Mag Beads Plant Genomic DNA Extraction Kit

【Product Name】

Mag Beads Plant Genomic DNA Extraction Kit

【Package Specifications】

50T/box（Art.No.BP203-50）；100T/box（Art.No.BP203-100）；

300T/box（Art.No.BP203-300）

【Intended Use】

This reagent kit is used for efficient extraction of genomic DNA from various conventional plant tissues and is suitable for use with automated and semi-automated nucleic acid extraction workstations. The extracted DNA can be used for various downstream molecular biology experiments such as PCR, Southern blot analysis, RAPD, AFLP, etc.

【Detection Principle】

DNA binds to the surface of silica-based mag beads 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	BP203-50	BP203-100	BP203-300
Lysate	26mL	52mL	156mL
Binding buffer	16mL	32mL	96mL
Wash buffer1	15.5mL（+15.5mL anhydrous ethanol）	31mL（+ 31mL anhydrous ethanol）	93mL（+ 93mL anhydrous ethanol）
Wash buffer2	14mL（+18.2mL anhydrous ethanol）	27mL（+35.1mL anhydrous ethanol）	80mL（+104mL anhydrous ethanol）
Elution buffer	6mL	12mL	36mL
Bead suspension	1.1mL	2*1.1mL	6.6mL
RNase A	300μL	550μL	1.6mL

【Storage Conditions and Shelf Life】

The magnetic bead suspension should be stored at 2-8°C, RNase A below 4°C, and the remaining reagents at room temperature. The shelf life for all components is one year. Transportation can be done between 4-37°C, with a maximum transit time of 14 days.

【Self-provided Equipment and Reagents】

1. Equipment: Nucleic acid extractor , 2.2mL 96-well deep plate (U-bottom), magnetic bar sleeve, centrifuge tubes, magnetic rack, vortex shaker, pipettor, heating shaker, etc.;

2. Reagents: Isopropanol, 80% ethanol.

【Precautions】

1. Before conducting the experiment, carefully read the instructions for this reagent kit and strictly follow the protocol.

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

3. Check for any precipitation in each component before each use. If precipitation occurs, it can be re-dissolved at 37°C.

4. Before use, add the specified amount (as indicated on the bottle) of absolute ethanol to Wash Solution 1 and Wash Solution 2 and store at room temperature.

【Single-tube Manual Operation Steps】

1. Tissue lysis:

1) Place fresh plant tissue (approximately 100mg) or dry weight tissue (approximately 300mg) in a mortar, add liquid nitrogen, grind thoroughly, quickly transfer the powdered

sample to a clean 1.5mL centrifuge tube, add 500μL lysis buffer and 5μL RNase A, vortex and shake at room temperature for 20 minutes.

2) After lysis, centrifuge at 12,000rpm for 5 minutes and transfer the supernatant to a new centrifuge tube.

2. DNA Binding:

Add 300μL binding solution, 300μL isopropanol, and 20μL magnetic bead suspension, vortex and mix for 5 minutes at room temperature.

3. Magnetic Separation:

Place the centrifuge tube on the magnetic rack, invert 2-3 times, let the beads completely absorb, completely remove the supernatant (keep the centrifuge tube fixed on the magnetic rack throughout, avoiding contact with the beads).

4. Wash 1:

Remove the centrifuge tube from the magnetic rack, add 600μL Wash Solution 1, cover the tube, vortex for 10s to ensure thorough mixing of the beads, then vortex for 1-2 minutes, followed by magnetic separation.

5. Wash 2:

Remove the centrifuge tube from the magnetic rack, add 600μL Wash Solution 2, cover the tube, vortex for 10s to ensure thorough mixing of the beads, then vortex for 1-2 minutes, followed by magnetic separation.

6. 80% Ethanol Wash:

Wash once with 600μL 80% ethanol using the same method as above.

7. Ethanol Removal:

Place the centrifuge tube on the magnetic rack and let it stand in a ventilated dry place for 5-10 minutes.

8. Elution:

Remove the centrifuge tube from the magnetic rack, add 50-100μL elution buffer, vortex for 20s to ensure thorough mixing of the beads with the elution buffer, place the centrifuge tube in a 60°C water bath for 10 minutes, vortexing four times during this period (or constant temperature shaking at 60°C for 10 minutes).

9. Nucleic Acid Transfer:

Place the centrifuge tube on the magnetic rack and let it stand for 1 minute until the beads are fully absorbed. Transfer the supernatant to a new centrifuge tube and store it at -20°C for future use.

【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.

Procedure	1、7	2、8	3、9	4、10	5、11	6、12
Reagent	Binding buffer（300μL）Isopropanol（300μL）	Beads（20μL）、Water（80μL）	Washing buffer1（600μL）	Washing buffer2（600μL）	80%Ethanol（600μL）	Eluant（50-100μL）

2. Tissue Lysis:

Place fresh plant tissue (approximately 100mg) or dried tissue (approximately 300mg) in a mortar, add liquid nitrogen, grind thoroughly, and quickly transfer the powdered sample to a clean 1.5mL centrifuge tube. Add 500μL lysis buffer and 5μL RNase A, vortex mix thoroughly, and shake at room temperature for 20 minutes.

3. Automated Extraction:

After lysis, centrifuge at 12,000rpm for 5 minutes, transfer the supernatant to columns

in the 96-well plate (columns 1 and 7). Then, place the prepared 96-well sample plate into the fully automated nucleic acid extractor, insert the magnetic bar sleeve, open the instrument's operating program, select the corresponding program, click "Run" to start the extraction process.

4. Nucleic Acid Transfer:

After the instrument run is complete, transfer the elution solution from wells in column 6 or column 12 to clean centrifuge tubes free of nucleases.

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)	Temperature
1	2	Transfer Beads	0	0	60	100	OFF
2	1	DNA Binding	0	5	60	1000	OFF
3	3	Washing1	0	2	60	600	OFF
4	4	Washing2	0	2	60	600	OFF
5	5	80%Ethanol	0	2	60	600	OFF
6	6	Elution	3	5	90	100	60℃
7	5	Abandon beads	0	1	0	600	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	2	3	4	5	6
Reagent	Binding buffer（300μL）	Beads（20μL）、Water（80μL）	Washing buffer1	Washing buffer2	80%Ethanol（600μL）	Eluant（50-100μL）
	Isopropanol（300μL）		（600μL）	（600μL）		

2. Tissue Lysis:

Place fresh plant tissue (approximately 100mg) or dried tissue (approximately 300mg) in a mortar, add liquid nitrogen, grind thoroughly, and quickly transfer the powdered sample to a clean 1.5mL centrifuge tube. Add 500μL lysis buffer and 5μL RNase A, vortex mix thoroughly, and shake at room temperature for 20 minutes.

3. Automated Extraction:

After lysis, centrifuge at 12,000rpm for 5 minutes, transfer the supernatant to columns in the 96-well plate (columns 1 and 7). Then, place the prepared 96-well sample plate into the fully automated nucleic acid extractor, insert the magnetic bar sleeve, open the instrument's operating program, select the corresponding program, click "Run" to start the extraction process.Nucleic

4. Acid Transfer:

After the instrument run is complete, seal the elution solution directly in the well at position 6 or transfer it 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	2	1	3	4	5	6	5
Waiting time	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:02:00	00:00:00
Mixed model	3	3	3	3	3	3	3
Mixing time	00:00:00	00:05:00	00:02:00	00:02:00	00:02:00	00:05:00	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	100μL	1000 μL	600 μL	600 μL	600 μL	100 μL	600 μL
Temperature	—	—	—	—	—	60℃	—

【Product Performance Indicators】

Nucleic Acid Extraction Purity: The absorbance ratio OD260/280 is between 1.7 and 1.9.

Nucleic Acid Extraction Yield: Extracting up to 5-30μg of pure DNA from 100mg of plant tissue.

【Basic Information】

Version Number: 1.1

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