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COVID-19 Viral RNA Extraction Kit  
(MagicMag Magnetic Beads)

## COVID-19 Viral RNA Extraction Kit (MagicMag Magnetic Beads)

Catalog #: VT9100

Size: 100 Preps, 1000 Preps

Components	100 Prep Kit	1000 Prep Kit
Buffer Rlysis-VG	40 ml	200 ml x 2
Buffer MB	40 ml	200 ml x 2
Universal RPE Solution*	15 ml	50 ml x 3
Nuclease-free Water**	7 ml	35 ml x 2
Carrier RNA**	1 mg	1 mg x 2
MagicMag Magnetic Beads	3 ml	30 ml
Protocol	1	1

\*: Universal RPE Solution is supplied in a concentrated form. Before use, add 60ml 96-100% ethanol to 15ml concentrated universal RPE solution and mix well.

\*\* : Add Nuclease-free Water to the tube containing lyophilized Carrier RNA to obtain a solution of 1 µg/µL. Dissolve the carrier RNA thoroughly, divide it into conveniently sized aliquots, and store it at -20°C. Do not freeze-thaw the aliquots of Carrier RNA more than 3 times.

### Product Description

The kit simplifies isolation of viral RNA from cell-free body fluids using magnetic beads to speed up automation (for high throughput applications). No phenol/chloroform extraction is required. Viral RNA binds specifically while contaminants are removed in the flow-through. PCR inhibitors such as divalent cations and proteins are completely removed in two efficient wash steps, leaving pure viral RNA to be eluted in RNase-free Water. Purified RNA is ready to use in RT-PCR, Northern blotting, or other downstream applications.

### Features

- **Fast:** Entire procedure takes about 30 minutes.
- **High Throughput:** Allows rapid extraction of 100 samples within 30 minutes.
- **High Yield:** The recovery yield of viral RNA is >85%.
- **Versatile:** Suitable for purification of viral RNA from Nasopharyngeal swabs (dry) or Transport medium/Viral transport medium (VTM) containing Nasopharyngeal swabs, Nasopharyngeal aspirates, and bronchoalveolar lavage (BAL) samples.
- **Non-toxic:** No phenol/chloroform are used.

### Storage

Product will be shipped at ambient temperature.

Upon arrival, all kit components must be stored between 4°C and 8°C.

Upon reconstitution, Carrier RNA should be divided into conveniently sized aliquots and stored at -20°C. Do not freeze-thaw the aliquots of Carrier RNA more than 3 times. The kit is valid for 1 year.

During shipment or storage in cool ambient conditions, precipitates may form in **Buffer Rlysis-VG**. Dissolve such deposits by warming the solution at 37°C and gently shaking.

### Materials Supplied by User

- Microcentrifuge capable of at least 12,000 × g
- RNase-Free pipettes and pipette tips
- Vortexer
- RNase-Free Ethanol (75%)
- RNase-Free Microcentrifuge tubes (1.5 ml or 2 ml)
- Water bath for heating at 65°C
- Magnetic separation device
  - MAD-01 (96-well magnetic separation device)
  - MAD-02 (microcentrifuge magnetic separation device)

### Before Starting

Check the Buffer Rlysis-VG and Buffer MB for salt precipitation before each use. If necessary, re-dissolve the precipitate by warming the solution at 65°C before use. Preheat the water bath or rocking platform to 65°C.

### Procedure

1. Freshly prepare the following Lysis Mastermix:

Component	Volume/rxn	Volume/100 rxns	Volume/1000 rxns
Carrier RNA	2 µl	200 µl	1 ml x 2
Buffer Rlysis-VG	400 µl	40 ml	200 ml x 2

2. Mix thoroughly by vortexing. Transfer 400 µL lysis mastermix to each well of a 96-well microplate or a microcentrifuge tube.

### 3. Sample preparation

#### A. Nasopharyngeal swabs (dry)

Select between method **a.1** (without Proteinase K)

OR

**a.2** (with Proteinase K - optional):

**a.1.** Place the swab into a clean 1.5 ml microtube, and snap off the handle. Add 200 µL physiological saline, vortex for 30 seconds. Then transfer 200 µL solution to a new 1.5 ml microtube and proceed to step **4**.

**a.2.** If using Proteinase K (recommended for better yield):

- i) Add 300 µl of PBS (user supplied) and 10ul of 20mg/mL Proteinase K solution (user supplied, *Bio Basic cat. #401*) to each swab sample.
- ii) Incubate at 56°C for 5 minutes with occasional mixing.
- iii) Centrifuge at 10,000 X g (or maximum speed) for 30 seconds
- iv) Use 200 µl from this step as a sample and proceed to step **4**.

#### B. Transport medium/Viral transport medium (VTM) containing Nasopharyngeal swabs, Nasopharyngeal aspirates and bronchoalveolar lavage samples: \*\*\*

- i. Vortex the tubes containing the swab at maximum speed for 1 minute.
- ii. Use 200 µl from this step as a sample and proceed with step **4**.

\*\*\*Note: If transfer medium is very dilute i.e. if the volume is more than 400 µl, perform the below steps for virus enrichment instead of “i” and “ii”:

- iii. Transfer appropriate liquid sample to a new 1.5 ml microtube,
- iv. Centrifuge at 24,000 g for 60 minutes at 4°C. Then keep approx. 200 µL solution in the tube but discard the remaining and continue to step **4**.

**4.** Add 200 µL sample into each well containing the Lysis Mastermix (from step **2**). Mix by shaking the plate for 1 minute or pipetting up and down, then let it sit at room temperature for 10 minutes.

**5.** Add 400µl Buffer MB and 30 µL MagicMag Beads Particles. Mix by shaking 96-well plate for 5 minutes or vortex the microcentrifuge tube for 10 sec every 2 min.

Note: The magnetic beads tend to settle to the bottom, it is very important to resuspend the magnetic beads thoroughly before use.

**6.** Place the plate or microcentrifuge on a magnetic separation device to magnetize the MagicMag Beads Particles. Let it sit for 3-5 minutes

**7.** Aspirate and discard the supernatant. Do not disturb the MagicMag Beads Particles.

**8.** Remove the plate or microcentrifuge tube from the magnetic separation device.

**9.** Add 700 µL RPE Buffer to each well.

Note: RPE Solution is supplied in a concentrated form. Before use, make sure ethanol has been added. See instructions in manual (page 1).\*

**10.** Resuspend the MagicMag Beads Particles by shaking for 1 minute.

Note: Complete resuspension is required for adequate washing of the MagicMag Beads Particles.

**11.** Place the plate or microcentrifuge tube on the magnetic separation device to magnetize the MagicMag Beads Particles. Let it sit at room temperature until the MagicMag Beads Particles are completely cleared from solution.

**12.** Aspirate and discard the supernatant. Do not disturb the MagicMag Beads Particles.

**13.** Remove the plate or microcentrifuge from the magnetic separation device.

**14.** Add 700 µl 75% of ethanol to each well.

**15.** Resuspend the MagicMag Beads Particles by shaking for 1 minute.

**16.** Place the plate or microcentrifuge tube on the magnetic separation device to magnetize the MagicMag Beads Particles. Let it sit at room temperature until the MagicMag Beads Particles are completely cleared from solution.

17. Aspirate and discard the supernatant. Do not disturb the MagicMag Beads Particles.

18. Repeat Steps 12-16 for a second 700 µl 75% of ethanol wash step.

19. Leave the plate or microcentrifuge on the magnetic separation device for 10 minutes to air dry the MagicMag Beads Particles. Remove any residual liquid with a pipettor.

20. Remove the plate or microcentrifuge from the magnetic separation device

21. Add 35-60 µL Nuclease-free Water to each well.

Note: Elution volume depends on plasticware and magnetic separation device used. The MagicMag Beads Particles must be able to completely covered by the Nucleasefree Water

22. Resuspend the MagicMag Beads Particles by shaking for 2 minutes.













23. Let sit at room temperature for 10 minutes.

24. Place the plate or microcentrifuge on the magnetic separation device to magnetize the MagicMag Beads Particles. Let it sit at room temperature until the MagicMag Beads Particles are completely cleared from solution.

25. Transfer the cleared supernatant containing purified RNA to a clean plate or microcentrifuge. Store at -20°C

Note: Avoid transferring the beads into the final tube. If this occurs, repeat step 9.

## Index of Symbols

	In Vitro Diagnostic Use		See Instructions for Use
	Catalog Number		Manufacturing Date
	Expiry Date		Number of Tests
	Manufacturer		CE Marking
	Caution		Store at 4-8°C
	Lot Number		European Authorized Representative



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