MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-960) User Manual

Manual Version: 3.0

【Product Name】

MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-960)

【Package】

Cat. No.	Specification
1000027848	96 preps

【Intended Use】

Used for nucleic acid extraction, enrichment, purification.

【Inspection Principle】

In this product, the high salt lysate can release DNA from the sample. The released nucleic acid will be captured by the superparamagnetic nano magnetic beads with high binding force. The impurities bound on the surface of nucleic acid will be washed away by the washing solution. Finally, the nucleic acid on the magnetic beads will be eluted to obtain high-quality genomic DNA. The extracted genomic DNA can be used for various applications such as enzyme digestion, PCR, fluorescent quantitative PCR, library construction, high-throughput sequencing.

【Kit Components】

Table 1 Main Components and Specification

Reagent	Package and Amount (96 preps)
Buffer LYS	230 μL × 96/Plate × 1 Plate
Buffer W1	160 μL × 96/Plate × 1 Plate
Buffer W2	160 μL × 96/Plate × 1 Plate
Buffer TE	120 μL × 96/Plate × 1 Plate
Proteinase K	15 μL × 96/Plate × 1 Plate
Magnetic Beads H	20 μL × 96/Plate × 1 Plate

Note: Do not mix components of the reagent kits from different batches.

【 Storage Conditions 】

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

Table 2 Reagents Storage Conditions and Validity Period

Reagent	Storage Conditions	Validity Period
Proteinase K	2°C to 30°C	12 Months
Magnetic Beads H	2°C to 30°C	12 Months
Others	0°C to 30°C	12 Months

Note:

1. **Proteinase K and magnetic beads H can be transported at 2°C to 30°C. For long-term storage, please store at 2°C to 8°C.**
2. **The Buffer LYS and Buffer W1 may have precipitation, which will not affect the function. If precipitation occurs, please heat the reagent bottle in a 37°C water bath properly for 10 mins approximately until the precipitation disappears, then mix thoroughly for use.**

【 Applicable Automation Instrument 】

Applicable automation instrument:

High-throughput automated sample preparation system, Model: MGISP-960 configuration 1/2/6/7/8/9/10.

【 Sample Conditions 】

1. This kit is suitable to extract DNA from blood, saliva and buffy coat.
2. The samples can be stored at 4°C if will be extracted within 24 h after collection. If the samples will not to be extracted within 24 h, please stored at -70°C or below. Avoid repeated freezing and thawing; frozen samples need to be thawed and mixed before use.
3. Please use dry ice for sample transportation. Don't transport the samples for more than 7 days. Avoid repeated freezing and thawing during transportation.
4. All samples are regarded as potentially infectious items. Please treat it in accordance with relevant national standards.

【 Experimental Workflow 】

Please follow the workflow below:

A. Required Materials Not Supplied

Table 3 Equipment and Materials Required but not Provided

Type	Item Name	Note
Instrument	Vortex	/
	Desktop Centrifuge	Rotation speed not lower than 10,000 rpm/min
	Plate Centrifuge	/
	Pipette	1 mL、200 μL、20 μL
Reagent	Absolute Ethanol	AR
	Isopropanol	AR
Consumable	Tips	1 mL、200 μL、20 μL

Table 4 Customer-prepared Materials for Automation

Consumables	Brand	Cat. No.	Quantity
250 μL automated filter tips	MGI	1000000723	7 boxes
1.3 mL U-bottom deep-well plate	MGI	1000004644	2 plates
Half-skirted 96-well PCR plate	MGI	1000000671	1 plate
Adapter (for half-skirted 96-well PCR plate)	MGI	010-901739-00	1 plate

Note:

1. **For configuration 1/2/6/7/8/10-MGISP-960, adapter (MGI, 010-901739-00) needs to be purchased.**
2. **The usage of Adapter+ half-skirted 96-well PCR plate is as shown in the following figure (Adapter reusable), and can directly replace the Hard-shell thin-well skirted PCR plates, white shell/clear well (MGI, 1000012059).**

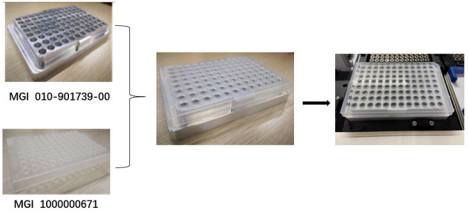

Figure 1 The usage of Adapter+ half-skirted 96-well PCR Plate

B. Read Before Use

1. Before experiment, read through the operation guide of the related reagent kits.
2. Avoid repeatedly freezing and thawing samples, which may result in low DNA quality.
3. If Buffer LYS and Buffer W1 has precipitation, it can be re-dissolved in a 37°C water bath. Shake and mix thoroughly before use.
4. All reagents and samples need to be equilibrated to room temperature (10°C to 30°C) before use.
5. Please don't use the consumables not recommended.
6. Before first use, install application scripts according to *MGISP-100 & MGISP-960 Application Script Installation Instructions*.
7. Perform pre-cleaning after powering on the device and before experiment; perform post-cleaning after experiment and before powering off the device according to ***MGISP-100 & MGISP-960 Cleaning Instructions***.
8. Buffer TE contains 10 mM Tris-HCl (pH8.0) and 0.5 mM EDTA (pH8.0); users can self-prepared.

C. Automated Extraction Standard Workflow

According to sample type, you can select appropriate conditions for automated DNA extraction from the following scripts:

"Genomic DNA Extraction for Blood Prepacked Kit.py" for whole blood, fresh saliva, and buffy coat

samples.

"Genomic DNA Extraction for Saliva Prepacked Kit.py" for saliva samples in preservation fluid.

1. Preparing Consumables

Take out the consumables required for one workflow at room temperature for further use, as listed in the Table 4.

2. Preparing Samples

Take out a deep-well plate (MGI, 1000004644), mark it as "Sample plate". Vortex the sample and distribute it to the sample plate, see Table 5 for the sample volume. And make sure that there are no air bubbles at the bottom and no hanging liquid on the inner walls. Place on ice for later use.

Table 5 Recommended Starting Amount of Samples

Sample Types	Volume (μL)
Whole Blood/Fresh Saliva	140
Buffy Coat	100
Saliva in Preservation Fluid	300

3. Preparing Reagents

1) Take out reagents from the "MGIEasy Blood Genomic DNA Extraction Prepacked Kit" and place at room temperature (see Table 6).

Table 6 MGIEasy Blood Genomic DNA Extraction Prepacked Kit

Kit	Reagent	Configuration
MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-960) Cat. No. 1000027848	Buffer LYS	230 μL*96 well
	Buffer W1	160 μL*96 well
	Buffer W2	160 μL*96 well
	Buffer TE	120 μL*96 well
	Proteinase K	15 μL*96 well
	Magnetic Beads H	20 μL*96 well

Note: The reagent plate in the kit can be directly used for automated operation.

2) Take out a deep-well plates (MGI, 1000004644), and label it as "Isopropanol", according to Table 7 to add reagent to the deep-well plates.

Table 7 Reagent Volume Input

Reagent	Consumables	Brand	Cat. No.	Volume/well
Isopropanol	Deep-well plate	MGI	1000004644	230 μL

4. Instrument Operation

1) Before use, perform pre-cleaning before experiment according to *MGISP-100 & MGISP-960 Cleaning Instructions*.

2) Double-click the icon of MGISP-960 on the desktop. The mode selection interface will display, as shown in Figure 2. Select **"Real"** and click **"Create"**.

Figure 2 Mode Selection Interface

3) In the authentication interface, click **"User Entry"** to enter the initialization interface.

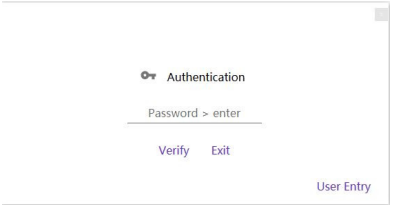

Figure 3 Authentication Interface

4) The initialization interface will display, as shown in Figure 4.

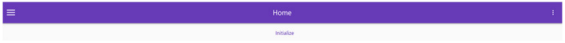

Figure 4 Initialization Interface

5) Click **"Initialize"**. The initialization will take about 2 mins. If Initialized is successfully displayed

(as shown in Figure 5), the device is connected successfully, and you can go to the next step.

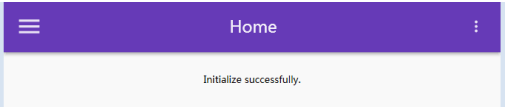

Figure 5 Initialization Successful Interface

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 unsolved, contact MGI technical support.

6) Click the menu button and select **"Run Wizard"** in the menu. In the Run Wizard interface, click **"Solution"**, select **"JB-A09-096 MGIEasy Blood Genomic DNA Extraction Prepacked Kit_RV1.0_SV1.0"**. Click **"Script"**, and select **"Genomic DNA Extraction for Blood Prepacked Kit.py"** or **"Genomic DNA Extraction for Saliva Prepacked Kit.py"** according to the sample type. Take blood sample extraction as an example, operation deck arrangement of the genomic DNA extraction is displayed, as shown in Figure 7 and Table 8. Follow the on-screen instructions to place the consumables, samples, and reagents, as shown in Figure 7. Confirm the placement and close the door.

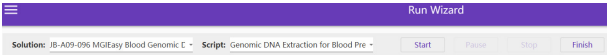

Figure 6 Run Wizard Interface

Figure 7 Genomic DNA Extraction Operation Deck Arrangement

Table 8 Genomic DNA Extraction Operation Deck Arrangement

Name	Consumable Type	Position
250 µL automated filter tips	/	Pos1-Pos7
gDNA	Adapter+ half-skirted 96-well PCR plate	Pos12
Buffer TE	1.3 mL U-bottom deep-well plate	Pos13
Buffer W1	1.3 mL U-bottom deep-well plate	Pos14
Buffer W2	1.3 mL U-bottom deep-well plate	Pos15
Magnetic Beads H	Hard-shell thin-wall 96-well skirted PCR plates, white shell/clear well	Pos16
Proteinase K	Hard-shell thin-wall 96-well skirted PCR plates, white shell/clear well	Pos17
Isopropanol	1.3 mL U-bottom deep-well plate	Pos18
Sample plate	1.3 mL U-bottom deep-well plate	Pos20
Buffer LYS	1.3 mL U-bottom deep-well plate	Pos22
Absolute Ethanol	Automatic tips box lid	Pos23

Note:

1. **The reagent plate need to be centrifuged using plate centrifuge to ensure that there are no air bubbles in the bottom of the plate and no hanging liquid on the inner wall.**
2. **Make sure that the sealing films on all reagent plates have been removed before running.**
3. **Make sure that the automatic tips box lid has been placed at pos23 and the absolute ethanol added before running.**

7) Click **"Run"** to start genomic DNA extraction workflow.

8) It will take 1 h 50 mins approximately. After the process is finished, the product at Pos12 can be taken out.

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

✔ **Stopping point: The extracted gDNA can be stored in the -20°C.**

【 Precautions 】

1. This product is only used for scientific research, not for clinical diagnosis; please read this instruction carefully before use;
2. Please familiarize yourself with the operation and precautions of various instruments to be used before testing;
3. When all the reagents are taken out from the specified storage environment, please use them according to the requirements. The reagents should be shaken and mixed before use;
4. The micropipette should be used for sample addition;
5. Please avoid directly contacting any sample or reagent with skin and eyes, do not swallow reagent; once happen, immediately rinse with plenty of water and go to the hospital for treatment in time;
6. All samples and various wastes should be treated in accordance with relevant regulations.

【 Production Company Information 】

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