MD0496_IFU_EN_V2401

NZY Mag Viral RNA/DNA Isolation Kit, RUO

Catalogue number	Presentation
MD04961	200 preps

Description

The NZY Mag Viral RNA/DNA Isolation Kit, RUO, utilizes cutting-edge magnetic bead technology for swift and high-quality purification of viral RNA and DNA. The kit ensures that RNA/DNA samples are suitable in terms of purity, concentration, and nucleic acid integrity. Designed for compatibility with qPCR/RT-qPCR and various downstream applications, this kit ensures rapid and user-friendly extraction protocol. For scalability, the kit supports automated workflows on platforms like the KingFisher™ Flex, processing 96 specimens in under 30 minutes.

This instruction for use guides users through both automatic and manual isolations in a plate format. The kit's versatility extends to biofluids, transport media samples, and diverse sample types, including extraction of viral nucleic acids from nasopharyngeal and urogenital swabs. The NZY Mag Viral RNA/DNA Isolation Kit, RUO, sets new standards for speed, simplicity, and reliability in nucleic acid purification. With its advanced technology and user-friendly format, it empowers researchers to elevate their investigations.

Shipping & Storage Conditions

NZY Mag Viral RNA/DNA Isolation Kit, RUO, is shipped at room temperature. All components should be stored at 15 - 25 °C upon arrival. The product will remain stable till the expiry date if stored as specified.

Components

NZYtech NZY Mag Viral RNA/DNA Isolation Kit, RUO, provides a comprehensive set of reagents for the isolation and purification of viral RNA and DNA from human nasopharyngeal swabs. NZY Mag Viral RNA/DNA Isolation kit is designed for the purification of 200 samples, with a 200 μL sample volume input. Kit contents for the kit presentation are described in the table below:

COMPONENT	MD04961 200 PREPS
NZY Mag Binding Buffer	56 mL
NZY Mag Proteinase K	1,1 mL
NZY Mag Wash Buffer	105 mL
NZY Mag Elution Buffer	10,5 mL
NZY Mag Binding Beads	2,1 mL

Materials and Instrumentation Required but Not Provided

The instrumentation required may vary depending on protocol - manual or automatic. Please check with your local platform manufacturer regarding automatic platform-specific consumables. Use disposable pipette tips (aerosol barrier and RNase-free pipette tips are recommended to avoid cross-contaminations). Use personal protection equipment including disposable gloves.

- Adjustable micropipettes
- Multi-channel micropipettes
- Disposable pipette tips (low retention, aerosol barrier and RNase-free)
- Vortex
- Magnetic stand-96
- Incubator capable of reaching 65°C
- 96-well plate
- Automated Extraction and Purification System
- Adhesive Film
- Absolute ethanol (molecular biology grade)

Reagents Preparation

Before start, prepare fresh 80% (v/v) ethanol (not included) by diluting absolute ethanol (molecular biology grade) in nuclease-free water (not DEPC-Treated) at a volume required for the number of purification reactions plus 10% overage.

REAGENT	SAMPLE VOLUME INPUT, 200 µL		
	VOLUME PER PREP	VOLUME FOR 10 PREPS (+10%)	VOLUME FOR 96 PREPS (+10%)
80% (v/v) ethanol	500 µL	5,5 mL	52,8 mL

Automatic Protocol

Please read the instructions for use carefully before you begin the extraction procedure. Review your assay documentation to determine if an extraction control is recommended to verify the efficacy of the nucleic acid preparation. Follow the extraction control guidelines provided in the assay documentation. Determine the number of required reactions based on the number of samples to be processed, plus one Negative Control per plate.

Download and install the NZY_MD0496_Flex script

1. In case KingFisher™ Flex Magnetic Particle Processor is used, the appropriate script for NZY Mag Viral RNA/DNA Isolation Kit, RUO must be installed on the instrument before first use. On the NZY Mag Viral RNA/DNA Isolation Kit, RUO product web page (at www.nzytech.com) search by catalogue number, scroll to the Manuals section.
2. Download the latest version of the NZY_MD0496_Flex.bdz script for your instrument.

Preparation of Processing Plates

In the automated platform prepare the following processing plates:

1. Wash Plate 1, with 0,5 mL of NZY Mag Wash Buffer per well/sample.
2. Wash Plate 2, with 0,5 mL of 80% (v/v) ethanol (not provided; see guidelines to prepare above) per well/sample.
3. Elution Plate, with 50 µL of NZY Mag Elution Buffer per well/sample.

PLATE	PLATE TYPE	COMPONENT	VOLUME PER PREP
Wash Plate 1	Deep Well Plate	NZY Mag Wash Buffer	0,5 mL
Wash Plate 2	Deep Well Plate	80% (v/v) ethanol	0,5 mL
Elution Plate	Deep Well Plate	NZY Mag Elution Buffer	50 µL

Processing Samples

1. In the Sample Plate, carefully pipette 265 µL of NZY Mag Binding Buffer to each sample well, as well as to the Negative Control well.

Note: *NZY Mag Binding Buffer is intrinsically viscous and should be pipetted slowly using low retention tips. Do not reuse pipette tips do add NZY Mag Binding Buffer as it will cause variations in the volumes added.*

2. Accordingly, add 200 µL of sample to each sample well. May mix through a gentle up and down pipetting. Add the corresponding volume of Nuclease-free Water (not DEPC-Treated) to the Negative Control well.
3. Add 5 µL of NZY Mag Proteinase K to each well, including the Negative Control well.

Note: *At this stage may add Extraction Control if this is required.*

4. Mix well by repeated pipetting up and down or shaking.
5. Incubate reaction for at least 15 min at room temperature (may prepare processing plates as described above during this period).
6. Vortex NZY Mag Binding Beads to ensure that the bead mixture is homogeneous. Add 10 µL of NZY Mag Binding Beads per well/sample.
7. Start the automated extraction by setting up the processing plates according to the extraction system protocol.
8. After run is completed, remove the Elution Plate from instrument and cover with an appropriate clear adhesive film.
9. Place the Elution Plate on ice for immediate use in real-time RT-qPCR or store as appropriate for later analysis.
10. For short-term storage of up to 24 hours, we recommend storing the purified viral RNA and DNA at 2–8°C. For storage longer than 24 hours, we recommend storing purified nucleic acids at < -70°C.

Manual Protocol

Processing Samples

1. In the Sample Plate, carefully pipette 265 µL of NZY Mag Binding Buffer to each sample well, as well as to the Negative Control well.

Note: *NZY Mag Binding Buffer is intrinsically viscous and should be pipetted slowly using low retention tips. Do not reuse pipette tips do add NZY Mag Binding Buffer as it will cause variations in the volumes added.*

2. Accordingly, add 200 µL of sample to each sample well. May mix through a gentle up and down pipetting. Add the corresponding volume of Nuclease-free Water (not DEPC-Treated) to the Negative Control well.

3. Add 5 µL of NZY Mag Proteinase K to each well, including the Negative Control well.

Note: *At this stage may add Extraction Control if this is required.*

4. Mix well by repeated pipetting up and down or shaking.
5. Incubate reaction for at least 15 min at room temperature.
6. Vortex NZY Mag Binding Beads to ensure that the bead mixture is homogeneous. Add 10 µL of NZY Mag Binding Beads per well/sample.
7. Seal the plate with an adhesive film and shake the plate at 1,050 rpm for 2 minutes.
8. Incubate the sealed plate at 65°C for 5 minutes and then shake the plate at 1,050 rpm for 5 minutes.
9. Place the sealed plate on the magnetic stand for 10 minutes, or until all the magnetic beads have collected.
10. While the plate remains on the magnet, gently lift the seal, and proceed to carefully remove and discard the supernatant from each well.

Note: *avoid disturbing the NZY Mag Binding Beads.*

11. Remove the plate from the magnetic stand and add 500 µL of NZY Mag Wash Buffer to each sample.
12. Reseal the plate, then shake at 1,050 rpm for 1 minute.
13. Place the plate back on the magnetic stand for 2 minutes, or until all the beads have collected.
14. While the plate remains on the magnet, gently lift the seal, and proceed to carefully remove and discard the supernatant from each well.

Note: *avoid disturbing the NZY Mag Binding Beads.*

15. Repeat step 11 to step 14 using 500 µL of 80% Ethanol.
16. Dry the beads by shaking the uncovered plate at 1,050 rpm for 2 minutes.
17. Add 50-100 µL of NZY Mag Elution Buffer to each sample, then seal the plate with an adhesive film.
18. Shake the sealed plate at 1,050 rpm for 5 minutes.
19. Place the plate in an incubator at 65°C for 10 minutes.
20. Remove the plate from the incubator, then shake the plate at 1,050 rpm for 5 minutes.
21. Place the sealed plate on the magnetic stand for 3 minutes or until clear to collect the beads against the magnets.
22. Keeping the plate on the magnet, carefully remove the seal, then transfer the eluates to a fresh 96-well plate.
23. Place the Elution Plate on ice for immediate use in real-time or store as appropriate for later analysis.
24. For short-term storage of up to 24 hours, we recommend storing the purified viral RNA and DNA at 2–8°C. For storage longer than 24 hours, we recommend storing purified nucleic acids at < -70°C.

Quality control

All components of NZYtech NZY Mag Viral RNA/DNA Isolation Kit, RUO, are tested following the protocols described above by the extraction of nucleic acids from DNA and RNA virus. Inclusion of negative and positive samples in addition to no-template controls is used to test extraction efficacy and cross-contamination with non-targeted nucleic acids.