TGuide Smart Magnetic Plant DNA Kit

For purification of genomic DNA from various plant tissues.

TECHNICAL MANUAL

Cat. no. GDP607-DE

Note: To use the TGuide Smart Magnetic Plant DNA Kit, you must have the TGuide Smart Magnetic Plant DNA (program no. DP607) installed on the TGuide S16/S32 pro Nucleic Acid Extractor.

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This product is for scientific research use only. Do not use in medicine, clinical treatment, food or cosmetic

Table Contents

TGuide Smart Magnetic Plant DNA Kit

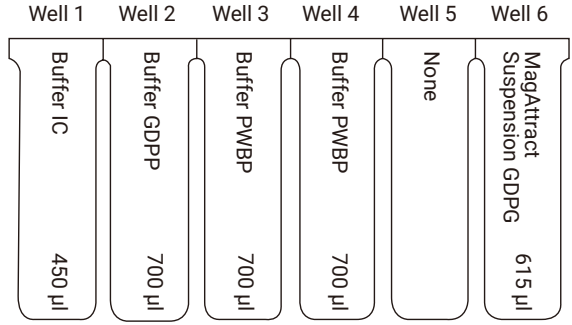
Cat. no. GDP607-DE

Kit Contents

Contents		GDP607-DE (48 preps)
GDP607-DH	Buffer GPS	30 ml
	Buffer GPA	10 ml
	Plant DNA Reagents	48
	Proteinase K	1 ml
	RNase A (100 mg/ml)	200 μl
	Buffer TB	15 ml
OSE-TGA-S36	TGuide Smart Tip Comb	12 pcs

Note: OSE-TGA-S36 is shipped and packaged separately

Plant DNA reagent composition



Storage condition

All components of the kit can be stored in dry conditions at room temperature (15~30°C) for 12 months. If the solution precipitates, it can be preheated in a water bath at 37°C for 10 min before use to dissolve the precipitation, without affecting the effect.

Product

This product adopts magnetic beads and a unique buffer system to isolate and purify high-quality genomic DNA from various plant tissues. The uniquely embedded magnetic beads have a strong affinity for nucleic acid under certain conditions. When the conditions are changed, the magnetic beads can release the absorbed nucleic acid to rapidly separate and purify the nucleic acid.

It can be used to perfectly fit with TGuide S16 Nucleic Acid Extractor. Through absorption, transfer and release of magnetic beads by the special magnetic bar, magnetic beads and nucleic acid can be transferred to improve the degree of automation. The whole process is safe and convenient, and the extracted genomic DNA fragments are large, with high purity and reliable quality.

The DNA purified by this kit is suitable for a range of common downstream applications including digestion, PCR, library construction, Southern hybridization, and other experiments.

Features

- **Simple and fast:** Ultra-pure genomic DNA can be obtained by running TGuide S16 for 60 minutes.
- **Widely applicable:** It is suitable for a variety of plant tissues, especially polysaccharide or polyphenol-rich plants.
- **Safe and non-toxic:** No toxic organic reagents such as phenol/chloroform.
- **High purity:** The obtained DNA has high purity and can be directly used for chip detection, high-throughput sequencing and other experiments.

Notes

1. Repeated freezing and thawing samples should be avoided, otherwise the extracted DNA fragments will be small and the total yield will decrease.
2. If there is precipitation in the buffer GPS, it can be dissolved in a 37°C water bath and used after shaking well.

Operational steps

Sample pre-processing

~100mg fresh tissue/
~30 mg dry tissue

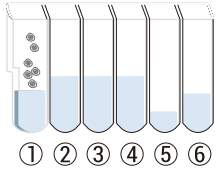
Homogenization

Add Buffer GPS and Proteinase K, incubate 15min at 65°C

Add RNase A, incubate 5min at RT

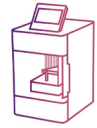
Add Buffer GPA and incubate in ice bath for 5min

Cartridges preparation

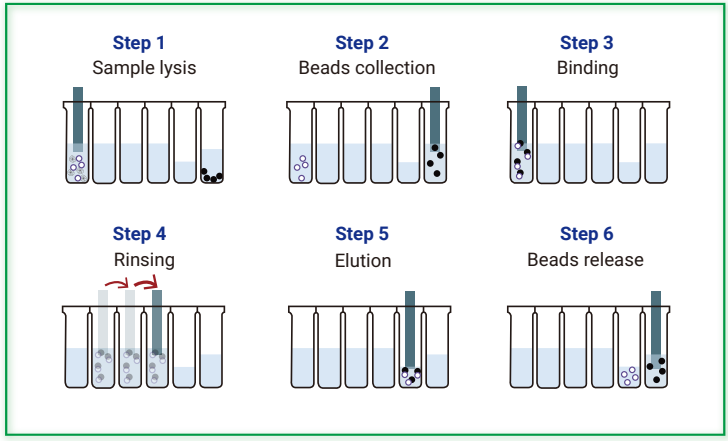


1. Add 450μl above sample to well ①
2. Add 60~100μl Buffer TB to well ⑤

Select program DP607 on the touch screen



Automated extraction by S16



Pipette DNA from well ⑤

1. Prefilled single sample cartridge

1.1 Take out a prefilled single sample cartridge and invert it to re-suspend the magnetic beads; Gently shake to concentrate the reagent and magnetic beads to the bottom of the cartridge. Before use, remove the sealing film carefully to avoid the liquid spatter or spills.

1.2 Add proper volume (60~100 µl) of elution buffer TB to the 5th well of the cartridge.

2. Sample processing

2.1 Take approximately 100 mg fresh tissue or 30 mg dry tissue to grind with liquid nitrogen or a homogenizer.

2.2 Transfer the ground powders rapidly into centrifuge tubes pre-loaded with 400 µl Buffer GPS and 20 µl Proteinase K. After mixing them upside down quickly, place samples in a water bath at 65°C for 15 min. During the incubation, invert the centrifuge tubes to mix samples several times.

2.3 Add 4 µl RNase A (100 mg/ mL) and mix it thoroughly, and let it stand at room temperature for 5 min.

2.4 Add 100 µl Buffer GPA and fully mix it, followed by ice bath incubation for 5 min and centrifugation at 12,000 rpm for 5 min.

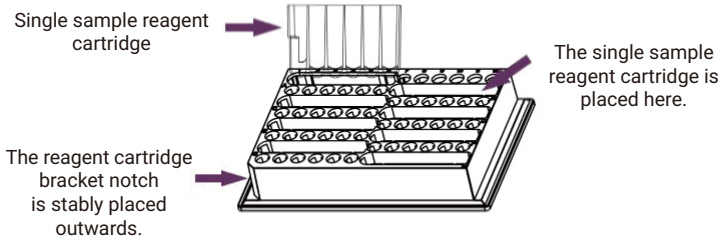
Note: If the solution will be sticky after Step 2, please increase the use of Buffer GPS and Buffer GPA proportionally, e.g., use 600 µl Buffer GPS and 150 µl Buffer GPA.

3. Operation steps of TGuide S16 Nucleic Acid Extractor

3.1 Add 450 µl supernatant obtained after processing the above sample to the 1st well of the prefilled single sample cartridge, and place the cartridge on the reagent tank bracket of TGuide S16 Nucleic Acid Extractor.

Note: Do not touch bottom impurities when sucking supernatant, with the volume of transferred supernatant below 500 µl.

3.2 Place the reagent tank bracket on the plate base in the TGuide S16 Nucleic Acid Extractor. Insert the Tip Combs into the slots to ensure that they are well connected and firmed.



3.3 If you use the TGuide S16 Nucleic Acid Extractor, select the corresponding program DP607 file on the touch screen, click the icon in the lower right corner of the screen, or click the "RUN" button at the bottom of the screen to start the experiment.

3.4 At the end of the automated extraction process, take the DNA out from the 5th well of the cartridge and store it under appropriate conditions. Single sample reagent cartridge and tip comb are for single use only.

Detection of DNA concentration and purity

The size of the obtained genomic DNA fragment is affected by the sample storage time and shear force during operation. The concentration and purity of the obtained DNA fragments can be detected by agarose gel electrophoresis and UV spectrophotometer. Ideally, the DNA should absorb at most at OD_{260}, where an OD_{260} value of 1 corresponds to approximately 50 μg/ml double strand DNA and 40 μg/ml single strand DNA. The OD_{260}/OD_{280} ratio should be 1.7~1.9.

Appendix

1. Program

The extraction process of S16 provided for DP607 is shown in the following table:

Step	Hole site	Step name	Mix time (min)	Mix speed	Dry time (min)	Volume (μl)	Temp. (°C)	Segments	Every time (sec)	Magneti-zation time(sec)	Cycle	Magnet speed (mm/s)
1	1	Lysis	3	8	0	900	--	1	0	0	0	--
2	6	Collect beads	0.5	8	0	615	--	5	3	0	2	2.5
3	1	Bind	8	8	0	900	--	5	4	0	2	2.5
4	6	Wash 1	3	7	0	615	--	5	3	0	2	2.5
5	2	Wash 2	3	7	0	700	--	5	3	0	2	2.5
6	3	Wash 3	3	7	0	700	--	5	3	0	2	2.5
7	4	Wash 4	3	7	5	700	--	5	3	0	2	2.5
8	5	Elution	8	7	0	100	75	5	5	0	2	2.5
9	6	Discard	0.5	5	0	500	--	1	0	0	0	--

2. Related Products

Instrument and Accessories

Product name	Packing Size	Cat.No
TGuide S16 Nucleic Acid Extractor	1 set	OSE-S16-AM
TGuide Smart Magnetic Tip Comb	200 pieces/box	OSE-TGA-S03
TGuide Single Sample Tank Bracket	5 pieces/box	OSE-TGA-S32

TGuide Smart Reagent Kits

Product name	Packing Size	Cat.No
TGuide Smart Soil /Stool DNA Kit	48 preps	GDP612-DE
TGuide Smart Magnetic Tissue DNA Kit	48 preps	GDP602-DE
TGuide Smart Magnetic Plant RNA Kit	48 preps	GDP662-DE
TGuide Smart DNA Purification Kit	48 preps	GDP642-DE
TGuide Smart Blood/Cell/Tissue RNA Kit	48 preps	GDP661-DE
TGuide Smart Blood Genomic DNA Kit	48 preps	GDP601-DE
TGuide Smart Viral DNA/RNA Kit	48 preps	GDP604-DE
TGuide Smart Universal DNA Kit	48 preps	GDP605-DE