FastPure Viral DNA/RNA Mini Kit V2

RC313

Vazyme

Instruction for Use

Version 24.1

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

01/Product Description

This kit is applicable for the rapid extraction of high-purity viral DNA/RNA from various samples including whole blood, serum, plasma, swabs, oral fluid, tissues, feces, semen, and environmental samples. The kit employs a unique lyse and binding system, requiring only sample preparation without the need for additional reagents (such as ethanol, isopropanol, etc.), and does not require high-temperature incubation. Through specific adsorption on a silica membrane, it can quickly and efficiently purify viral DNA/RNA. The sample compatibility is broad, yielding high nucleic acid recovery and purity, which can be directly used for downstream related experiments such as reverse transcription, PCR, quantitative PCR, next-generation sequencing, and Northern blotting.

02/Components

Components	RC313-01 (50 rxns)
Proteinase K	1.2 ml
Buffer VL V2	30 ml
Buffer VW1 Plus	40 ml
Buffer VW2 Plus	40 ml
RNase-free ddH_2O	6 ml
FastPure DNA/RNA Columns (each in a 2 ml Collection Tube)	50
RNase-free Collection Tubes 1.5 ml	50

Proteinase K: digest proteins.

Buffer VL V2: lyse sample and provide nucleic acid binding conditions.

Buffer VW1 Plus: remove residual proteins and other impurities.

Buffer VW2 Plus: remove residual ironic salts.

RNase-free ddH_2O: elute DNA/RNA from adsorption membrane.

FastPure DNA/RNA Columns: specific adsorption of DNA/RNA.

Collection Tubes 2 ml: collect filtrate.

RNase-free Collection Tubes 1.5 ml: Collect DNA/RNA.

03/Storage

Store at 15 ~ 25°C and ship at room temperature.

If ambient temperatures often exceed 25°C, we suggest storing Proteinase K at -30 ~ -15°C.

04/Applications

It can be used for the following sample virus DNA/RNA extraction:

Blood: Whole Blood, Serum, Plasma.

Tissue: Liver, Spleen, Lung, Kidney, Lymph Node, Small Intestine, etc.

Other Environmental Samples: Semen, Feces, Oral Fluid, Swabs, etc.

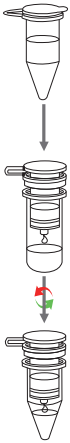
05/Self-prepared Materials

RNase-free pipette tip, 1.5 ml RNase-free centrifuge tube, centrifuge, vortex instrument, pipette, etc.

06/Notes

1. Samples need to be equilibrated to room temperature before use.
2. All operational steps were carried out at room temperature (15 ~ 25°C).
3. The virus has a strong ability to infect, and various defensive measures must be taken before operation.
4. Sample prohibits repeated freezing and thawing, to avoid degradation or yield decrease of extracted viral DNA/RNA.
5. When using this kit, please wear laboratory coats, disposable latex gloves, disposable masks, and use RNase-free consumables, to minimize RNase contamination as much as possible.

07/Mechanism & Workflow



Lyse sample: sequentially add 20 µl Proteinase K, 300 µl sample, 500 µl Buffer VL V2, vortex mix, incubate at room temperature for 5 min.

Adsorb nucleic acid: transfer the mixture to FastPure DNA/RNA Columns, centrifuge at 12,000 rpm (13,800 × g) for 1 min.

Remove impurities: add 700 µl Buffer VW1 Plus, centrifuge at 12,000 rpm (13,800 × g) for 30 sec.

Add 700 µl Buffer VW2 Plus, centrifuge at 12,000 rpm (13,800 × g) for 30 sec.

Centrifuge empty column at 12,000 rpm (13,800 × g) for 2 min.

Elute: add 30 - 50 µl RNase-free ddH_2O, centrifuge at 12,000 rpm (13,800 × g) for 1 min

08/Experiment Process

08-1/Sample processing

- Blood, oral fluid and other liquid samples can be directly collected for later use.
- Organism: Take 100 mg sample and place it into a 2 ml centrifuge tube, add 1 ml of PBS or saline, use a homogenizer to homogenize until no obvious tissue clumps, briefly centrifuge and collect the supernatant for later use.
- Environmental, fecal swab and other liquid samples: After brief centrifugation, collect the supernatant for later use.
- Semen: If the sample is relatively viscous, add an equal volume of PBS or saline for dilution, and mix thoroughly by vortexing before use.

08-2/DNA/RNA Extraction

The following process of DNA/RNA extraction is carried out in a biosafety cabinet.

1. Add 20 µl of Proteinase K, 300 µl of sample (if the sample volume is insufficient, use PBS or saline to make up to 300 µl), and 500 µl of Buffer VL V2 into an RNase-free tube, vortex mix for 15 - 30 sec, briefly centrifuge to collect the liquid from the tube lid and wall, and let it stand at room temperature for 5 min.

▲ If there are impurities precipitate at this time, it is a normal phenomenon and subsequent experiments can be carried out directly.

2. Transfer all of the above mixed solution to FastPure DNA/RNA Columns (FastPure DNA/RNA Columns have been placed into collection tubes), centrifuge at 12,000 rpm (13,800 × g) for 1 min, discard the filtrate.
3. Add 700 µl Buffer VW1 Plus to FastPure DNA/RNA Columns, centrifuge at 12,000 rpm (13,800 × g) for 30 sec, discard the filtrate.
4. Add 700 µl Buffer VW2 Plus to FastPure DNA/RNA Columns, centrifuge at 12,000 rpm (13,800 × g) for 30 sec, discard the filtrate.
5. Centrifuge the empty column at 12,000 rpm (13,800 × g) for 2 min.
6. Carefully transfer FastPure DNA/RNA Columns to new RNase-free Collection Tubes 1.5 ml (provided in the kit), add 30 - 50 µl of RNase-free ddH_2O to the center of the membrane, let it stand at room temperature for 1 min, and centrifuge at 12,000 rpm (13,800 × g).
7. Discard FastPure DNA/RNA Columns. The extracted DNA/RNA can be used directly for subsequent assays, or stored at -30 ~ -15°C for a short-term storage or -85 ~ -65°C for a long-term storage.

09/FAQ & Troubleshooting

FAQ	Reasons	Solutions
Clogging of the spin column	1. Too many impurities in the sample	Use a cell-free sample, or centrifuge the sample to collect the supernatant.
	2. Insufficient sample lysis	After adding Buffer VL V2 working solution, shake and mix well and prolong the incubation time at room temperature to 10 min.
	3. The activity of Proteinase K is decreased	Do not premix Proteinase K with Buffer VL V2 working solution.
No DNA/RNA extracted or low yield	1. Repeated freezing and thawing of the sample	Use a fresh sample and avoid repeated freezing and thawing.
	2. Low DNA/RNA content in the sample	Add an appropriate amount of nucleic acid co-precipitant.
	3. Incomplete elution	Add RNase-free ddH_2O to the center of the membrane; reduce the elution volume appropriately; pre-heat at 65°C; extend the incubation time to 5 min; or perform a second elution.
	4. The sample has not returned to room temperature	Allow the sample to return to room temperature before mixing it with the lysis buffer and applying it to the column.
	5. Improper centrifugation temperature	Please centrifuge at room temperature.
	6. Too much sediment impurities in samples such as environmental swabs affect nucleic acid binding.	Centrifuge the sample and take the supernatant to extract.
Inhibition of downstream assays or low purity	1. Residual salt ions	Ensure the column is rinsed twice with Buffer VW2 Plus along the wall of the spin column, or cap the column and invert 2 - 3 times after adding Buffer VW2 Plus to fully rinse away the salt attached to the column wall.
	2. Residual ethanol	After centrifuging the empty column, allow it to stand at room temperature for 5 min to fully remove residual ethanol.

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