SARS-CoV-2 Viral RNA/DNA Isolation Kit

Catalog Number: NA2019-01

For Research Use Only. Not for use in Diagnostic Procedures.

1. Background

SARS-CoV-2 Viral RNA/DNA Isolation Kit NA2019-01 is specially designed for purification of viral RNA/DNA from human-derived samples. Read procedure carefully before starting. SARS-CoV-2 Viral RNA/DNA Isolation Kit is designed for rapid purification of viral RNA and DNA from biofluid samples such as serum, plasma and swab samples. Although the instructions are for manual magnetic stands this kit can be adapted for use on automatic magnetic particle isolation devices and optimized to be used for isolation of Viral RNA for COVID testing. It can be integrated with the COVID qRT-PCR workflow at testing centers.

2. Test Principle

SARS-CoV-2 Viral RNA/DNA Isolation Kit comes with proprietary magnetic beads and a specially formulated buffer. The purified RNA/DNA can then be effectively eluted with Elution Buffer and is ready for use in PCR, other reactions, or storage at -20°C. The procedures can be fully automated on the magnetic particle processor instrument and ease of use.

3. Components Provided in This Kit

Component Name	Volumes	Storage
Suspension Buffer	2 x 20mL	15–25°C
Lysis Solution**	30mL	15–25°C
Mag Beads	2 mL	2-8°C (upon arrival)
Wash Buffer 1**	38mL	15–25°C
Wash Buffer 2**	20mL	15–25°C
Proteinase K	2 x 1mL	15–25°C
Elution Buffer	6mL	15–25°C

* Lysis Buffer and Wash Buffer 2 contains chaotropic salts which are irritants. Please handle with appropriate laboratory safety measures and wear gloves.

** Before using for the first time, add the appropriate volume of ethanol (96%-100%) as indicated on the bottle to the Lysis Solution, Washing Buffer I, and Washing buffer II. Mark the bottles, shake and store at room temperature.

4. Storage and stability

Store Mag Beads and Proteinase K at 4–8°C upon arrival, and the rest of the kit can be stored at room temperature (15–25°C). Freezing and violent centrifugation should be avoided. Check Lysis for precipitate before use and re-dissolve at 37°C if necessary. Stability is guaranteed till expiry if properly stored and handled according to instructions.

5. User Supplied Materials

- Nuclease-free 1.5-2ml microcentrifuge tubes
- Vortex
- Incubator
- Centrifuge
- Liquid nitrogen, abrader or tissue homogenizer
- Magnetic separation device (Sold Separately)
- 96-100% ethanol

6. Sample Preparation

1. Sampling & Handling:

- The collection, transportation and storage of samples comply with relevant operating specifications.
- The collected specimen should be used for detection within the same day.
- Otherwise, please store the specimen as follows:
    - Store at 2 - 8°C for no more than 24 hours.
    - Store at < -20°C for no more than 10 days.
    - Store at < -70°C for long-term, avoiding repeated freeze-thaw cycles.

2. Inactivation Treatment:

- Further inactivation treatment should be taken as required before extraction. For heat inactivation of SARS-CoV-2, it is recommended to incubate at 56 °C for 30 min, and balance at room temperature for 10 min avoiding aerosols.
- Before using for the first time, add the appropriate volume of ethanol (96%–100%) as indicated on the bottle to the Lysis Solution, Washing Buffer 1 and Washing Buffer 2, and mark it. Shaking thoroughly to obtain a working solution.
- Preparation of magnetic beads: before using, the magnetic bead solution must be shaken vigorously for 1 min to fully disperse the magnetic beads.
- The Lysis Solution may precipitate when stored at low temperature. In case of precipitation in the lysis solution, it can be used after redissolution at room temperature or 37 °C and mix thoroughly before use.

7. Nucleic Acid Extraction and Purification

1. Add 200 μl sample (the sample less than 200 μl can be supplemented with normal line) to a new 1.5 mL nuclease-free tube, then add 20 μl Proteinase K, and mix it evenly by slight vortex or putting it upside down. After that, add 20 μl Magnetic Beads and 700 μl Lysis Solution **(Make sure absolute ethanol has been added)**, mix them for 15 sec with vortex vibration, and conduct lysis at room temperature for 5 min, during which the tube shall be put upside down twice for even mixing.
2. Conduct instantaneous centrifugation, place the tube on the magnetic stand, leave it resting for 1 min, and then remove the supernatant with a pipette.
3. Take the above sample from magnetic stand, add 700 μl Washing Buffer 1 **(Make sure absolute ethanol has been added)**, and mix them evenly with vortex for 15 sec. Then conduct instantaneous centrifugation, put the tube on the magnetic stand, leave it resting for 1 min, and thoroughly remove the supernatant.
4. Take the above sample from the magnetic stand, add 700 μl Washing Buffer 2 **(Make sure absolute ethanol has been added)**, and mix them evenly with vortex for 15 sec. Then conduct instantaneous centrifugation, put the tube on the magnetic stand, leave it resting for 1 min, and thoroughly remove the supernatant.
5. After instantaneous centrifugation, put it on the magnetic stand again and remove the residual supernatant. Remove the lid, and leave it open at room temperature for 3 min to 5 min until no reflection of light is found on the surface of the beads.

   Note: To ensure the purity of nucleic acid, the Washing Buffer 2 shall be removed thoroughly; at the same time, excessive drying (cracking) of magnetic beads will affect the final output.

6. Add 50 μl Elution Buffer, mix it gently for 15 sec, and leave it resting at room temperature for 3 min, during which it shall be mixed evenly twice by vibration.
7. After instantaneous centrifugation to the bottom of tube, put the sample on the magnetic stand again, and leave it resting for 1 min. Draw the supernatant to a new nuclease-free centrifuge tube (additional consumable). It can be used for follow-up detection, or stored for a short term at -30～ -15 °C, or stored for a long term below -70 °C.

Who we are:

Attogene is a biotechnology company located in Austin, Texas. Our focus is to enhance health and wellness by offering and developing customer focused Life Science Products domestically and internationally.

Our mission is to:

- Enhance detection technologies
- Enable rapid responses
- Enable impactful research discoveries

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