™** from Zymo Research ensures high sensitivity viral detection compared to that of Supplier Q. Viral RNA was isolated from plasma samples using the ZR Viral RNA Kit™. Data are the mean (+/- SD) of triplicate RT-qPCR measurements.

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

Ensure RNA isolation is performed in an RNase-free environment.

## **Buffer Preparation**

Before starting, add beta-mercaptoethanol (user supplied) to the **Viral RNA Buffer** to a final dilution of 0.5% (v/v) *i.e.*, 250 µl per 50 ml or 500 µl per 100 ml.

Add 24 ml 100% ethanol (26 ml 95% ethanol) to the 6 ml **Viral Wash Buffer** concentrate (R1034) or 96 ml 100% ethanol (102 ml 95% ethanol) to the 24 ml **Viral Wash Buffer** concentrate (R1035).

## **Protocol**

All centrifugation steps should be performed between 10,000 – 16,000 x *g*.

### **Notes:**

<sup>1</sup> This protocol is designed for the isolation of viral RNA from ≤200 µl biological liquid or cells in suspension at a concentration of ≤1×10<sup>5</sup> cells/ml.

<sup>2</sup> To process >800 µl, reload the column.

1. Add 3 volumes **Viral RNA Buffer** to each plasma or serum sample<sup>1</sup> and mix.  
Example: Mix 300 µl buffer and 100 µl sample.
2. Transfer the sample to the **Zymo-Spin™ IC Column**<sup>2</sup> in a **Collection Tube** and centrifuge for 1-2 minutes. Discard the flow-through.
3. Add 500 µl **Viral Wash Buffer** to the column and centrifuge for 2 minutes. Then carefully transfer the column into the **DNase/RNase-Free Tube**.
4. Add 15 µl **DNase/RNase-Free Water** directly to the column matrix and centrifuge for 30 seconds.

Alternatively, for highly concentrated RNA use ≥6 µl elution.

Eluted RNA can be used immediately or stored at -70 °C.

**Ordering Information**


Product Description	Catalog No.	Kit Size
<b>ZR Viral RNA Kit™</b>	R1034	50 Preps
	R1035	200 Preps
<b>ZR-96 Viral RNA Kit™</b>	R1040	2 x 96 Preps
	R1041	4 x 96 Preps

For Individual Sale	Catalog No.	Amount
<b>Viral RNA Buffer</b>	R1034-1-50	50 ml
	R1034-1-100	100 ml
<b>Viral Wash Buffer (concentrate)</b>	R1034-2-6	6 ml
	R1034-2-24	24 ml
	R1034-2-48	48 ml
<b>Zymo-Spin™ IC Columns</b>	C1004-50	50
	C1004-250	250
<b>Collection Tubes</b>	C1001-50	50
	C1001-500	500
	C1001-1000	1000
<b>DNase/RNase-Free Water</b>	W1001-1	1 ml
	W1001-4	4 ml
	W1001-6	6 ml
	W1001-10	10 ml

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# DNA PURIFICATION

**What is Clean-Spin™ Technology?**



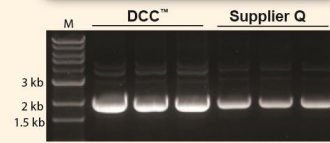
The spin columns from Zymo Research have been designed to ensure complete elution with no binding/wash buffer carryover. The result is ultra-pure inhibitor-free DNA and RNA.

## Purify DNA from PCR & other sources

### DNA Clean & Concentrator™ (DCC™)

- ✓ Recovery of ultra-pure DNA that is free of salts and contaminants.
- ✓ Small ( $\geq 6 \mu\text{l}$ ) elution volume.
- ✓ DNA is ideal for ligation, PCR, Next-Gen sequencing, etc.

Product	Size (Cat. No.)
DNA Clean & Concentrator™-5	50 Preps. (D4013) 200 Preps. (D4014)
ZR-96 DNA Clean & Concentrator™-5	2 x 96 Preps. (D4023) 4 x 96 Preps. (D4024)
Genomic DNA Clean & Concentrator™	25 Preps. (D4010) 100 Preps. (D4011)



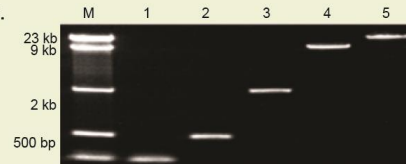
High efficiency DNA recovery with the DCC™-5 compared to Supplier Q .

## Boost DNA recoveries from agarose gels to >80%

### Zymoclean™ Gel DNA Recovery

- ✓ Rapid (15 min.) recovery of ultra-pure DNA from agarose gels in  $\geq 6 \mu\text{l}$ .
- ✓ Ultra-pure DNA ideal for DNA ligation, sequencing, etc.
- ✓ Format also available for large DNA >20 kb.

Product	Size (Cat. No.)
Zymoclean™ Gel DNA Recovery Kit	50 Preps. (D4001) 200 Preps. (D4002)
Zymoclean™ Large Fragment DNA Recovery Kit	25 Preps. (D4045) 100 Preps. (D4046)



DNA fragments recovered from an agarose gel using the Zymoclean™ Gel DNA Recovery Kit. Lanes: M: DNA Ladder; 1-5: individual ladder DNA fragments.

## Recover transfection-quality plasmid DNA directly from culture

### Zyppy™ Plasmid Prep Kits

- ✓ The fastest, simplest method available for purifying high quality plasmid DNA from *E. coli*.
- ✓ Pellet-Free™ procedure omits conventional cell-pelleting and resuspension steps.
- ✓ Transfection quality plasmid DNA directly from culture in under 15 minutes.

**Easy, Pellet-free Procedure:** Add Lysis Buffer **Directly** to Bacterial Culture



Product	Size (Cat. No.)
Zyppy™ Plasmid Miniprep Kit	50 Preps. (D4036) 100 Preps. (D4019) 400 Preps. (D4020) 800 Preps. (D4037)



# RNA PURIFICATION

Get RNA *directly* from TRIzol® without phase separation

**What is Clean-Spin™ Technology?**

The spin columns from Zymo Research have been designed to ensure complete elution with no binding/wash buffer carryover. The result is ultra-pure inhibitor-free DNA and RNA.

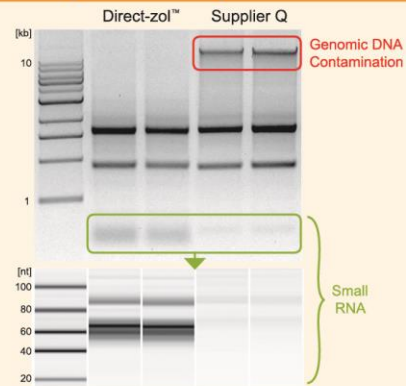
## Direct-zol™ RNA

- ✓ For purification of high-quality small and large RNA *directly* from TRIzol®, TRI Reagent®, or similar.
- ✓ Bypasses phase separation and precipitation procedures allowing for unbiased recovery of miRNA

Product	Size (Cat. No.)
Direct-zol™ RNA MiniPrep	50 Preps. (R2050)
	50 Preps. (R2051)*
	200 Preps. (R2052)
	200 Preps. (R2053)*

96-well and MagBead formats also available!

DNase I included in all kits.  
\* Supplied with TRI-Reagent®



High-quality small and large RNA are effectively recovered with the Direct-zol™ kit. RNA is **DNA-free**.

## Isolate DNA-free RNA from 1 to 10<sup>7</sup> cells in minutes

### Quick-RNA™

- ✓ Isolation of total, large, or small RNA – *You decide!*
- ✓ Ultra clean, high-quality RNA from a single cell to 10<sup>7</sup> cells.
- ✓ DNA-free RNA ideal for any downstream application – *DNase I included.*

Product	Size (Cat. No.)
Quick-RNA™ MicroPrep	50 Preps. (R1050)
	200 Preps. (R1051)
Quick-RNA™ MiniPrep	50 Preps. (R1054)
	200 Preps. (R1055)
ZR-96 Quick-RNA™	2 x 96 Preps. (R1052)
	4 x 96 Preps. (R1053)



Isolate total, large, or small RNA with the Quick-RNA™ kit.

RNA is DNA-free using the Quick-RNA™ kit

## Purify RNA from enzymatic and labeling reactions in 5 minutes

### RNA Clean & Concentrator™

- ✓ Recover ultra-pure RNA in small (≥6 µl) elution volumes.
- ✓ Compatible with TRIzol®, phenol, chloroform, and RNase inhibitors (RNAlater®).
- ✓ RNA is ideal for RT-PCR, q-PCR, hybridization, arrays, RNA interference, etc.

Product	Size (Cat. No.)
RNA Clean & Concentrator™-5	50 Preps. (R1015)
	200 Preps. (R1016)
RNA Clean & Concentrator™-25	50 Preps. (R1017)
	100 Preps. (R1018)
ZR-96 RNA Clean & Concentrator™	2x96 well plates (R1080)
DNA-Free RNA Kit™	50 Preps. (R1013)
	200 Preps. (R1014)



The following are trademarks of other companies: pGEM®, Promega Corp.; TRIzol® and TRI Reagent®, Molecular Research Center, Inc.; DH5® and DH10B™, Life Technologies, Inc.



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