Mag Beads Universal Genomic DNA Extraction Kit

【Product Name】

Mag Beads Universal Genomic DNA Extraction Kit

【Package Specifications】

50T/box（Art.No.GP221-50）; 100T/box（Art.No.GP221-100），
300T/box（Art.No.GP221-300）; 500T/box（Art.No.GP221-500）

【Intended Use】

This product is designed for the extraction of genomic DNA from samples such as 0.2mL whole blood, cell suspensions, swabs, saliva, blood spots, etc. The extracted DNA is suitable for downstream experiments including PCR, qPCR, library construction, Southern blotting, and other applications.

【Detection Principle】

Under high salt and low pH conditions, DNA binds to the surface of Magbeads coated with silica. After multiple washes to remove impurities such as proteins, the DNA is eluted under low-salt conditions, resulting in high-purity DNA.

【Main Components】

Components	GP221-50	GP221-100	GP221-300	GP221-500
Lysate	11mL	22mL	65mL	110mL
Washing buffer	40mL	80mL	240mL	400mL
Eluant	6mL	12mL	35mL	60mL
Bead suspension	1.1mL	1.1mL*2	6.5mL	11mL
Proteinase K	1.1mL	1.1mL*2	6.5mL	11mL

【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, both with a shelf life of one year. The remaining reagents can be stored at room temperature with a shelf life of one year.

- Transportation is allowed between 4-37°C, and the shipping duration should not exceed 14 days.

【Additional Reagents and Equipment】

Reagents to be provided by the user：80% ethanol、Isopropanol

User-provided equipment：Nucleic acid extractor、Centrifuge tubes or deep-well plates、Vortex mixer、Pipette、Constant temperature shaker

【Sample Requirements】

Applicable Sample Types: Whole blood, cell suspensions, saliva, blood stains, etc.

【Precautions】

1. Thoroughly mix the magnetic bead suspension before use.
2. If reagents appear turbid or precipitated, place them in a 37°C water bath until clarified.
3. In case of accidental skin or eye contact with the reagents, immediately rinse with water for 5-10 minutes.

【Manual Extraction Procedure using Centrifuge Tubes】

1. Lysis

Add 20μL proteinase K, 200μL sample, and 200μL lysis buffer to a centrifuge tube. Cap the tube, vortex for 10 seconds to mix thoroughly. Incubate at 60°C with constant shaking for 15 minutes (or in a 60°C water bath with vortex mixing every 3 minutes).

2. Binding

After lysis, add 300μL isopropanol and 20μL magnetic bead suspension. Vortex for 10 seconds to mix thoroughly and shake at room temperature for 10 minutes.

3. Magnetic Separation

Spin the tube in the centrifuge for 5 seconds and then place it on a magnetic stand for 40 seconds. Ensure complete adsorption of magnetic beads to the magnetic stand and discard the supernatant. Keep the tube fixed on the magnetic stand throughout, avoiding

direct contact with the magnetic beads.

4. Wash 1

Remove the tube from the magnetic stand and add 700μL wash solution. Cap the tube, vortex for 10 seconds, ensuring thorough mixing of the magnetic beads, and vortex for an additional 1 minute. Place the tube on the magnetic stand, invert 2-3 times, and let it stand until the magnetic beads are fully adsorbed. Discard the supernatant.

5. Wash 2

Remove the tube from the magnetic stand and add 700μL 80% ethanol. Cap the tube, vortex for 10 seconds, ensuring thorough mixing of the magnetic beads, and then vortex for 1 minute. Place the tube on the magnetic stand, invert 2-3 times, and let it stand until the magnetic beads are fully adsorbed. Discard the supernatant.

6. Wash 3

Remove the tube from the magnetic stand and add 700μL 80% ethanol. Cap the tube, vortex for 10 seconds, ensuring thorough mixing of the magnetic beads, and then vortex for 1 minute. Place the tube on the magnetic stand, invert 2-3 times, and let it stand until the magnetic beads are fully adsorbed. Discard the supernatant.

7. Ethanol Removal

Place the tube on the magnetic stand and leave it in a fume hood for 5 minutes to air-dry.

8. Elution

Take out the tube, add 100μL elution buffer, vortex for 20 seconds, ensuring thorough mixing of the magnetic beads and elution buffer. Shake at 60°C for 10 minutes (or in a 60°C water bath for 10 minutes, with vortex mixing four times during the process).

9. Nucleic Acid Transfer

Place the tube on the magnetic stand and let it stand for 1 minute. After complete adsorption of the magnetic beads, transfer the supernatant to a new centrifuge tube and store at -20°C for future use.

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

1. Sample Preparation

In a centrifuge tube, add 20μL of proteinase K, 200μL of the sample, and 200μL of lysis buffer. Mix thoroughly and incubate at 60°C with constant shaking for 15 minutes (or in a 60°C water bath for 15 minutes, with vortex mixing every 3 minutes during the incubation).

2. On-machine preparation

In a 96-well plate, add the specified amounts into each corresponding well according to the table below. Process 16/32 samples simultaneously.

Sample position	1、7	2、8	3、9	4、10	5、11	6、12
Reagent	Isopropanol（300μL）	Bead suspension（20μL） purified water（80μL）	Washing buffer（700μL）	80% Ethanol（700μL）	80% Ethanol（700μL）	Eluant（100μL）

3. On-machine Extraction

After the completion of the lysis process, briefly centrifuge the tube at low speed. Transfer the entire liquid to the first and seventh columns of a 96-well plate.Place the prepared 96-well sample plate into the nucleic acid extractor, insert the magnetic rod sleeve, open the instrument's operating program, click "run," and initiate the extraction process.

4. Nucleic Acid Transfer

Upon completion of the automated program, transfer the eluate from well 6 (or well 12) to a clean, nuclease-free centrifuge tube.

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	Ttempera ture
1	2	Moving beads	0	0	40	100	2	OFF
2	1	Combine	0	10	40	750	2	OFF

3	3	Washing buffer	0	3	40	700	3	OFF
4	4	80% Ethanol	0	2	40	700	3	OFF
5	5	80% Ethanol	0	2	40	700	3	OFF
6	6	Elution	2	10	50	100	3	60℃
7	5	Abandon beads	0	1	0	700	3	OFF

【Automated Extraction - 96 Channel Nucleic Acid Extractor Operation Steps】

1. Sample Preparation

In a centrifuge tube, add 20μL of proteinase K, 200μL of the sample, and 200μL of lysis buffer. Mix thoroughly and incubate at 60°C with constant shaking for 15 minutes (or in a 60°C water bath for 15 minutes, with vortex mixing every 3 minutes during the incubation).

2. On-machine preparation

Add the specified amounts to each corresponding well in the 96-well plate according to the table below. This can be done simultaneously for 96 samples.

Sample position	1、7	2、8	3、9	4、10	5、11	6、12
Reagent	Isopropanol（300μL）	Bead suspension（20μL） purified water（80μL）	Washing buffer（700μL）	80% Ethanol（700μL）	80% Ethanol（700μL）	Eluant（100μL）

3. Automated Extraction

After the lysis is complete, briefly centrifuge the tube at low speed. Transfer the entire liquid to the 96-deep well plate in position 1. Sequentially place the prepared 96-well plate into the nucleic acid extractor (QN-AUT-96) or a similar nucleic acid extractor.Insert the magnetic rod sleeve, open the instrument's operating program, select the corresponding program, click "run," and initiate the extraction process.

4. Elution Transfer

After the instrument completes its run, seal and store the eluate, or transfer it to a clean PCR plate without nucleases, and store at -20°C. The eluate can also be used directly for downstream experiments.

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

Procedure	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Station	2	1	3	4	5	6	5
Waiting time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00
Mixed model	2	2	3	3	3	2	3
Mixing time	00:00:00	00:01:00	00:03:00	00:02:00	00:02:00	00:10:00	00:00:30
Suspend	No	No	No	No	No	No	No
Magnetic suction time	00:01:00	00:01:00	00:01:00	00:01:00	00:01:00	00:01:00	00:01:00
Volume	100μL	750 μL	700 μL	700μL	700 μL	100 μL	700 μL
Temperature	/	/	/	/	/	60℃	/

【Basic Information】

Version Number: 1.1

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