FastPure Viral DNA/RNA Mini Kit

RC311

Version 23.1

Product Description

This kit is suitable for the rapid extraction of high-purity viral DNA/RNA from samples such as nasopharyngeal swabs, environmental swabs, cell culture supernatants, and tissue homogenate supernatants. The kit is based on silica membrane purification technology that eliminates the need for using phenol/chloroform organic solvents or time-consuming alcohol precipitation to extract viral DNA/RNA of high quality. The nucleic acids obtained are free of impurities and ready for use in downstream experiments such as reverse transcription, PCR, RT-PCR, real-time PCR, next-generation sequencing (NGS), and Northern blot.

Components

Components	RC311-01 (100 rxns)
Buffer VL	50 ml
Buffer RW	120 ml
RNase-free ddH_2O	6 ml
FastPure RNA Columns	100
Collection Tubes 2 ml	100
RNase-free Collection Tubes 1.5 ml	100

Buffer VL: Provide an environment for lysis and binding.
Buffer RW: Remove residual proteins and other impurities.
RNase-free ddH_2O: Elute DNA/RNA from the membrane in the spin column.
FastPure RNA Columns: Specifically adsorb DNA/RNA.
Collection Tubes 2 ml: Collect filtrate.
RNase-free Collection Tubes 1.5 ml: Collect DNA/RNA.

Storage

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

Applications

Nasopharyngeal swabs, environmental swabs, cell culture supernatants, and tissue homogenate supernatants.

Self-prepared Materials

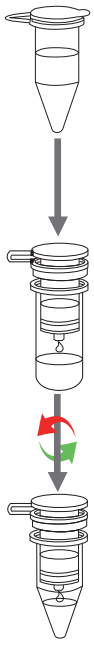
RNase-free pipette tips, 1.5 ml RNase-free centrifuge tubes, centrifuge, vortex mixer, and pipettes.

Notes

For research use only. Not for use in diagnostic procedures.

1. Equilibrate samples to room temperature in advance.
2. Viruses are highly infectious. Please ensure all necessary safety precautions are taken before the experiment.
3. Avoid repeated freezing and thawing of the sample, as this may lead to degradation or reduced yield of the extracted viral DNA/RNA.
4. Self-prepared equipment includes RNase-free pipette tips, 1.5 ml RNase-free centrifuge tubes, centrifuge, vortex mixer, and pipettes.
5. When using the kit, wear a lab coat, disposable latex gloves, and a disposable mask and use RNase-free consumables to minimize the risk of RNase contamination.
6. Perform all steps at room temperature unless otherwise specified.

Mechanism & Workflow



Sample lysis: Add 200 µl of the sample to 500 µl of Buffer VL, mix well by vortexing for 15 - 30 sec, and centrifuge briefly to collect the mixture at the bottom of the tube.

Nucleic acid binding: Transfer the mixture to FastPure RNA Columns and centrifuge at 12,000 rpm (13,400 × g) for 1 min. **Discard the filtrate.**

Impurity removal: Add 600 µl of Buffer RW, centrifuge at 12,000 rpm (13,400 × g) for 30 sec, and **discard the filtrate**. Repeat this step once. Centrifuge the empty column at 12,000 rpm (13,400 × g) for 2 min.

DNA/RNA elution: Add 30 - 50 µl of RNase-free ddH_2O, leave at room temperature for 1 min, and centrifuge at 12,000 rpm (13,400 × g) for 1 min.

Experiment Process

Perform all of the following steps in a biosafety cabinet.

1. Add 200 µl of the sample to an RNase-free centrifuge tube (make up with PBS or 0.9% NaCl in case of insufficient sample), add 500 µl of Buffer VL, mix well by vortexing for 15 - 30 sec, and centrifuge briefly to collect the mixture at the bottom of the tube.
2. Place FastPure RNA Columns in a Collection Tubes 2 ml. Transfer the mixture from Step 1 to FastPure RNA Columns, centrifuge at 12,000 rpm (13,400 × g) for 1 min, and **discard the filtrate**.
3. Add 600 µl of Buffer RW to FastPure RNA Columns, centrifuge at 12,000 rpm (13,400 × g) for 30 sec, and **discard the filtrate**.
4. Repeat Step 3.
5. Centrifuge the empty column at 12,000 rpm (13,400 × g) for 2 min.
6. Carefully transfer FastPure RNA Columns into a new RNase-free Collection Tubes 1.5 ml (provided in the kit), and add 30 - 50 µl of RNase-free ddH_2O to the center of the membrane without touching the column. Allow to stand at room temperature for 1 min and centrifuge at 12,000 rpm (13,400 × g) for 1 min.
7. Discard FastPure RNA Columns. The DNA/RNA can be used directly for subsequent assays, or stored at -30 ~ -15°C for a short period or -85 ~ -65°C for a longer period.

FAQ & Troubleshooting

Question	Cause	Solution
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.
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 carrier RNA.
	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.
Inhibition of downstream assays or low purity	1.Residual salt ions	Ensure the column is rinsed twice with Buffer RW, add Buffer RW along the wall of the spin column, or cap the column and invert 2 - 3 times after adding Buffer RW 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.