MQ Virus Nucleic Acid Isolation Kit

Cat No. VNA-M-001-100

Size: 100 Preparations

MOLEQULE-ON®

Components	Quantity
V1 Buffer	45ml
V2 Buffer (Add ethanol)	6ml (45ml)
W1 Buffer	45ml
W2 Buffer (Add ethanol)	15ml (60ml)
RE Buffer	10ml
MQ mini-elute Columns	100 pcs
MQ Collection Tubes 2ml	100 pcs

Storage

Store the MQ Viral Nucleic Acid Isolation kit at room temperature (15-25°C) under dry condition. For longer use, store at 2-8°C.

Description

The MQ Virus Nucleic Acid Isolation Kit provides a fast, simple, and cost-effective method for the isolation of viral DNA/RNA from cell-free samples such as serum, plasma, body fluids and the supernatant of virus-infected cell cultures. Its unique buffer system will efficiently lyse cells and degrade protein, allowing for the nucleic acid to be easily bound by the glass fiber matrix of the column. Contaminants such as salts, metabolites and soluble macromolecular cellular components are removed in the Wash Step. The phenol extraction and ethanol precipitation are not required, and the high-quality nucleic acid is eluted in the RNase-free elution buffer.

This kit is suitable for a variety of routine applications, including the Real-time PCR/RT-PCR, Automated Fluorescent DNA Sequencing, PCR, and other enzymatic reactions. The entire procedure can be completed within 15-20 minutes.

Specifications

- Isolates both viral RNA and DNA, allowing simultaneous detection of both types of virus.
- Removes inhibitors that might interfere with downstream assays, ensuring greater assay specificity, sensitivity and reproducibility.
- Prepares nucleic acid samples in only 20 minutes.
- Yields a concentrated sample that is suitable for direct assay (no precipitation required).
- Universal viral nucleic acid purification system - One kit for both DNA and RNA viral purification, allowing simultaneous testing of both viral types.
- Environment-friendly -Less infectious plastic waste due to the reduced number of hands-on steps.
- Safety - No phenol/chloroform extractions.
- Quality - RNA suitable for downstream applications.

Materials Required But Not Provided

- Absolute Ethanol
- PBS (Phosphate Buffered Saline)
- Microcentrifuge tubes (DNase and RNase free)

Preparations and Cautions

- ***Add 45 ml and 60 ml of the ethanol (96–100%) to the Buffer V2 and W2, and shake before use.***
- Check the Buffers before use for salt precipitation. Re-dissolve any precipitate by warming up to 37°C.
- The Buffers V1 and W1 contain irritants. Wear gloves when handling these buffers.

Protocol

If whole blood then use 300 µl.
If virus sample (Serum, plasma, body fluids etc.) then 200 µl.

Step 1 Lysis

- Transfer up to 200 µl of the virus sample into a 1.5 ml microcentrifuge tube and add 400 µl of the Buffer V1 (If the sample is less than 200 µl, adjust the sample volume to 200 µl with the PBS).
- Mix well and let it stand at the room temperature for 10 minutes.

Step 2 Nucleic Acid Binding

- Add 450 µl of the V2 Buffer (ethanol added) to the sample lysate and shake vigorously.
- Place a MQ mini elute column in a MQ collection tube (2ml).
- Transfer 700 µl of the lysate mixture into the MQ mini elute column.
- Centrifuge at 16,000 x g for 1 minute.
- Discard the flow-through and place the MQ mini elute column back in the same collection tube.
- Transfer the remaining lysate mixture to the MQ mini elute column.
- Centrifuge at 16,000 x g for 1 minute.
- Discard the flow-through and place the MQ mini elute column back in the same collection tube.

Step 3 Wash

- Add 400 µl of the W1 Buffer into the MQ mini elute column.
- Centrifuge at 16,000 x g for 30 seconds.
- Discard the flow-through and place the MQ mini elute column back into the same collection tube.
- Add 600µl of W2 Buffer (ethanol added) into the mini elute column.
- Centrifuge at 16,000 x g for 30 seconds.
- Discard the flow-through and place the MQ mini elute column back into the same MQ collection tube.
- Centrifuge at 16,000 x g again for 2 minutes to remove the residual W2 Buffer.

Step 4 Elution

- Place the MQ mini elute column in a clean 1.5 ml microcentrifuge tube (DNase and RNase free).
- Add 50µl RE Buffer or RNase-free water (pH is between 7.0 and 8.5) to the center of each MQ mini elute column, let it stand for 2 minutes, and centrifuge at 14,000 x g for 2 minutes.

Troubleshooting

Problem	Cause	Solution
Low yields	Insufficient performance of the elution buffer during the elution step	Remove the residual buffers during the wash steps completely. The remaining buffers decrease the efficiency of the following elution steps.
	Incomplete lysis	Check the incubation time of the Lysis Step.
	Viral nucleic acid remains on the column	Repeat the Elution Step. Incubate the column for 5 min with water prior to centrifugation.
Poor performance of RNA in downstream applications	Interference of the residual ethanol	Be sure to remove the entire Buffer V2 and W2.
Degraded RNA	Source	Do not freeze and thaw sample more than once. Increase the viral concentration in the sample.
	RNase contamination	Ensure not to introduce RNase during the procedure. Check buffers for the RNase contamination.