MGISP-NE384

MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-NE384) Instructions

Software Version: V1.3.2.70

Hardware Version: MGISP-NE384

Kit Version: V1.0

Automation Version: V1.0

Revision History

Automation Version	Date	Description
V1.0	Apr 2021	◆ Initial release.

Contents

Chapter 1 Product Description

1.1 Introduction

MGISP-NE384 is a high-throughput automated nucleic acid extraction and purification system of MGI. This document is intended to guide you to perform genomic DNA extraction (with MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-NE384)) on MGISP-NE384. The preparation workflow is strictly tested and repeated to ensure maximum stability and repeatability.

1.2 Software

The applicable software version to this manual is V1.3.2.70.

1.3 Hardware

The applicable hardware version to this manual is MGISP-NE384.

1.4 Applicable Reagent Kits

The suitable kit is MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-NE384)

Table1-1 Main components of nucleic acid extraction reagent (96RXN)

Kit	Item	Specification and quantity
MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-NE384) Box1 Cat.No.1000027847	Buffer LYS	300 μL/well x 1 plate
	Buffer WB1	1000 μL/ well x 1 plate
	Buffer W2	600 μL/ well x 2 plate
MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-NE384) Box2 Cat.No.1000027847	TE Buffer	200 μL / tube x 1 plate
	Proteinase K (20 mg/mL)	2300 μL / tube x 1
	Magnetic beads H	100 μL / tube x 1 plate

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

1.4.1 Reagent storage and transport environments and expiration date

Table1-2 Storage conditions of different reagents and expiration date

Item	Storage environment	expiration date
MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-NE384) Box1	0°C-30°C under dry conditions	12 months

MGIEasy Blood Genomic DNA Extraction Prepacked Kit (MGISP-NE384) Box2	2°C-8°C	12 months

1.5 Sample requirements

1. This kit is suitable for sample types:

   Applicable to fresh blood, whole blood, frozen blood, buffy coat, plasma-free frozen blood, Salivary preservation fluid sample.

2. If the samples need to be tested within 24 hours after collection, store it at 4 ℃; if the samples will not be tested within 24 hours, store it at -70 ℃ or below after collection. Avoid repeated freezing and thawing. Before use of frozen samples, thaw and mix them thoroughly. Fresh saliva samples should be tested immediately after collection. Saliva samples are recommended to be used with a saliva collector (MGI No. 1000025954), and can be stored at room temperature after collection.

3. Sample transportation: blood samples use dry ice for transportation. The transportation duration should last no more than 7 days. Avoid repeated freezing and thawing during transportation. Use the saliva collector to preserve the sample and transport it at room temperature.

1.6 Materials required but not provided

Table 1-3 Materials required but not provided

Equipment	Vortex Mini centrifuge Plate Centrifuge Pipette
Consumables	Pipette tips 96-well PCR plate 1.5 mL Microfuge Tubes
Reagents	Isopropyl alcohol (Analytical reagent) Saliva Collection Set (MGI Cat No. 1000025954)

Table 1-4 Customer-prepared Materials for Automation

Consumables	Brand	Cat. No.	Quantity
96-well tip comb	MGI	1000025661	4 pieces

After the extraction, the extracted product can be transferred to a 96-well PCR plate for storage. If there is no need to transfer the product, the [96-well PCR plate] consumable is unnecessary. If you do not need to extract the saliva sample, you do not need to prepare the

[Saliva Collection Kit].

1.7 Precautions

1. Avoid repeated freezing and thawing of the frozen samples, otherwise the quality of DNA of the samples might be reduced.
2. Take out the components from reagent kit before use, and thaw it under room temperature (10℃ to 30℃), mix them thoroughly before repacking.
3. If Buffer LYS and Buffer WB1 precipitate, redissolve them in a 37 °C water bath and mix thoroughly centrifugation before use.
4. Only the recommended consumables can be used.
5. Before experiment, read relevant reagent kit user manual carefully.
6. Perform cleaning before experiment and after experiment respectively.
7. Dispose the samples and wastes according to related regulatory standards.

Chapter 2 Standard workflow of automated extraction

2.1 Preparing Device and Consumable

1. Before first use, please confirm that the application script has been imported into the location of MGISP-NE384.
2. Before starting each round of experiment, please make sure that the machine has finished [**clean**].
3. According to the requirements of the samples, each set of reagent plates should be prepared with a 96-well tip comb.

2.2 Preparing Samples

1. The automated sample preparation system can process 96, 192, 288, 384 samples at one time.
2. Pretreat the sample to be extracted and place the samples on ice for later use.

2.3 Preparing Reagents

1. Take out the pre-packaged 96-well plate from the kit, remove the outer packing, centrifuged with 3000 rpm for 1 min to collect reagent at the bottom.
2. Add the samples into the 1.5 mL tube according to Table 2-1, add 20 μL Proteinase K to each sample, mixed thoroughly to ensure that the mixture are completely resuspended. (Please start the extraction experiment within 30 mins after the preparation of this mixture).

Table 2-1 Recommended sample input volume

Sample type	Sample volume	Isopropyl alcohol volume
buffy coat, plasmapheretic frozen blood	200 μL	350 μL
fresh blood, whole blood, frozen blood	200 μL	350 μL
Salivary preservation fluid sample/ Fresh saliva	300 μL	350 μL

The input volume of blood samples must ≥ 100 μL, and the input volume of salivary preservation fluid sample / Fresh saliva must ≥ 200 μL.

3. Transfer 220 μL sample and the proteinase K mixture into each well of the Buffer LYS mixture plate, be careful to avoid cross-contamination.

2.4 Instrument Operation

1. Double-click the icon of MGISP-NE384 on the desktop. The authentication interface will be displayed. Select User, enter password: 123456，click login.

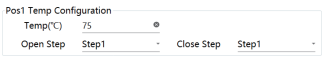
2. The initialization interface will be displayed.

3. Click **Initialize**. The initialization will take approximate 1 minutes. If Initialize successfully displayed, means the device connected successfully, and you can go to the next step.

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

4. Select the [**Process Manage**] option, and click [**Add**] or [**Import**] to set the extraction process.

a) New Program: Click [**Add**], edit the program according to the parameters shown in Figure 2-1, and click [**Pos Feature**], input position information according to Table 2-2, and click [**Save**] after editing.



Paramaters	Step1	Step2	Step3	Step4	Step5	Step6
Process	Lysis	Lysis	Beads	Bind	Wash-W1	Wash-W2
Pos	Pos1	Pos1	Pos2	Pos1	Pos3	Pos4
Volume(μL)	520	870	100	870	1000	600
Delay Time(s)	0	0	0	0	0	0
If Mix	True	True	False	True	True	True
Mix Type	Nomal	Nomal	Nomal	Nomal	Nomal	Nomal
Mix Time(s)	1	30	1	120	180	120
Mix Rate	Middle	Middle	High	Middle	High	High
If Collect	False	False	True	True	True	True
Collect Mode	Normal	Normal	Cycle	Cycle	Cycle	Cycle
Collect Cycle	1	1	3	4	4	4
Collect Time(s)	1	1	10	1	1	1
If Dialog	True	False	False	False	False	False
Dialog Content	Add 350 μl isopr					

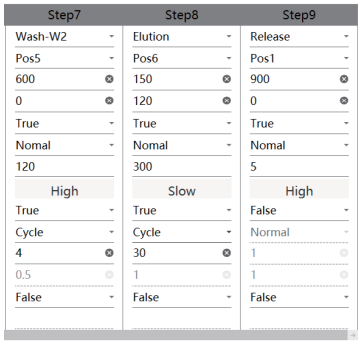


Figure 2-1 Process editing interface

The interface content of POS1 is: Add 350 μl isopropyl alcohol to each well of POS1 plate.

Table 2-2 Pos Info

Pos1	Buffer LYS +Sample+ Proteinase K
Pos2	Magnetic beads H
Pos3	Buffer WB1
Pos4	Buffer W2
Pos5	Buffer W2
Pos6	TE Buffer

b) Import program: Click [**Import**] to import [**MGIEasy Blood DNA Extraction Prepacked Kit (MGISP-NE384)_V1.0.mg**[] .

5. Select the [**Clean**] option, emptying the console, wiping the console and tray with a dust-free paper soaked with 75% alcohol and closing the window. click **Start**, and the instrument will open the fan filter unit and UV lamp to clean the internal environment of the instrument. The default cleaning time is 20 minutes. You can also modify the cleaning time accordingly.

6. After [**Clean**], return to the main interface select [**Workflow**].

7. In the [**Workflow**] interface, Click **Script**, select **MGI Nucleic Acid Extraction_V1.2**. Follow the on-screen instructions to place the consumables and reagents, as shown in following figure 2-2. Confirm the placement and close the door.

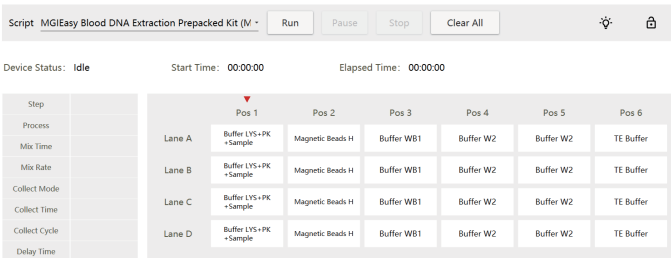


Figure 2-2 Operation Deck Layout

Table 2-3 Operation Deck Layout

Reagents	Position
Buffer LYS +Sample+ Proteinase K	LaneA、LaneB、LaneC、LaneD：Pos1
Magnetic beads H	LaneA、LaneB、LaneC、LaneD：Pos2
Buffer WB1	LaneA、LaneB、LaneC、LaneD：Pos3
Buffer W2	LaneA、LaneB、LaneC、LaneD：Pos4, Pos5
TE Buffer	LaneA、LaneB、LaneC、LaneD：Pos6

8. Confirming the consumables and reagents are placed correctly, close the instrument window. Click **Run**, The interface will be displayed as shown in figure2-3. Check the corresponding test channel according to the number of samples and check the 96-well tip comb are placed correctly. Click the **Confirm**.

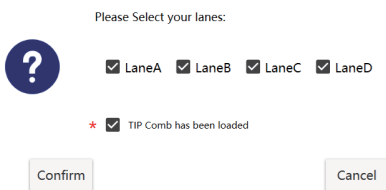


Figure 2-3 selection test channel and magnetic rod sleeve interface

9. After the process runs for 15 minutes, the interface as shown in Fig. 2-4 will appear. According to the reminder, take out the plate in POS1 and add 350 μ l isopropanol into each well with the pipette then put it back to POS1. Clicking the **Confirm** button, the process continues to run.

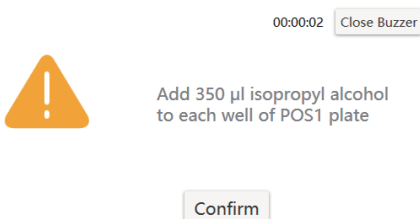


Figure 2-4 Add isopropanol interface

If a interface appears after opening the hatch door, please click the " Confirm" button on the two interfaces after adding reagents, and then click the "Resume" button to continue the process.

10. The whole run will take approximate 50 minutes, please arrange the following work properly.

11. After the run ended, please take out the extraction product of pos6 immediately. It can be used directly for subsequent experiments or stored at -20°C.

12. Dispose the used deep-well plates and magnetic bar protection case. Select the [**Clean**] option, emptying the console, wiping the console and tray with a dust-free paper soaked with 75% alcohol and closing the window. click **Start**, and the instrument will open the fan filter unit and UV lamp to clean the internal environment of the instrument. The default cleaning time is 20 minutes. You can also modify the cleaning time as needed.

After the experiment, please take out the extracted product immediately. It is forbidden to leave the product at pos6 for a long time, otherwise it will affect the quality of the product.

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