MD0666_IFU_EN_V2401

NZY Mag Bacterial & Viral RNA/DNA Isolation Kit, RUO

Catalogue number	Presentation
MD06661	100 preps

Description

The NZY Mag Bacterial & Viral RNA/DNA Isolation Kit, RUO, employs advanced magnetic bead technology to achieve swift and high-quality purification of nucleic acids from a wide array of biological samples, encompassing both viral entities and bacteria, including gram-positive and gram-negative. This kit allows the extraction of high-quality viral RNA, viral DNA, and bacterial DNA from varied samples such as serum, plasma, saliva, nasopharyngeal, nasal and vaginal/perianal human swabs. The optimized protocols detailed in this Instruction For Use (IFU) ensure that the isolated nucleic acids meet stringent requirements for purity, concentration, and integrity, making them ideal for sensitive applications such as qPCR, RT-qPCR, and Next-Generation Sequencing (NGS). The magnetic beads are engineered to selectively bind nucleic acids, facilitating a clean and efficient extraction process that significantly reduces the presence of inhibitors and contaminants. This enhancement bolsters the reliability of downstream analytical results. Designed for seamless integration with qPCR, RT-qPCR, and a variety of other downstream applications, the kit offers a rapid, user-friendly extraction protocol that supports scalability. It is compatible with automated platforms, such as the KingFisher™ Flex, which can process up to 96 specimens in less than 30 minutes. This IFU guides users through both automated and manual isolation processes in a plate format. The NZY Mag Bacterial & Viral RNA/DNA Isolation Kit, RUO, redefines benchmarks for speed, ease, and reliability in nucleic acid purification. With its cutting-edge technology and intuitive design, it empowers researchers to advance their scientific investigations with unprecedented efficiency and accuracy.

Shipping & Storage Conditions

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

Components

NZYtech NZY Mag Bacterial & Viral RNA/DNA Isolation Kit, RUO, provides a comprehensive set of reagents for the isolation and purification of viral RNA and viral/bacterial DNA from biological samples. NZY Mag Bacterial & Viral RNA/DNA Isolation kit is designed for the purification of 100 samples, with a 200 μL sample volume input.

COMPONENT	MD06661 (100 PREPS)
NZY Mag Binding Buffer II	28 mL
NZY Mag Proteinase K	0.55 mL
NZY Mag Wash Buffer	2 x 28 mL
NZY Mag Elution Buffer	5.5 mL
NZY Mag Binding Beads II	1.1 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 plates

- Automated Extraction and Purification System
- Adhesive Film
- Absolute ethanol (molecular biology grade)

Reagents Preparation

Before starting, 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_MD0666_Flex script

1. In case KingFisher™ Flex Magnetic Particle Processor is used, the appropriate script for NZY Mag Bacterial & Viral RNA/DNA Isolation Kit, RUO, must be installed on the instrument before first use. On the NZY Mag Bacterial & Viral RNA/DNA Isolation Kit, RUO, product web page (at www.nzytech.com) search by catalogue number and scroll to the Manuals section.
2. Download the latest version of the NZY_MD0666_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 II to each sample well, as well as to the Negative Control well.

Note: *NZY Mag Binding Buffer II is intrinsically viscous and should be pipetted slowly using low retention tips. Do not reuse pipette tips to add NZY Mag Binding Buffer II 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 II to ensure that the bead mixture is homogeneous. Add 10 µL of NZY Mag Binding Beads II per well/sample.
7. Start the automated extraction by setting up the processing plates according to the extraction system protocol.
8. After the run is completed, remove the Elution Plate from the instrument and cover it with an appropriate clear adhesive film.
9. Place the Elution Plate on ice for immediate use in real-time RT-qPCR or store it 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 II to each sample well, as well as to the Negative Control well.

Note: *NZY Mag Binding Buffer II is intrinsically viscous and should be pipetted slowly using low retention tips. Do not reuse pipette tips to add NZY Mag Binding Buffer II 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 II to ensure that the bead mixture is homogeneous. Add 10 µL of NZY Mag Binding Beads II 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 II.*

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 II.*

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 it 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 the NZYtech NZY Mag Bacterial & Viral RNA/DNA Isolation Kit, RUO, are rigorously tested using the outlined protocols to ensure effective extraction of nucleic acids from viruses and bacteria. This testing includes the use of positive and negative samples, as well as no-template controls, to evaluate extraction efficacy and prevent cross-contamination with non-target nucleic acids.