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Super MagBead Plant DNA Extraction Kit

Product Number: DNK79

Shipping and Storage

1. The reagent kit is stored at 4~30℃ and has an expiration date of 18 months.
2. After opening the enhancement solution 2, store it at low temperature and away from light.

Component

Pre packaged: 32 reaction/box, 48 reaction/box, 64 reaction/box (note: 8-reaction or 16 reaction pre packaged reagent plates can be selected)

Component	DNK79-32T	DNK79-48T	DNK79-64T
8-reaction pre packaged reagent board	4 pieces	6 pieces	8 pieces
16-reaction pre packaged reagent board	2 pieces	3 pieces	4 pieces
LP Buffer	17mL/bottle	25mL/bottle	32mL/bottle
8-link magnetic rod set	4 items	6 items	8 items
RNase A	0.2mL/tube	0.3mL/tube	0.4mL/tube
Eluent	1.2mL/tube	1.2mL/tube	1.2mL/tube
Enhancement liquid 2	20μL/tube	30μL/tube	40μL/tube

Pre packaged: 96T per box

Component	Specification	DNK79-96T
Cracking binding solution pre installation plate	96T/piece	1 piece
Magnetic bead liquid pre installation plate	96T/piece	1 piece
Washing solution 1 pre installed plate	96T/piece	1 piece
Washing solution 2 pre installed plate	96T/piece	2 piece
Pre loaded eluent plate	96T/piece	1 piece
96 hole magnetic rod sleeve	96T/piece	1 piece
LP Buffer	52mL/bottle	1 bottle
RNase A	0.6mL/tube	1 tube
Eluent	1.2mL/tube	1 tube
Enhancement liquid 2	60μL/tube	1 tube

Large packaging: 50T per box

Component	Specification	DNK79-50T
Magnetic bead solution	1.1mL/tube	1 tube
Cracking binding solution	32mL/bottle	1 bottle
Washing solution 1	27mL/bottle	1 bottle
Washing solution 2	63mL/bottle	1 bottle
Eluent	8mL/bottle	1 bottle
LP Buffer	25mL/bottle	1 bottle
Enhancement liquid 2	30μL/tube	1 tube
RNase A	0.3mL/tube	1 tube

Note: The components of different types of reagent kits cannot be interchanged, and the components of different batch numbers of reagent kits cannot be interchanged. In order to minimize the impact of the absorbance of the blank solution, the UV absorbance method is used to determine the nucleic acid concentration (A260, A280, A230) using eluent as the blank control.

Description

This kit uses magnetic beads with unique separation capabilities and a unique buffer system to isolate and purify high-quality DNA from plant samples. The reagent kit undergoes steps such as magnetic bead binding with nucleic acid, cleaning, elution, and RNase digestion to remove proteins, RNA, and other impurities. The resulting DNA product has high purity and can be directly applied to various downstream molecular biology experiments such as qPCR, library construction, NGS, etc.

This product can be perfectly matched with an automatic nucleic acid extractor. By adsorbing, transferring, and releasing magnetic beads with a magnetic rod, the transfer of magnetic beads and nucleic acids can be achieved, improving the degree of automation. The entire experimental process is safe and convenient, and the extracted DNA has high purity without contamination from proteins and other impurities.

Application

This product is suitable for isolating and purifying high-quality DNA from plant tissue tender leaf samples, and the processed products are used for scientific research. This product is only for scientific research purposes and is used for the extraction, enrichment, and purification steps of nucleic acids.

Sample requirements

Applicable sample type: Plant tissue tender leaf samples.

Sample storage and transportation: Samples can be used for testing immediately or stored at -20±5℃ for testing. Sample transportation is done using a 0℃ ice pot.

Applicable Instruments

Strip nucleic acid extraction instrument with heating in the sixth column or plate nucleic acid extraction instrument with heating in the sixth plate.

Protocol

1. Manual operation steps

1.1. Take approximately 100 mg of the sample and thoroughly grind it using grinding beads or liquid nitrogen freezing.

1.2. Add the ground powder into a centrifuge tube pre filled with 450μL LP buffer, add 0.45μL of enhancement solution 2, quickly invert and mix, incubate at 70℃ for 10 minutes, and invert the centrifuge tube several times to mix the sample.

1.3. Add 5μL RNase A vortex and mix well. Let it stand at room temperature for 5 minutes.

1.4. Centrifuge at 12000 rpm for 4 minutes, transfer 300μL of supernatant to a new centrifuge tube.

1.5. Add 600μL lysis binding solution and 20μL magnetic bead solution, shake and mix well.

1.6. Leave at room temperature for 5 minutes, then invert and mix several times during this time.

1.7. Place the centrifuge tube on the magnetic rack and let it stand for 1 minute until the magnetic beads inside the tube are completely adsorbed onto the centrifuge tube wall. Use a pipette to remove the liquid inside the tube and remove the centrifuge tube.

1.8. Add 500μL of washing solution 1, vortex and mix for 3 minutes to suspend the magnetic beads. Use a magnetic rack to adsorb the magnetic beads. After 30 seconds, remove the liquid from the tube and remove the centrifuge tube.

1.9. Add 600μL of washing solution 2, vortex and mix for 3 minutes to suspend the magnetic beads. Use a magnetic rack to adsorb the magnetic beads. After 30 seconds, remove the liquid from the tube and remove the centrifuge tube.

1.10. Add 600μL of washing solution 2, vortex and mix for 3 minutes to suspend the magnetic beads. Use a magnetic rack to adsorb the magnetic beads. After 30 seconds, remove the liquid from the tube and remove the centrifuge tube.

1.11. Collect liquid droplets on the wall of the tube by brief centrifugation, use a magnetic rack to adsorb magnetic beads, and remove all liquid inside the tube after 1 minute.

1.12. Open the lid and dry the centrifuge tube at 40℃ for 5 minutes (the surface of the magnetic beads is dull).

Note: Ethanol residue can inhibit subsequent enzyme reactions, so when drying, it is important to ensure that ethanol evaporates completely. Prolonged drying can make it difficult for nucleic acids to be eluted.

1.13. Add 50-100μL of eluent to resuspend the magnetic beads and incubate at 75℃ for 10 minutes.

1.14. Collect liquid droplets on the wall of the centrifuge tube briefly, place the centrifuge tube on a magnetic rack for 1 minute to allow the magnetic beads to be adsorbed, transfer the liquid to a clean 1.5mL centrifuge tube for later use, and purify the nucleic acid for downstream analysis. If not in a hurry to use, the nucleic acid solution can be stored in a -20℃ refrigerator for later use.

2. Automatic nucleic acid extractor operation

2.1. Strip pre packaged reagent extraction plan: (Note: The 8-reaction pre packaged reagent plate only has the first column pre packaged with lysis binding solution)

2.1.1. Sample pre-processing: The pre-treatment steps for plant samples are the same as manual operation steps 1-4. After the pre-treatment steps are completed, they are used as backup samples for testing.

2.1.2. Invert the pre packaged reagent plate placed at room temperature three times and centrifuge briefly (or shake by hand) in a 96 well centrifuge to avoid liquid accumulation. Tear off the sealing aluminum foil film on the pre packaged reagent board and confirm its direction (magnetic bead solution in column 2/8).

2.1.3. Add 300μL of the above-mentioned sample to the lysis binding solution well (column 1/7).

2.1.4. Set extraction program: (suitable for the strip nucleic acid extractor in column 6)

Step	Hole position	Name	Waiting time (seconds)	Mixing time (seconds)	Magnetic attraction time (seconds)	Mixing speed 1~8	Volume μL	Temperature status	Temperature ℃
1	1	Cleavage	0	300	0	7	900	Close	0
2	2	Magnetic transfer	0	20	20	8	500	Close	0
3	1	Combine	0	300	20	7	900	Close	0
4	3	Washing 1	0	180	20	7	500	Close	0
5	4	Washing 2	0	180	20	7	600	Close	0
6	5	Washing 2	0	180	20	7	600	Close	0
7	6	Elute	300	600	20	5	100	The 6th hole	75
8	2	Abandoning magnetism	0	10	0	8	500	Close	0

2.1.5. Place the pre packaged reagent plate and 8-link magnetic rod sleeve that have been added to the sample into the automatic nucleic acid extractor and start the program.

2.1.6. After the program runs, the purified nucleic acid is in column 6/12. Carefully transfer the nucleic acid to a clean 1.5mL centrifuge tube using a pipette for later use. The purified nucleic acid can be used for downstream analysis. If not in a hurry to use, the nucleic acid solution can be stored in a -20℃ refrigerator for later use.

2.1.7. Note: If the magnetic attraction parameter of the extractor is the number of magnetic attraction times, the time is 20 seconds per time.

2.2. Plate pre packaged reagent extraction scheme

2.2.1. Sample pretreatment: The pretreatment steps for plant samples are the same as manual operation steps 1-4. After the pretreatment steps are completed, they are used as backup samples for testing.

2.2.2. Tear off the sealed aluminum foil film on the pre loaded plate of the lysis binding solution, add 300μL of the sample to be tested to the pre loaded plate of the lysis binding solution, and place the pre loaded plate of the lysis binding solution with the added sample in position 1 of the extractor.

2.2.3. Tear off the aluminum foil film used to seal the pre loaded magnetic bead liquid plate, and place the pre loaded magnetic bead liquid plate in position 2 of the extractor. (Note: In order to prevent the magnetic bead liquid from hanging on the film and sticking to the hole wall, before tearing off the aluminum foil film, please make sure to mix the board upside down for 3 times, and then shake the board bottom downwards with force twice, so

that all the liquid in each hole slides down to the bottom of the hole before tearing off the aluminum foil film)

2.2.4. Tear off the aluminum foil film used to seal the pre installed plate of detergent 1, and place the pre installed plate of detergent 1 in position 3 of the extractor.

2.2.5. Tear off the aluminum foil film used to seal the pre installed plate of detergent 2, and place the two pre installed plates of detergent 2 on the 4th and 5th positions of the extractor.

2.2.6. Tear open the seal of the eluent pre loaded plate with aluminum foil film, and place the eluent pre loaded plate in position 6 of the extractor. (Note: The volume of the eluent pre installed on the plate is small. To prevent the liquid from hanging on the sealed aluminum foil film, please make sure the bottom of the plate is facing downwards before tearing off the foil film. Use force to shake twice so that all the liquid in each hole slides down to the bottom of the hole before tearing off the aluminum foil film.)

2.2.7. Set extraction program: (Suitable for plate type nucleic acid extractor heated on the 6th plate)

Step	Hole position	Name	Waiting time (seconds)	Mixing time (seconds)	Magnetic attraction time (seconds)	Mixing speed 1~8	Volume μL	Temperature status	Temperature ℃
1	1	Cleavage	0	300	0	7	900	Close	0
2	2	Magnetic transfer	0	20	20	8	500	Close	0
3	1	Combine	0	300	20	7	900	Close	0
4	3	Washing 1	0	180	20	7	500	Close	0
5	4	Washing 2	0	180	20	7	600	Close	0
6	5	Washing 2	0	180	20	7	600	Close	0
7	6	Elute	300	600	20	5	100	The 6th hole	75
8	2	Abandoning magnetism	0	10	0	8	500	Close	0

2.2.8. Insert the 96 hole magnetic rod into the automatic nucleic acid extractor and start the program.

2.2.9. After the program runs, the purified nucleic acid is stored in plate 6. Carefully transfer the nucleic acid to a clean 1.5 mL centrifuge tube using a pipette for later use. The purified nucleic acid can be used for downstream analysis. If not in a hurry to use, the nucleic acid solution can be stored in a -20 ℃ refrigerator for later use.

2.2.10. Note: If the magnetic attraction parameter of the extractor is the number of magnetic attraction times, the time is 20 seconds per time.

Limitations of the product

The efficiency of sample extraction is related to whether the operator strictly follows the instructions.

Product performance indicators

1. Appearance inspection: Each component has a clean appearance, no leaks, and no damage; The label should be complete and undamaged, the identification should be clear and complete, and there should be no missing information; Visually, RNase A appears as a colorless or pale yellow liquid, clear and free of impurities; Visually, when the magnetic bead solution is mixed evenly, it appears as a black and uniform liquid with no sediment. After standing, the magnetic bead sediment appears black, and the supernatant is clear and transparent; Visually, the enhancement liquid 2 is a clear and transparent liquid.
2. The OD260/OD280 ratio of the extracted products in this kit is between 1.7 and 2.1.

Note

1. Please read this manual carefully before the experiment.
2. Due to hardware limitations, different models of nucleic acid extraction devices may require different extraction programs. For

detailed parameters, please consult our company.

3. To avoid any potential biological hazards in the sample, the test sample should be considered as having infectious substances and avoid contact with the skin and mucous membranes; It is recommended to handle the samples in a biosafety cabinet that can prevent aerosol leakage. The test tubes and suction tips used in the sample preparation area should be placed in containers containing disinfectants and sterilized together with waste before being discarded; Sample handling and processing must comply with relevant regulatory requirements: the Ministry of Health's "General Guidelines for Biosafety in Microbial Biomedical Laboratories" and "Regulations on Medical Waste Management".
4. The components in the reagent kit must be used within their expiration date. Not using the components provided in this kit for experiments may result in incorrect results.
5. Laboratory management should strictly follow the management standards of PCR gene amplification laboratories. Experimental personnel must receive professional training, and the experimental process should be strictly divided into zones (reagent preparation zone, sample preparation zone, amplification and product analysis zone). Consumables used should be sterilized and used once. Specialized instruments and equipment should be used for each stage of experimental operations, and supplies for each zone and stage should not be used interchangeably.
6. Use disposable centrifuge tubes and tips sterilized by high pressure or purchase centrifuge tubes and tips without DNA/RNA enzymes.
7. After completing the nucleic acid extraction of the sample, it is recommended to proceed to the next step of the experiment immediately. Otherwise, please store it at -20℃ for later use (within 24 hours).
8. After the experiment is completed, treat the workbench and pipette with 5% hypochlorous acid or 75% alcohol, and then irradiate them with ultraviolet light for 20-30 minutes.