



ZYMO RESEARCH

The Beauty of Science is to Make Things Simple

INSTRUCTION MANUAL

Quick-DNA/RNA™ Viral Kit

Catalog Nos. **D7020 & D7021**

Highlights

- Quick, spin-column purification of viral DNA and RNA from plasma, serum, CSF, cell culture media, cellular suspensions, urine, blood, saliva, swab, fecal, etc.
- DNA and RNA are ready for Next-Gen sequencing, RT/PCR, hybridization, *etc.*
- DNA/RNA Shield™ is included for nucleic acid stability during sample storage/transport at ambient temperatures.

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

Product Contents

Quick-DNA/RNA™ Viral Kit (Kit Size)	D7020 (50 Preps)	D7021 (200 Preps)	Storage Temperature
DNA/RNA Shield™ (2X concentrate)	25 ml	125 ml	Room Temp.
Viral DNA/RNA Buffer¹	2 x 25 ml	2 x 100 ml	Room Temp.
Viral Wash Buffer² (concentrate)	2 x 6 ml	2 x 24 ml	Room Temp.
DNase/RNase-Free Water	6 ml	2 x 6 ml	Room Temp.
Zymo-Spin™ IIC-XL Columns	50	200	Room Temp.
Collection Tubes	100	400	Room Temp.
Instruction Manual	1	1	-

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

¹ Add beta-mercaptoethanol (user supplied) to the **Viral DNA/RNA Buffer** to a final dilution of 0.5% (v/v) *i.e.*, 125 µl per 25 ml or 500 µl per 100 ml.

² Add 24 ml of 100% ethanol (26 ml of 95% ethanol) to the 6 ml **Viral Wash Buffer** concentrate (D7020) or 192 ml of 100% ethanol (204 ml of 95% ethanol) to the 48 ml **Viral Wash Buffer** concentrate (D7021).

Specifications

Notes:

This product is for research use only and should only be used by trained professionals. It is not 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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- **Sample Type:** Plasma, serum, CSF, cell culture media, cellular suspensions, whole-blood, urine, saliva, swab, fecal and any sample in DNA/RNA Shield™.
- **Sample Input:** Up to 400 µl liquid volume
- **Binding Capacity:** 25 µg DNA and 50 µg RNA
- **Elution Volume:** ≥ 35 µl
- **Purity:** High-quality nucleic acids are ready for Next-Gen sequencing, RT/qPCR, hybridization, *etc.*
- **Equipment Needed:** Microcentrifuge

Product Description

The **Quick-DNA/RNA™ Viral Kit** is a quick, purification system for viral DNA and RNA from plasma, serum, cell culture media, cellular suspensions, urine, blood, saliva and any other biological samples stored in **DNA/RNA Shield™**.

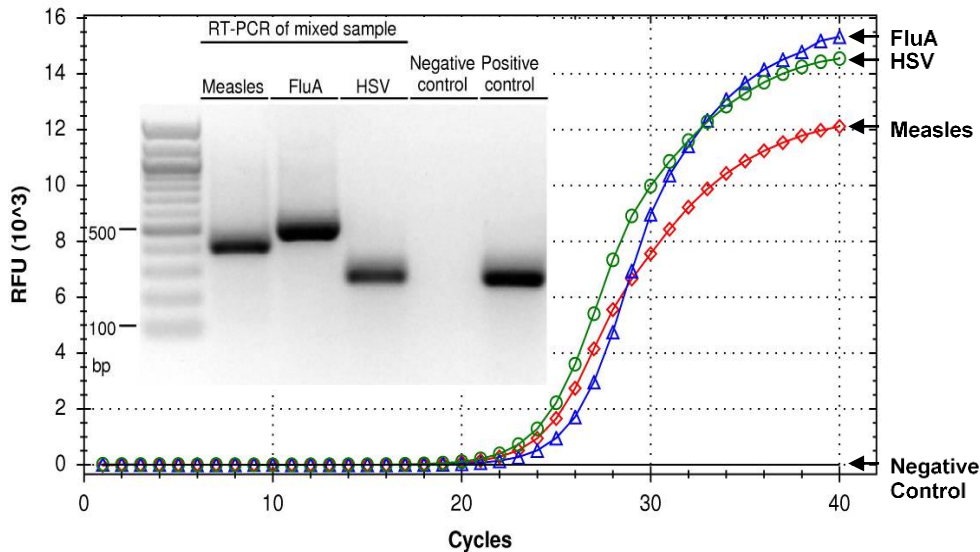
DNA/RNA Shield™ ensures nucleic acid stability during sample storage/transport at ambient temperatures (4°C-25°C). The reagent effectively lyses cells and inactivates nucleases and infectious agents (virus).

The kit also features a buffer system that facilitates complete viral particle lysis for efficient DNA/RNA isolation. Viral DNA/RNA is bound to the column, washed and eluted.

The isolated high-quality viral DNA/RNA are ready for all downstream applications such as Next-Gen sequencing, hybridization-based and RT/PCR detection.

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

Detection of DNA/RNA Viruses from a Mixed Population



Viral nucleic acids were isolated from liquid samples using the **Quick-DNA/RNA™ Viral Kit**. Data shows RT-qPCR Ct values for measles, influenza type A (FluA), and herpes-simplex (HSV) viruses, 23.05 (diamonds), 24.56 (triangles), 22.92 (circles), respectively. Negative control – RT-PCR (no template w/ HSV specific primers). Positive control – PCR (HSV template w/ HSV primers).

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

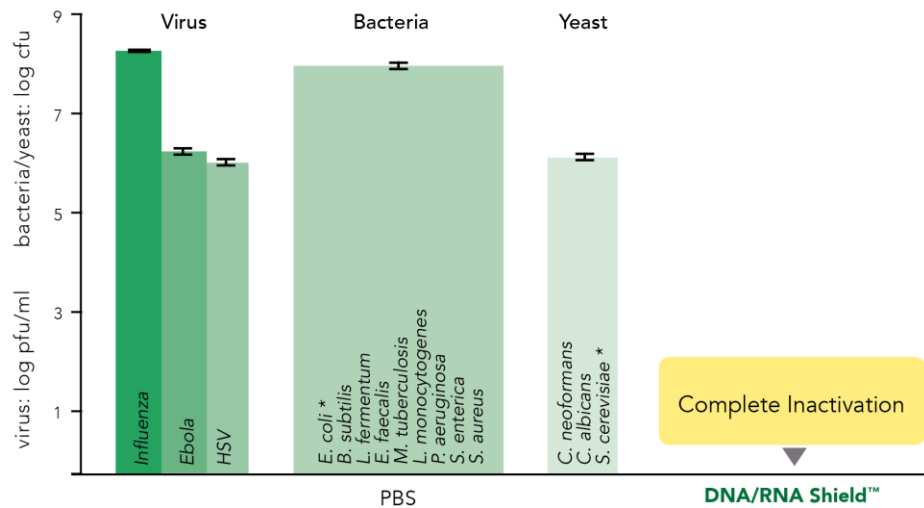
Reagent Preparation

- ✓ Before starting, add beta-mercaptoethanol (user supplied) to the **Viral DNA/RNA Buffer** to a final dilution of 0.5% (v/v) *i.e.*, 125 µl per 25 ml or 500 µl per 100 ml.
- ✓ Add 24 ml 100% ethanol (26 ml 95% ethanol) to the 6 ml **Viral Wash Buffer** concentrate (D7020) or 192 ml of 100% ethanol (204 ml of 95% ethanol) to the 48 ml **Viral Wash Buffer** concentrate (D7021).

Sample Storage and Stabilization

DNA/RNA Shield™ ensures nucleic acid stability during sample storage and transport at ambient temperatures (4-25°C). It also preserves genetic integrity and inactivates nucleases and infectious agents (virus).

For sample types high in protein or viscosity, the addition of DNA/RNA Shield™ will help increase lysis efficiency and deproteinization. See DNA/RNA Purification (page 4) for more information.



Viruses, bacteria and yeast are effectively inactivated by DNA/RNA Shield™. Samples containing the infectious agent (virus, bacteria, yeast) were treated for 5 minutes with DNA/RNA Shield™ or mock (PBS). Titer (PFU) was subsequently determined by plaque assay. Validated by: Influenza A - D. Poole and Prof. A. Mehle, Department of Medical Microbiology and Immunology, University of Wisconsin, Madison; Ebola (Kikwit) - L. Avena and Dr. A. Griffiths, Department of Virology and Immunology, Texas Biomedical Research Institute; HSV-1/2 - H. Oh, F. Diaz and Prof. D. Knipe, Virology Program, Harvard Medical School; *E. coli*, *L. fermentum*, *B. subtilis*, *S. cerevisiae* - Zymo Research).

*Disclaimer: This graph only displays results from *E. coli* inactivation. Each microbe was tested independently and were combined into one graph for brevity. Bacterial cultures were grown between 10⁷ - 10⁹ cells and yeast cultures were grown between 10⁷ - 10⁹ cells.

DNA/RNA Purification

- ✓ Perform all steps at room temperature and centrifugation at 10,000-16,000 x g.
- ✓ Sample inputs up to 400 µl can be processed (scale up proportionally).
- ✓ To remove particulate debris or precipitation in a sample, centrifuge for 1 minute and transfer the cleared supernatant into a nuclease-free tube (not provided).

Start here if you have plasma, serum, CSF, saliva, urine or biological liquids.

1. Add 100 µl **DNA/RNA Shield™** (2X concentrate) to each 100 µl sample. Mix well.

Start here if you have cellular suspension, whole blood or samples already stored/collected in DNA/RNA Shield™ (swab, fecal tube etc.¹).

2. Add 400 µl **Viral DNA/RNA Buffer** to each 200 µl sample. Mix well.
3. Transfer the mixture into a **Zymo-Spin™ IIC-XL Column²** in a **Collection Tube** and centrifuge for 2 minutes. Transfer the column into a **new** collection tube.
4. Add 500 µl **Viral Wash Buffer³** to the column, centrifuge for 30 seconds and discard the flow-through. Repeat this step.
5. Add 500 µl ethanol (95-100%) to the column and centrifuge for 1 minute to ensure complete removal of the wash buffer. Carefully, transfer the column into a nuclease-free tube (not provided).
6. Add 50 µl **DNase/RNase-Free Water** directly to the column matrix and centrifuge for 30 seconds.

Alternatively, for highly concentrated DNA/RNA use ≥35 µl elution.

The eluted DNA/RNA can be used immediately or stored frozen.

Notes:

¹www.zymoresearch.com/products/collection-stabilization

² To process >700 µl, reload the column.

³ Before starting, add the appropriate volume of ethanol to the wash buffer, see Reagent Preparation page 3.

Ordering Information

Product Description	Kit Size	Catalog No.
Quick-DNA/RNA™ Viral Kit	50 Preps	D7020
	200 Preps	D7021
Quick-DNA/RNA™ Viral 96 Kit	2 x 96 Preps	D7022
	4 x 96 Preps	D7023
Quick-DNA/RNA™ Viral MagBead	1x 96 Preps	R2140
	4x 96 Preps	R2141

For Individual Sale	Amount	Catalog No.
DNA/RNA Shield™ (2X concentrate)	25 ml	R1200-25
	125 ml	R1200-125
Viral DNA/RNA Buffer	25 ml	D7020-1-25
	100 ml	D7020-1-100
Viral Wash Buffer (concentrate)	6 ml	R1034-2-6
	24 ml	R1034-2-24
	48 ml	R1034-2-48
Zymo-Spin™ IIC-XL Columns	25	C1102-25
	50	C1102-50
	50	C1001-50
Collection Tubes	500	C1001-500
	1000	C1001-1000
	10 ml	W1001-10
DNase/RNase-Free Water	10 ml	W1001-10
	30 ml	W1001-30

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