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## Soil Genome DNA Extraction KIT

Catalog No.	Specification	Storage/Shelf life
EP022-50T	50T	Room temperature/1 year
EP022-50T	200T	Room temperature/1 year

### Introduction

This product is suitable for the isolation of total DNA from 180~220 mg of fresh or frozen soil. The plant or animal genomic DNA, viral DNA, bacterial and parasite DNA in the soil can be combined with nucleic acid purification column after dissolved. Degraded proteins and PCR inhibitors are filtered out. After genomic DNA is washed with WB and RP washing solution, elution with Buffer TE can be used in various molecular biology experiments.

### Kit Components

Component	EP022-50T	EP022-200T	Storage
Solution SGE	80 ml	160 ml*2	RT
Solution InR	15 ml	60 ml	RT
Solution GA2	12 ml	48 ml	RT
Wash Buffer	70 ml	280 ml	RT
Solution RP	25 ml	100 ml	RT
Elution Buffer	10 ml	40 ml	RT
Proteinase K	525 $\mu$ l	2.1 ml	-20°C
Adsorption column G column	50 set	200 set	RT
User Manual	1 copy	1 copy	RT

### I. Preparation before use

- If the centrifuge has a refrigeration function, please set the temperature to 25°C. All centrifugal operations in this experiment are performed at 25°C.
- Set the temperature of the water bath to 70°C and 95°C, and incubate Buffer SGE and Buffer TE at 70°C.



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- According to the instructions on the label of the reagent bottle, add absolute ethanol to Buffer WA and Buffer WB, and tick the box of the label to mark "alcohol added".

### **Operation steps**

1. Weigh 180~220 mg of solid soil with a self-provided 2 ml centrifuge tube; if the soil lotion is liquid, directly absorb 200  $\mu$ l of the soil lotion.  
Note: If the content of the genome extracted from the soil is low, you can concentrate a larger amount of soil washing solution and take 200  $\mu$ l for subsequent experiments to improve the DNA yield.
2. Add 1.4 ml Buffer SGE and close the tube cap. Vortex until the soil is fully dispersed and no large particles are present. Water bath at 95°C for 5 minutes.  
Note: If you only need to detect the DNA of Gram-negative bacteria in the soil, you only need a 70°C water bath for 5 minutes.
3. Centrifuge at 12000 rpm for 1 minute at room temperature.
4. Pipette about 1.2ml of the supernatant from the previous step into a new EP tube, add 1/5 volume of Solution InR (vibrate and mix well before use), shake well and mix well, and let it stand for 1 min.
5. Centrifuge at 5.12000rpm for 3min, and transfer the supernatant to a new EP tube.
6. Repeat step 5 once.
7. Pipette 200  $\mu$ l of the centrifuge supernatant from step 6 into a new 1.5 ml centrifuge tube.
8. Pipette 10  $\mu$ l of proteinase K stock solution and mix by pipetting.
9. Add 200  $\mu$ l Buffer GA2 and vortex for about 15 seconds to mix. Place the centrifuge tube in a 70°C water bath for 10 minutes.
10. Add 200  $\mu$ l of absolute ethanol and gently invert 4-6 times to mix evenly. Centrifuge at low speed for a few seconds to allow the solution on the tube cap to settle to the bottom of the tube.
11. Add the mixture obtained in the previous step to the G column of the



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adsorption column provided in this kit (if you cannot add it at one time, you can add it in multiple times), centrifuge at 12,000 rpm ( $\approx 13,400\times g$ ) for 1 min, and discard the collection tube. Put the adsorption column back into the collection tube.

12. Add 500  $\mu\text{L}$  of Solution RP to the adsorption column (check whether absolute ethanol has been added before use), centrifuge at 12,000 rpm for 1 min, discard the waste liquid in the collection tube, and put the adsorption column back into the collection tube.
13. Add 700  $\mu\text{L}$  Wash Buffer to the adsorption column (check whether absolute ethanol has been added before use), centrifuge at 12,000 rpm for 1 min, discard the waste liquid in the collection tube, and put the adsorption column back into the collection tube.

Note: If you need to further improve DNA purity, repeat step 13.

14. Centrifuge at 14,120 rpm for 2 minutes, and discard the waste liquid in the collection tube. Leave the column at room temperature for a few minutes to dry thoroughly.

Note: The purpose of this step is to remove the residual ethanol in the adsorption column. The residual ethanol will affect the subsequent enzymatic reactions (enzyme digestion, PCR, etc.).

15. Place the adsorption column in a new centrifuge tube (provided by yourself), add 50-200  $\mu\text{L}$  of Elution Buffer or sterile water to the middle of the adsorption column, leave it at room temperature for 2-5 minutes, and centrifuge at 12,000 rpm for 1 minute. Collect the DNA solution and store the DNA at  $-20^{\circ}\text{C}$ .

Note:

- 1) If the downstream experiment is sensitive to pH or EDTA, it can be eluted with sterile water. The pH value of the eluent has a great influence on the elution efficiency. If water is used as the eluent, the pH value should be 7.0-8.5 (the pH value of the water can be adjusted to this range with NaOH), and the pH value is lower than 7.0 When the elution efficiency is not high.
- 2) Elution Buffer is preheated in a 65-70  $^{\circ}\text{C}$  water bath. Incubate at room temperature for 5 min before centrifugation to increase the yield; eluting with another 50-200  $\mu\text{L}$  Elution Buffer or sterile water can increase the yield.



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3) If you want to increase the final concentration of DNA, you can re-add the obtained solution to the adsorption column, place it at room temperature for 2-5 min, and centrifuge at 12,000 rpm for 1 min; if the elution volume is less than 200  $\mu$ L, you can increase the final concentration of DNA, but May reduce total output. If the amount of DNA is less than 1  $\mu$ g, it is recommended to elute with 50  $\mu$ L Elution Buffer or sterile water.

4) Because DNA stored in water will be affected by acid hydrolysis, if long-term storage is required, it is recommended to elute with Elution Buffer and store at

-20 °C.

### **Precautions:**

\* Freshly collected soil samples should be stored at -20°C or lower in time. Even if the soil is left at room temperature for 2-3 hours, degradation of the extracted DNA will be observed; if it is left for a longer time, the extracted DNA may be degraded very seriously, and no DNA strips visible by electrophoresis may even be observed.