

# G-spin™IIp Genomic DNA Extraction Kit for Plant

Cat. No. 17271 50 Columns

## DESCRIPTION

G-spin™IIp Genomic DNA Extraction Kit for Plant is designed for rapid isolation of genomic DNA from a wide variety of plant species, plant tissue and food samples. G-spin™IIp Genomic DNA Extraction Kit for Plant can produce high yield and high quality DNA in a short time. Including cell lysis, the G-spin™IIp procedure can be completed in as little as 60min. G-spin™IIp purified DNA is free of contaminants and enzyme inhibitors. The buffer system is optimized to allow direct cell lysis which is followed by selective binding of DNA to the G-spin™IIp membrane.

### Step 1. Lysis

G-buffers are specially developed for plants and food. After disruption of the cell wall by grinding in liquid nitrogen, the cells are lysed in reagents containing SDS. There is a specific ingredient in G-buffer that effectively removes polysaccharides from the plant cell lysate by forming complexes. The Enhancer solution increases final DNA yields. Lysis mixtures are cleared by centrifugation in order to remove cell debris, protein, polysaccharides and other secondary metabolites.

### Step 2. Binding

The clear supernatant is mixed with the binding buffer to create conditions for optimal binding to the silica membrane.

### Step 3. Washing and Elution

Washing buffers remove the residual contaminants and salts which inhibit subsequent reactions on the silica membrane. After washing with two different buffers, DNA can be eluted in low salt buffer or water and is ready for use in subsequent reactions. It is ideal for all PCR (polymerase chain reaction), Southern blotting, RAPD, restriction analysis, GMO detection and sequencing applications.

## CHARACTERISTICS

- DNA is free from polysaccharide and other secondary metabolites. DNA is highly pure and ideal for all PCR (polymerase chain reaction), Southern blotting, RAPD, restriction analysis, GMO detection and sequencing applications
- Broadly applicable among a wide variety of plant species, plant tissue and food samples
- Takes only 60 minutes to extract DNA
- No phenol is used

## STORAGE

Proteinase K and RNase A : Store at -20°C  
Enhancer solution : Store in dark at 4°C upon delivery  
The other components can be stored at room temperature.

## KIT CONTENTS

▪ G- buffer (lysis solution)	30ml
▪ PPT buffer (precipitation solution)	6ml
▪ Binding buffer	40ml
▪ Washing buffer A	30ml
▪ Washing buffer B	10ml
: Before use, add 40ml of 100% EtOH	
▪ Elution buffer	20ml
▪ Enhancer solution	0.4ml
▪ RNase A solution (10mg/ml)	0.6ml
▪ Proteinase K solution (40mg/ml)	0.6ml
▪ G-spin™IIp column (green color)	50 columns
▪ Collection tubes	50 tubes

## PREPARING SOLUTION BEFORE USE

- Washing buffer B is concentrated. Before use, add 40ml of absolute ethanol.
- Proteinase K solution (40mg/ml) is very concentrated for effective removal of protein. Before use, dissolve it completely.

## CONSIDERATION BEFORE USE

- It is preferable to use young plant tissues. They result in higher DNA yields and more pure DNA since they contain more cells per weight and contain less secondary metabolites.  
The G-spin™IIp Genomic DNA Extraction Kit for Plant is optimized for 100 mg of wet-weight plant sample. For dried plant samples, the amount of sample (eg. hay) must be reduced proportionally to the water content. Exceeding the recommended maximum amount of plant sample will result in lower yield and purity by insufficient lysis.
- Grind plant or fungal tissue under liquid nitrogen to a fine powder using a mortar and pestle. It is not preferable to allow the sample to thaw. Proceed immediately to the DNA extraction protocol.

## PROTOCOL

1. Grind 10-100mg of samples to a powder in liquid nitrogen in a chilled mortar and pestle or commercial homogenizer.
2. Add 390µl of G-buffer.
3. Add 6.5µl of enhancer solution.
4. Add 10µl of Proteinase K, and mix well by inverting.  
**Note** : If the G-buffer volume is not large enough, increase the amount of G -buffer .
5. (optional) If samples contain large amounts of RNA, add 10µl of RNase A solution to the lysis mixture.
6. Incubate at 65°C for 30min.  
**Note** : To help lyse cells, invert the tube every 5 min during the incubation. To obtain higher yields of DNA, the incubation time in G-buffer can be prolonged (up to overnight)
7. Add 100µl of PPT buffer, and mix well by inverting.
8. Incubate on ice for 5min.
9. Centrifuge for 5min at 13,000rpm.
10. Transfer 200µl of the clear lysate to a new tube.
11. Add 650µl of Binding buffer and invert – mix well.  
**Note** : If the sample volume is larger than 200µl, increase the amount of Binding buffer ( e. g., a 300µl sample will require 975µl Binding buffer ). This step is conducive to pass efficiently cell lysates through a column and to increase binding onto column resins and important for efficient deproteinization
12. Apply the sample to the G-spin™IIp column, and centrifuge for 1min at 13,000rpm. Discard flow-through.  
**Note** : The maximum volume of the column reservoirs is 900µl. If the volume is over 900µl, load the sample and spin again. If the solution has not completely passed through the membrane, centrifuge again at a higher speed until all the solution has passed through.
13. Pipette 500µl of Washing buffer A onto G-spin™IIp column.
14. Centrifuge for 1min at 13,000rpm. Discard flow-through.
15. Pipette 500µl of Washing buffer B onto G-spin™IIp column.
16. Centrifuge for 1min at 13,000rpm.
17. Discard flow-through and centrifuge the column for an additional 1 min at 13,000rpm.  
**Note** : It is important to dry the membrane. Residual ethanol may interfere with downstream reactions.
18. Place the G-spin™IIp column in a clean 1.5ml microcentrifuge tube, and add 50-100µl elution buffer directly onto the membrane.
19. Incubate at RT for 1 min, and then centrifuge for 1 min at 13,000rpm.