Mag Beads Blood Genomic DNA Extraction Kit

【Product Name】

Mag Beads Blood Genomic DNA Extraction Kit

【Package Specifications】

50T/box（Art.No.GP102-50），300T/box（Art.No.GP102-300）

64T/box（Art.No.GP102-64），96T/box（Art.No.GP102-96）

【Intended Use】

This product is designed for extracting genomic DNA from 0.1-0.3 mL of whole blood, with the resulting product intended for clinical in vitro diagnostics.

【Detection Principle】

DNA binds to the surface of silicon-based Magbeads under high salt conditions. After multiple washes to remove impurities such as proteins, DNA is eluted under low salt conditions, resulting in high-purity genomic DNA.

【Main Components】

Components	GP102-50	GP102-300	GP102-64	GP102-96
Binding Buffer	30mL	180mL	580μL*64	580μL*96
Washing Buffer	62mL	372mL	600μL*4*64	600μL*4*96
Eluant	6mL	34mL	100μL*64+1mL	100μL*96+1mL
Bead Suspension	1.05mL	6.2mL	1.35mL	1mL*2
Proteinase K	1.05mL	6.2mL	1.35mL	1mL*2

【Storage Conditions and Shelf Life】

The magnetic bead suspension should be stored at 2-8°C, and Proteinase K should be stored below 4°C, with a shelf life of one year. The remaining reagents should be stored at room temperature with a shelf life of one year. Transportation is permissible at 4-37°C for up to 14 days.

【Self-provided Equipment and Reagents】

1. Equipment: Nucleic acid extraction instrument, magnetic bar sleeves, centrifuge tubes, magnetic racks, vortex oscillators, pipettes, constant temperature oscillators, etc.

2. Reagents: 75% ethanol.

【Sample Requirements】

1. Applicable Sample Types: Whole blood, mixtures of red and white blood cells, etc.

2. Sample Preservation: Extraction can be performed immediately or samples can be stored at 2-8°C for up to 24 hours before processing. For long-term storage, samples should be kept at -20°C.

【Precautions】

1. Magnetic beads must not be frozen, and the magnetic bead suspension should be thoroughly mixed before use.

2. Before each use, check if any components have precipitated. If so, they can be re-dissolved at 60°C.

【Manual Extraction Procedure using Centrifuge Tubes】

1. Preparation: Frozen samples should be thawed at room temperature or 4°C in advance. Set the constant temperature shaker to 60°C with a speed of 1600rpm.

2. Digestion and DNA Binding: Add 20μL of magnetic bead suspension, 100-300μL of blood sample (if the sample volume is insufficient, top up with elution buffer), 580μL of binding solution, and 20μL of Proteinase K to a centrifuge tube. Cover the tube, vortex mix, and shake at 1600rpm, 60°C for 30 minutes.

3. Magnetic Separation: Spin the centrifuge tube in the centrifuge for 5 seconds, then place it on the magnetic rack and let it stand for 40 seconds to ensure complete adsorption

of the magnetic beads by the rack. Carefully remove the supernatant (keep the centrifuge tube fixed on the magnetic rack throughout the process), avoiding contact with the magnetic beads.

4. Wash 1: Remove the centrifuge tube from the magnetic rack, add 600μL of wash solution, cover the tube, vortex oscillate for 2-3 minutes to ensure thorough mixing of the magnetic beads, and perform magnetic separation.

5. Wash 2: Repeat step 4 once.

6. Wash 3: Remove the centrifuge tube from the magnetic rack, add 600μL of 75% ethanol, cover the tube, vortex oscillate for 1-2 minutes to ensure thorough mixing of the magnetic beads, and perform magnetic separation.

7. Wash 4: Repeat step 6 once.

8. Ethanol Removal: Place the centrifuge tube on the magnetic rack, then air-dry in a fume hood for 5 minutes (until no shiny surface of liquid is visible on the magnetic beads).

9. Elution: Remove the centrifuge tube, add 100μL of elution buffer, vortex mix for 20 seconds to ensure thorough mixing of the magnetic beads with the elution buffer, and shake at 55°C for 10 minutes.

10. Nucleic Acid Transfer: Place the centrifuge tube on the magnetic rack and let it stand for 1 minute. Transfer the supernatant to a clean centrifuge tube free of nucleases and store at -20°C for future use.

【Automated Operation Steps for 16/32-Channel Nucleic Acid Extractor】

1. Sample Preparation: Add the corresponding amounts of reagents to each well of a 96-well plate according to the table below, allowing simultaneous processing of 16/32 samples.

Position	1、7	2、8	3、9	4、10	5、11	6、12
Reagent	Binding Buffer（580μL）	Washing Buffer（600μL）	Washing Buffer（600μL）	75% Ethanol（600μL）	75% Ethanol（600μL）	Eluant（100μL）

Note: Product code GP102-64, with 64 tests per box, contains pre-packaged reagents and does not require sample preparation. Proceed directly to step 2.

2. Adding Blood Sample (Thaw frozen samples in advance): Add 100-300μL of blood sample to the first column (1/7) of the 96-well plate, then add 20μL of magnetic bead suspension and 20μL of Proteinase K. If the blood sample volume is less than 200μL, top up with elution buffer to reach 200μL.

3. Automated Extraction: Place the prepared 96-well sample plate into the QP-AUT-32 nucleic acid extractor or a similar model, and insert the magnetic rod sleeve. Open the instrument's operating program, select the appropriate program, click "Run," and begin the extraction process.

4. Nucleic Acid Transfer: After the instrument has completed the extraction process, transfer the eluate from either the 6th or 12th column to a clean centrifuge tube free of nucleases, and store it at -20°C for future use.

The parameters for the 32-channel nucleic acid extractor (QP-AUT-32) program are set as follows

Step	Site	Name	Waiting time(min)	Mixing time（min）	Suction time(sec)	Volume (μL)	Mixing velocity	Temperature
1	1	Lysis Binding	0	30	120	860	3	105
2	2	Washing1	0	4	60	600	3	OFF
3	3	Washing1	0	3	60	600	3	OFF
4	4	Washing2	0	2	60	600	3	OFF
5	5	Washing2	0	1	60	600	3	OFF

6	6	Elution	2	15	120	100	3	80℃
7	5	Abandon beads	0	1	0	600	3	OFF

【Operation Steps of the 96-channel Nucleic Acid Extractor】

1. Paraffin Tissue Digestion:

Follow the steps outlined in the "Manual Centrifuge Tube Operation Procedure."

Position	1	2	3	4	5	6
Reagent	Binding Buffer（580μL）	Washing Buffer（600μL）	Washing Buffer（600μL）	75% Ethanol（600μL）	75% Ethanol（600μL）	Eluant（100μL）

Note: Product code GP102-96, with 96 tests per box, contains pre-packaged reagents and does not require sample preparation. Proceed directly to step 2.

2. Adding Blood Sample (Thaw frozen samples in advance): Add 100-300μL of blood sample to the well 1 of the 96-well plate, then add 20μL of magnetic bead suspension and 20μL of Proteinase K. If the volume is less than 200μL, top up with elution buffer to reach 200μL.

3. Automated Extraction: Place the prepared 96-well sample plate sequentially into the QN-AUT-96 nucleic acid extractor or a similar model, and insert the magnetic rod sleeve. Open the instrument's operating program, select the corresponding program, click "Run," and begin the extraction process.

4. Nucleic Acid Transfer: After the instrument has completed the extraction process, directly seal or transfer the eluate from the well 6 to a clean centrifuge tube free of nucleases, and store it at -20°C for future use.

The parameters for the 96-channel nucleic acid extractor (QP-AUT-96) program are set as follows

Procedure	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Station	1	2	3	4	5	6	5
Waiting time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:02:00	00:00:00
Mixed model	3	3	3	3	3	3	3
Mixing time	00:30:00	00:04:00	00:03:00	00:02:00	00:01:00	00:15:00	00:00:30
Suspend	No	No	No	No	No	No	No
Suction time	00:02:00	00:01:00	00:01:00	00:01:00	00:01:00	00:01:00	00:00:00
Volume	860μL	600μL	600μL	600μL	600μL	100μL	600μL
Temperature	105℃	—	—	—	—	80℃	—

【Basic Information】

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