# MGIEasy Nucleic Acid Extraction Kit User Manual

Manual Version: A1 Model: VDR02P-96

## 【Product Name】

MGIEasy Nucleic Acid Extraction Kit

## 【Package】

| Cat. No. | Model | Specification |
|---|---|---|
| 1000023878 | VDR02P-96 | 96 preps |

## 【Intended Use】

MGIEasy Nucleic Acid Extraction Kit can efficiently purify the viral DNA and RNA from nasopharyngeal swab and oropharyngeal swab and is suitable for the downstream molecular detection.

## 【Kit Components】

Table 1. Main Components and specification

| Components | | Package and amount |
|---|---|---|
| Box1 | Buffer FLB | 160 μL*96 |
| | Buffer FW1 | 150 μL*96 |
| | Buffer FW2 | 320 μL*96 |
| | Nuclease Free Water | 80 μL*96 |
| Box2 | Proteinase K | 15 μL*96 |
| | Magnetic Beads T | 15 μL*96 |

***Note: Not to mix components in different batches of kits.***

## 【Storage Conditions】

Different reagents in this kit have different storage conditions. Please store them respectively according to the following conditions:

Table 2. Reagents storage conditions and validity period

| Reagent | Storage Conditions | Validity Period |
|---|---|---|
| Box1 | 0°C to 30°C | 12 months |
| Box2 | 2°C to 8°C | 12 months |

***Note:*** *The Buffer FLB, Buffer FW1 and Buffer FW2 may have some precipitation which will not affect the function. If it precipitates, please heat the reagent bottle in a 37°C water bath properly for around 10 min until the precipitation disappear, then mix thoroughly before use.*

## 【 Applicable Automation Instrument 】

Applicable automation instrument:

High-throughput automated sample preparation system, Model: MGISP-960;

## 【 Sample Conditions 】

1. The kit is suitable to extract virus DNA and RNA from nasopharyngeal swab and oropharyngeal swab.
2. The samples are recommended to be extracted within 24 h at 4°C after collection; If can't be extracted within 24 h, the samples should be stored at -70°C or below. Avoid repeated freezing and thawing; Frozen samples need to be thawed and mixed before use.
3. Sample transportation: use dry ice for transportation. Don't transport the samples exceeding 7 days. Avoid repeated freezing and thawing during transportation.
4. Sample Safety: All samples are regarded as potentially infectious items. The operations shall be performed in accordance with relevant national standards.

## 【 Experimental Workflow 】

Please follow the workflow as below:

### A. Required Materials Not Supplied

Table 3. Required Materials for Automatic Extraction

| Type | Item Name | Note |
|---|---|---|
| Instrument | Plate centrifuge | / |
| | Vortex | / |
| | Pipette | 1 mL, 200 μL, 20 μL |
| Reagent | Absolute ethanol | AR |
| Consumable | Tips | 1 mL, 200 μL, 20 μL |
| | 250 μL automated filter tips | Cat. No. 1000000723, MGI |
| | 1.3 mL U-bottom deep-well plate | Cat. No. 1000004644, MGI |
| | Hard-shell thin-wall 96-well skirted PCR plates, white shell/clear well | Cat. No. 1000012059, MGI |

| | | |
|---|---|---|
| | 50 mL tube | DNase-free, RNase-free |

## B. Read before use

1. Avoid repeatedly freezing and thawing samples, which may result in low DNA or RNA quality.
2. If Buffer FLB, Buffer FW1 and Buffer FW2 have precipitate, it can be re-dissolved in a 37 °C water bath. Shake and mix ***thoroughly*** before use.
3. All reagents and samples need to be equilibrated to room temperature (10°C -30°C) before use.
4. Please use the recommended consumables for automated or manual operations.
5. Please read the manual carefully before the experiment.
6. If you have other questions, please contact MGI technical support:

   MGI-service@mgi-tech.com

## C. MGISP-960 Automated Extraction Standard Workflow

### C.1. MGISP-960 Automated Extraction Preparation

#### 1. Instrument Setup

1) Before first use, install application scripts according to ***MGISP-100 & MGISP-960 Application Script Installation Instructions.***
2) Perform a pre-clean after powering on the device and before experiment according to ***MGISP-100 & MGISP-960 Cleaning Instructions***.

#### 2. Preparing Consumables

Take out the consumables required for one workflow at room temperature for further use, as listed in the table below:

Table 4. Customer-prepared Materials for MGISP-960 Automated Extraction

| Consumables | Brand | Cat. No. | Quantity |
|---|---|---|---|
| 250 µL automated filter tips | MGI | 1000000723 | 4 Boxes |
| 1.3 mL U-bottom deep-well plate | MGI | 1000004644 | 1 Plate |
| Hard-shell thin-wall 96-well skirted PCR plates, white shell/clear well | MGI | 1000012059 | 1 Plate |

## 3. Preparing Samples

The script of MGISP-960 automation system is suitable for 96 sample.

According to the type of sample, the samples need to be prepared before running on MGISP-960. Take 180 μL sample to a deep-well plate (MGI, 1000004644). And make sure that there are no bubbles at the bottom and no hanging liquid on the side walls. Keep on ice for later use.

## 4. Preparing Reagents

1) Take out the pre-packaged 96-well plate from the kit, remove the outer packing; Reverse mixing several times to re-suspend the magnetic beads T, then collect the beads to the bottom with plate centrifuge at 500 rpm for 30 s. Other reagents are centrifuged with 3000 rpm for 1 min to collect reagent at the bottom. Tear the aluminum film carefully, avoid the liquid spills out. Placing the reagent to the corresponding position, as shown in table 5 and picture 6.

2) Put a new lid of 250 μL automatic filter tips to Pos22 and add 65 mL absolute ethanol to the lid.

Table 5. First Phase Operation Deck Layout

| Name | Position |
|---|---|
| 250 μL automated filter tips | Pos1-Pos4 |
| Hard-shell thin-wall 96-well skirted PCR plates, white shell/clear well | Pos12 |
| Nuclease Free Water | Pos13 |
| Buffer FW2 | Pos14 |
| Proteinase K | Pos15 |
| Magnetic Beads T | Pos16 |
| Sample | Pos17 |
| Buffer FLB | Pos20 |
| Buffer FW1 | Pos23 |

## C.2. MGISP-960 Operation

1) Double-click the icon of MGISP-960 on the desktop. The mode selection interface is displayed, as shown in following figure 1. Select "**Real**" and click "**Create**".


Figure 1. Mode Selection Interface

2) In the Authentication interface, click "**User Entry**" to enter the initialization interface.

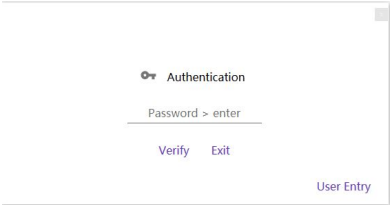


Figure 2. Authentication Interface

3) The initialization interface is displayed, as shown in following figure 3.

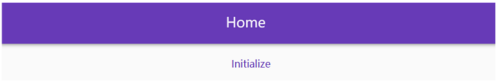


Figure 3. Initialization Interface

4) Click **"Initialize"**. The initialization takes about 2 min. If Initialize successfully is displayed (as shown in following figure 4, the device is connected successfully, and you can go to the next step

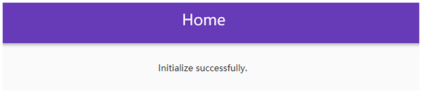


Figure 4. Initialization Successful Interface

***Note: If the initialization fails, check whether the power switch is turned on, and whether more than one software program is running. Try to restart the software. If the problem persists, contact MGI technical support.***

5) Click the menu button and select "**Run Wizard"** in the menu. In the Run Wizard interface, click "**Solution"**, and select **[JB-A09-034 MGISP-960 Nucleic Acid Extraction Kit (VDR02P-96) ]**, click "**Script"**, to select **[Nucleic Acid Extraction Kit (VDR02P-96) ]**, operation deck arrangement of the first phase is displayed, as shown in following figure 6 and table 5. Follow the on-screen instructions to place the consumables, samples, and reagents, as shown in the figure 6. Confirm the placement and close the door.

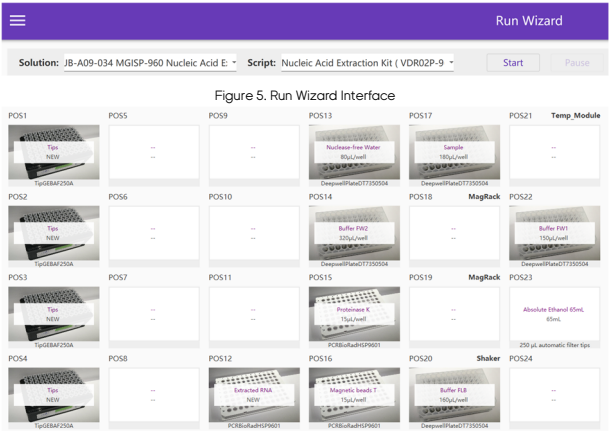


Figure 5. Run Wizard Interface

Figure 6. First Phase Operation Deck Arrangement

6) Click "**Run**" to start extraction workflow.

7) It is expected to run 40 min. After the process is finished, take out the product at Pos12.

8) Perform the next testing operation.

9) Dispose of the used deep-well plates, PCR plates, and waste bag to the designated waste area. Perform a post-clean before powering off the device according to ***MGISP-100 & MGISP-960 Cleaning Instructions***.

✔ **Stopping point：The extracted samples can be stored in the -80 °C refrigerator for a long time.**

**【Precautions】**

1. This product is only used for research. Please read this manual carefully before use;
2. Please familiarize the operation and precautions of various instruments to be used before testing;
3. The micro- Pipette should be used for sample addition;
4. All samples and reagents should be avoided to directly contact with skin and eyes; do not swallow, once happen, immediately rinse with plenty of water and go to the hospital for treatment in time;
5. All samples and various wastes should be treated in accordance with relevant regulations.

**【Production Company Information】**

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