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PrimeMag Plant Genomic DNA Extraction Kit (Automation) (KIT-9230)

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For Research Use Only. Not for use in Diagnostic Procedures.

Product No: KIT-9230

The **PrimeMag Plant Genomic DNA Extraction Kit** offers a fast and efficient magnetic-based method for isolating high-quality genomic DNA from plant samples. The kit is designed for the isolation of genomic DNA from plant tissue using optimized lysis buffer based on the established CTAB methods.

With special proprietary buffer system, PrimeMag Plant Genomic DNA Extraction Kit able to remove proteins, RNA, metabolites and other PCR inhibitors to deliver superior DNA purity (A260/A280 > 1.6) and excellent integrity (DIN > 8), making it suitable for most of the downstream applications such as PCR, restriction analysis and NGS.

The kit is compatible with manual workflows using a magnetic rack and can be easily integrated with automated magnetic bead extraction platforms, offering flexibility for both low- and high-throughput laboratories.

Kit Contents

No	Product	KIT-9230-10 10 preps	KIT-9230-48 48 preps	KIT-9230-96 96 preps	Storage
1	Plant Lysis Buffer	9 mL	45 mL	87 mL	Room temperature (21 °C – 25 °C)
2	PG Buffer	1 mL	3 mL	6 mL	
3	BD2 Buffer	1.6 mL	7.5 mL	15 mL	
4	WB1 Buffer	4 mL	16 mL	30 mL	
5	Elution Buffer	1.5 mL	6 mL	13 mL	
6	RNase A	10 mg/mL	10 mg/mL	10 mg/mL	4 °C
7	PlantMag Beads	0.4 mL	1.8 mL	3.6 mL	

Storage

This kit will be delivered at room temperature (21 °C – 25 °C). Upon receipt, store the kit components according to the storage temperatures indicated on the box label.

Product Specification

	KIT-9230-10/48/96
Sample Type	Suitable for most plant types and tissues
Sample size	50 mg to 150 mg plant tissues
Elution	60 µL to 100 µL
Duration	~50 minutes
Packaging Size	10, 48, 96 Preps

Materials Supplied by Users

- ✓ Nucleic Acid Purification System (Auto-Pure 96, AllSheng)
- ✓ Centrifuge at speed of 10,200 rpm – 14,800 rpm
- ✓ Thermomixer with temperature settings of 65 °C (HM100-Pro Thermo Mix, DLAB or equivalent)
- ✓ Vortex mixer
- ✓ 96-deep-well plates (for Auto-Pure 96, AllSheng)
- ✓ Magnetic Tip comb (for Auto-Pure 96, AllSheng)
- ✓ 96-deep-well square sealing mat
- ✓ 2 mL microcentrifuge tubes
- ✓ 1.5 mL microcentrifuge tubes
- ✓ Isopropanol (IPA)
- ✓ Absolute ethanol (≥ 99.5%)

Precautions for Users

- ✓ Plant lysis buffer contains irritants. Handle with care and avoid contact with skin. In case of contact, wash skin with a copious amount of water; seek medical attention.
- ✓ Always wear a lab coat, disposable gloves and surgical mask.

Protocol

Preparation

I. Sample Preparation

A few methods can be used for plant pulverizing with liquid nitrogen as below:

a. Cryomill (RETYY-207490001, Retsch)
b. Disruptor Genie (89202-320, Genie USA)
c. Mortar and pestle

Methods:

- ***Cryomill*** *and* ***Disruptor Genie*** *methods*
  - ✓ *Weigh 50 mg fresh/frozen plant tissues (e.g. leaves) and transfer to a new 2 mL standing tubes with six (6) units of 4 mm stainless steel beads prior to bead beating.*
- ***Mortar and pestle*** *method*
  - ✓ *For mortar and pestle method, retrieve at least 5 – 10 fresh/frozen plant tissues (e.g. leaves) and grind the tissues in liquid nitrogen.*
  - ✓ *Transfer 50 mg of tissue powder to a new 2 mL microcentrifuge tube.*

II. Set thermomixer to 65 °C.

III. Freshly prepare 80% ethanol based on the number of preps required:

No of prep	Components	Volume	Total Volume
1	Absolute Ethanol (> 99.5%)	480 µL	600 µL
	Autoclaved water	120 µL	

IV. Vortex the magnetic beads (PrimeMag Beads) prior to use.

Preparation

V. Prepare freshly the **binding mixture (BindMix)** according to number of preps required:

No of prep	Components	Volume	Total Volume
1	Isopropanol (IPA)	360 µL	510 µL
	BD2 Buffer	120 µL	
	PlantMag Beads	30 µL	

Automation Preparation:

I. Prepare four (4) new 96-deep-well plates for automation and label each plate as '**Binding**', '**Wash 1**', '**Wash 2**', and '**Elution**' respectively.

II. Prepare the plates following the table below:

Plate	Buffer	Volume per well
Binding	BindMix Refer "Preparation, step V."	510 µL
Wash 1	WB1 Buffer	600 µL
Wash 2	80% Ethanol	600 µL
Elution	Elution Buffer	100 µL

Note: *Cover the plates with 96-deep-well square sealing mat upon complete dispensing to avoid evaporation.*

Lysis

1. Add **700 µL Plant Lysis Buffer**, **50 µL PG Buffer** and **10 µL RNase A** into the 2 mL plant sample tube**.** Mix the sample by gently inverting the tube 10 times.
   Note: *Always add Plant Lysis Buffer and PG Buffer separately and never premix the solution.*

2. Incubate the mixture at 65 °C for 30 minutes in Thermo Mix (e.g. HM100-Pro, DLAB) while shaking at 1,000 rpm.

3. Centrifuge the samples for 5 minutes at maximum speed of 16,160 xg (Microfuge 16, Beckman Coulter).

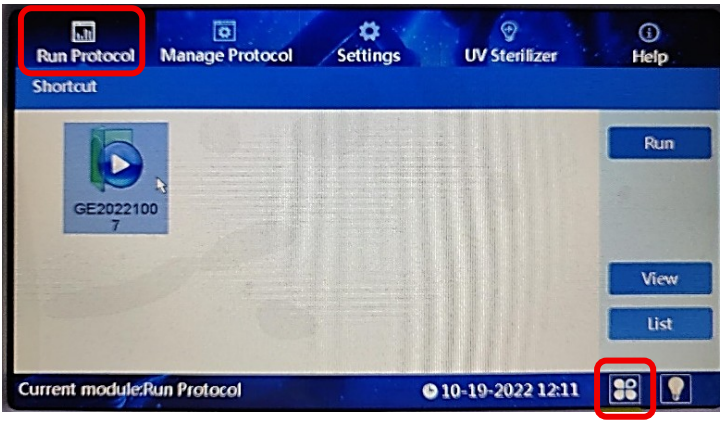
Automation

4. Transfer **480 µl of supernatant (middle layer)** to the '**Binding**' plate prepared in Automation Preparation table in step II. Mix by pipetting 10 times.

5. Proceed to set up plate position in Auto-Pure 96, AllSheng system.

6. Switch on Auto-Pure 96, AllSheng system.

7. At tab 'Run Protocol', press "  " button located at the right corner of the interface.



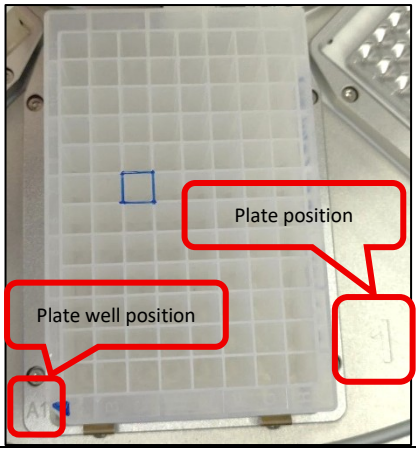
Automation

8. Proceed to position the plate according to its position. Press number "2" to position the plate in Position 2.

9. **Remove sealing mat** and place all four (4) 96-deep-well plates containing buffers to their respective location in the Auto-Pure 96 system as the table below:

Position	Plate
Position 2	Binding
Position 3	Wash 1
Position 4	Wash 2
Position 8	Elution

10. Once position of each plate is done, check the Plate position number on the system to ensure correct placement:



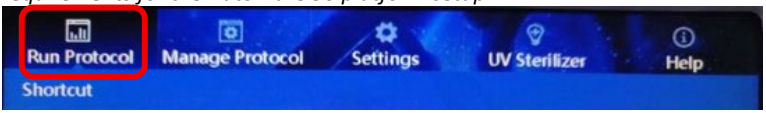
Automation

11. Place '**Binding**' plate onto "Position 2" with "Well A1" located at lower left corner of the slot.

12. Repeat step 8 to 11 until all 4 plates are positioned at its respective location.

13. Once completed all plate placement, proceed to add **magnetic tip comb**. Press position "7" and place a **new magnetic tip comb** onto the 'Magnetic Rod Sleeve Plate' located at position "7".

14. Press the "  " button.

15. At the Tab '**Run Protocol**', select the file name "**KIT9230PrimeMag**" pre-set in the system and click '**Run**'.
    Note: *Please refer to our technical support team for protocol setting requirements for the Auto-Pure 96 platform setup.*
    

16. The total duration is approximately 40 minutes.

17. Once run has completed, press ''**Confirm**''.

18. Press the "  " button. Remove all 96-deep-well plates from the machine.

19. Cover the **'Elution'** plate with 96-deep-well square sealing mat.

20. Centrifuge '**Elution**' plate for 30 seconds at 2,200 rpm.

21. Store the purified genomic DNA in -20 °C for long term storage.

Samples Tested using PrimeMag Plant Genomic DNA Kit

The kit has been tested with wide range of plant samples shown on the table below:

Tissue		Plant Samples					
Leaf	Vegetable & herbs	Tomato	Corn	Cassava	Ginger	Pandan	Basil
	Fruit	Coconut	Papaya	Banana	Jackfruit		
	Crop	Bamboo	Rice	Oil palm			
Seed	Crop	Cucumber	Cotton	Corn	Wheat	Sunflower	Soybean

Troubleshooting Guidelines

Problems	Possible Reason	Recommended Action
Low yield of nucleic acid	Coarsely ground sample	1. Grind sample to a fine powder.
	The samples were incompletely homogenized or lysed.	1. Decrease or increase the amount of starting material. 2. Ensure the sample is completely immersed in the Plant Lysis Buffer to achieve total lysis. 3. Incubate the mixture in Thermo Mix at 65 °C for 30 minutes with shaking at 1, 000 rpm.

Product Ordering Information

Product Number	Product Description	Remarks
KIT-9230-10	PrimeMag Plant Genomic DNA Kit	Sufficient for 10 preps.
KIT-9230-48	PrimeMag Plant Genomic DNA Kit	Sufficient for 48 preps.
KIT-9230-96	PrimeMag Plant Genomic DNA Kit	Sufficient for 96 preps.
KIT-MAG16A	1st BASE Magnetic Rack	For 16 tubes processing.