Mag Beads Stool DNA Extraction Kit

【Product Name】

Mag Beads Stool DNA Extraction Kit

【Packaging Specifications】

50T/box（Art.No.GP711-50），100T/box（Art.No.GP711-100），
300T/box（Art.No.GP711-300），500T/box（Art.No.GP711-500）

【Intended Use】

This product is designed for the rapid extraction of high-concentration total DNA from fecal samples of less than 200mg. The obtained DNA can be directly used for experiments such as PCR, library construction, and bacterial DNA detection.

【Detection Principle】

DNA binds to the surface of Magbeads coated with silicon under high-salt conditions. After multiple washes to remove impurities, the elution is performed under low-salt conditions, resulting in high-purity genomic DNA.

【Main Components】

Component	GP711-50	GP711-100	GP711-300	GP711-500
Buffer SC1	31.5mL	63mL	190mL	315mL
Buffer SC2	5.3mL	10.5mL	32mL	52.5mL
Buffer SC3	10.5mL	21mL	63mL	105mL
Lysate	21mL	42mL	126mL	210mL
Washing buffer 1	15mL(+19.5mL anhydrou ethanol)	30mL(+39mL anhydrous ethanol)	90mL(+117mL anhydrous ethanol)	150mL(+195mLa nhydrous ethanol)
Washing buffer 2	15mL(+19.5mL	30mL(+39mL	90mL(+117mL	150mL(+195mL
	anhydrous ethanol)	anhydrous ethanol)	anhydrous ethanol)	anhydrous ethanol)
Bead suspension	1.05mL	2*1.05mL	6.5mL	10.5mL
Eluant	5.3mL	10.5mL	32mL	52.5mL
Proteinase K	1.05mL	2*1.05mL	6.5mL	10.5mL
Grinding beads	10.5g	21g	63g	105g

【Storage Conditions and Shelf Life】

Magbeads suspension should be stored at 2-8°C, Proteinase K below 4°C, and other reagents at room temperature. The shelf life for all components is one year;

Transportation can be done between 4-37°C, and the transit time should not exceed 14 days.

【Required Equipment and Reagents】

1．Equipment: Nucleic acid extractor, 2.2mL 96-deep well plate (U-bottom), Magnetic rod sleeve, Centrifuge tube, Magnetic stand, Vortex oscillator, Pipettor, Thermostatic oscillator, etc.;

2．Reagents: Anhydrous ethanol, 75% ethanol.

【Sample Requirements】

1．Applicable sample types: Human or animal feces.

2．Sample storage: Extraction can be performed immediately, for long-term storage, place at -80°C.

【Precautions】

1．Magbeads must not be frozen, and the suspension should be thoroughly mixed before use;

2．Before use, check for salt precipitation in buffer SC2 and lysis solution. If present, redissolve at 37°C;

3. Before use, ensure that ethanol has been added to washing solution 1 and washing solution 2.

【Single-Tube Manual Extraction Procedure】

1. Sample Processing: Take 0.2g of fecal sample in a 2mL centrifuge tube. For liquid samples, transfer 200 µL to the tube. Add 600µL Buffer SC1, 100µL Buffer SC2, and 0.2g grinding beads. Vortex and shake thoroughly, then heat at 70°C, 1500rpm for 15 minutes. Centrifuge at 12,000rpm for 2 minutes and transfer approximately 500µL of the supernatant to a new 2 mL centrifuge tube.

2. Inhibitor Removal: Add 200µL Buffer SC3, vortex, and shake well. Allow it to sit at 4°C for 5 minutes. Centrifuge at 12,000 rpm for 2 minutes and transfer 400 µL of the supernatant to a new 2mL centrifuge tube.

3. Nucleic Acid Lysis: Add 400µL Lysis Solution and 20µL Proteinase K. Shake well and heat at 70°C, 1500rpm for 10 minutes.

4. Nucleic Acid Binding: After lysis, add 400µL anhydrous ethanol and 20µL Magbeads suspension. Shake at room temperature for 10 minutes.

5. Magnetic Separation: Place the tube on a magnetic stand, invert 2-3 times, and let it stand for 40 seconds. Ensure complete adsorption of beads to the magnetic stand. Remove supernatant thoroughly (keeping the tube fixed on the magnetic stand) without touching the beads.

6. Wash 1: Remove the tube from the magnetic stand, add 600 µL Wash Solution 1, cover, vortex for 10s, spin for 1min (magnetic separation).

7. Wash 2: Repeat the process using 600 µL Wash Solution 2.

8. Wash 3: Repeat the process using 600 µL 75% ethanol.

9. Ethanol Evaporation: Place the tube on the magnetic stand and air dry for 5min in a fume hood.

10. Elution: Remove the tube, add 100µL Elution Solution, vortex for 20s, and incubate at 60°C for 10min. Vortex four times during incubation.

11. Nucleic Acid Transfer: Place the tube on the magnetic stand for 1min, transfer the supernatant to a new tube, and store at -20°C.

【Automated 16/32-Channel Nucleic Acid Extractor Operating Procedure】

1. **Sample Preparation:** In a 96-well plate, add the specified amounts for each corresponding well according to the table below, simultaneously processing 16/32 samples.

Position	1/7	2/8	3/9	4/10	5/11	6/12
Reagent	Anhydrous ethanol（300µL）	Beads（20µL）、Water（280µL）	Washing buffer 1（600µL）	Washing buffer 2（600µL）	75% Ethanol（600µL）	Eluant（80µL）

2. Sample Processing:

1) Take 0.2g of feces or soil sample and place it in a 2mL centrifuge tube. If the sample is liquid, transfer 200µL to the centrifuge tube. Add 600µL of buffer SC1, 100µL of buffer SC2, and 0.2g of grinding beads. Vortex and shake the mixture thoroughly, then heat and shake at 70°C and 1500rpm for 15 minutes. Centrifuge at 12,000 rpm for 2 minutes and transfer approximately 400-500µL of the supernatant to a new 2mL centrifuge tube.

2) Add 200µL of buffer SC3, vortex and shake the mixture, and let it stand at 4°C for 5 minutes. Centrifuge at 12,000 rpm for 2 minutes and transfer 300 µL of the supernatant to a new 2mL centrifuge tube.

3) Add 300µL of lysis solution and 20µL of proteinase K. Shake the mixture and heat at 70°C and 1500rpm for 10 minutes.

4) After lysis is complete, sequentially transfer the lysate to the first column or seventh

column of a 96-deep well plate for subsequent automated extraction.

3. On-Machine Extraction:

After adding the samples, insert the magnetic rod sleeve, open the instrument's operating program, select the appropriate program, and run the program.

4. Nucleic Acid Transfer:

After the automated program is complete, transfer the eluate from the first or seventh column of the 96-deep well plate to a clean nucleic acid-free centrifuge tube. Store the eluate 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	Tempera ture
1	2	Transfer beads	0	0	60	300	3	OFF
2	1	Comebine DNA	0	10	40	1000	3	OFF
3	3	Washing1	0	2	40	600	3	OFF
4	4	Washing2	0	1	40	600	3	OFF
5	5	75%Ethanol	0	1	40	600	3	OFF
6	6	Elution	3	10	60	80	3	60℃
7	5	Abandon beads	0	1	0	600	3	OFF

【Automated 96-Channel Nucleic Acid Extractor Operating Procedure】

1. **Sample Preparation:** In a 96-well plate, add the specified amounts for each corresponding well according to the table below, simultaneously processing 96 samples.

Position	1/7	2/8	3/9	4/10	5/11	6/12
Reagent	Anhydrous ethanol （300μL）	Beads（20μL）、Water（280μL）	Washing buffer 1 （600μL）	Washing buffer 2 （600μL）	75% Ethanol （600μL）	Eluant （80μL）

2. Sample Processing:

1) Take 0.2g of feces or soil sample and place it in a 2mL centrifuge tube. If the sample is liquid, transfer 200μL to the centrifuge tube. Add 600μL of buffer SC1, 100μL of buffer SC2, and 0.2g of grinding beads. Vortex and shake the mixture thoroughly, then heat and shake at 70°C and 1500rpm for 15 minutes. Centrifuge at 12,000rpm for 2 minutes and transfer approximately 400-500μL of the supernatant to a new 2mL centrifuge tube.

2) Add 200μL of buffer SC3, vortex and shake the mixture, and let it stand at 4°C for 5 minutes. Centrifuge at 12,000 rpm for 2 minutes and transfer 300μL of the supernatant to a new 2 mL centrifuge tube.

3) Add 300μL of lysis solution and 20μL of proteinase K. Shake the mixture and heat at 70°C and 1500rpm for 10 minutes.

3. On-Machine Extraction:

After the lysis is complete, transfer the lysate to well 1 of a 96-deep well plate. Then, sequentially place the prepared 96-well sample plate into the QN-AUT-96 nucleic acid extraction instrument or a similar type of extraction instrument, and insert the magnetic rod sleeve. Open the instrument's operating program, select the corresponding program, click run, and start the extraction.

4. Nucleic Acid Transfer:

After the instrument operation is complete, either directly seal the eluate from well 6 or transfer it to a clean nucleic acid-free centrifuge tube. Store the eluate 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	2	1	3	4	5	6	5
Waiting time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:03:00	00:00:00
Mixed model	3	3	3	3	3	3	3
Mixing time	00:00:00	00:10:00	00:02:00	00:01:00	00:01:00	00:10:00	00:00:30
Suspend	No	No	No	No	No	No	No
Suction time	00:01:00	00:01:00	00:01:00	00:01:00	00:01:00	00:01:00	00:00:00
Volume	300μL	1000μL	600μL	600μL	600μL	100μL	600μL
Temperature	—	—	—	—	—	60℃	—

【Basic Information】

Version Number: 1.1

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