TANBead® Nucleic Acid Extraction Kit

Environmental Microbiome DNA Auto Plate

(For use with the Maelstrom 9600 series)

RUO

W6EMA46

(For research use only) V1

1. Intended Use

This product is designed for isolating nucleic acid from various samples, which can be performed by using TANBead® Nucleic Acid Extractor and is intended for research use only.

2. Purpose

TANBead® Nucleic Acid Extraction Kit (W6EMA46) is mainly designed to automatically isolate DNA from environmental samples, such as soil (including clay, sand, silt, loam, etc.) and stool (including humans, dogs, cats, etc.) This kit can isolate microbial DNA from gram-positive or negative bacteria. Moreover, it can remove humic acid and other PCR inhibitors allowing for purified DNA to be suitable for PCR, 16S sequencing, and other applications.

3. The basic principle

The silicon dioxide layer coated on the magnetic beads can adsorb the negatively charged molecules to purify nucleic acids from samples.

4. Specification

Starting Materials	50 mg Soil, stool
Elution Volume	50-80 µL
Total DNA yield	Up to 16 ug

5. Component Supplied with the Kit

Σ96

Auto Plate	6	Auto Plate with reagent buffers
Proteinase K	1.0 mL x 2	Proteinase K
Elution Buffer	1.5 mL x 1	Nuclease-Free Water
Incubation Buffer	120 mL x 1	Phosphate buffer
Enhancer	0.6 g x 2	Dissolve 10 mg of enhancer in 500 µL of Incubation Buffer per test.
Spin tips	96 tips	Spin tip assembled box
Protocol	1	Instruction guide for user

6. Auto Plate Content and Plate Position

Plate Position	Buffer	Volume (µL)
1	Lysis Buffer	600
2	Washing Buffer 1	800
3	Washing Buffer 2	800
4	Washing Buffer 2	800
5	Magnetic Beads	800
6	Elution Buffer	80
7	N / A	N / A
8	Spin Tips	-

7. Kit Storage and Shelf Life

1) Components under room temperature (15~35°C) can be stored until the expiration date labeled on the box.
2) The proteinase K is transported at room temperature. Upon received, please store proteinase K at 2~8°C.

8. Precautions

1) For research use only.
2) Avoid using expired reagents.
3) When the temperature is below 20°C, place the reagent plate in an oven (preheated 42~60°C) from 5 to 10 minutes.
4) Avoid vigorous shaking, in order to avoid excessive formation of foam.
5) Carefully remove aluminum foil to avoid splashing.
6) Do not expose the opened reagents or Auto Plates / Auto Tubes to air. The evaporation would lead to pH change, or effect on the extraction effectiveness.
7) Please check the integrity of the Auto Plate / Auto Tube, and remember to mount the spin tips into the appropriate position of the suitable instrument before operating them.
8) Please wear a mask and disposable gloves when handling.
9) Use sterile consumables to avoid nuclease contamination.
10) Reagent solution contains guanidine salt, avoid using bleach containing detergent.
11) Avoid eyes, skin, and clothing contact with reagents. In case of any contact, flush with flowing water.
12) If any serious incident occurs, please report to the manufacturer and the competent authority of the member state in which the user and / or the patient is established.

9. Materials required, Not Supplied

1) TANBead® Nucleic Acid Extraction System
   Model: Maelstrom 9600 series (non-sterile)
2) Disposable gloves
3) Scissors, utility knives
4) Micropipette, disposable tips (10 µL / 200 µL / 1000 µL)
5) 1.5 mL microcentrifuge tube
6) 15 mL / 50 mL conical tube

10. Nucleic Acids Extraction Protocol

1) Weight about 50 mg sample into a 1.5 mL tube.
2) Add **500 µL incubation buffer** and **20 µL Proteinase K** and mix well.
   Optional (inhibitor remover): Enhancer
   Note: In the case of a very dry sample, increase the incubation buffer volume (and PK proportionally) until the sample has been totally resuspended.
3) Incubate at **60°C for 10 minutes** on a heater.
4) Centrifuge at 9500 RPM for 5 minutes.
   Note: If solid suspension remains, centrifuge for another (3~5) minutes until the supernatant is clear.
5) Carefully remove the aluminum foil on the Auto Plates.
6) Select the program "**6EM**". The parameters are given in the following section.
7) Follow the guide shown on the screen and place plates carefully. Make sure that the chamfer of the plate faces toward the same direction.
8) Carefully remove the Auto Plates when the program is finished.
9) Use micropipette to transfer the purified nucleic acids from **plate 6** to a clean tube.
10) Discard used Auto Plates and spin tips into the waste recycling bin.

11. Program

- **Maelstrom 9600**

Program Name: 6EM								
Plate	1	2	3	4	5	6	7	8
Volume (µL)	1100	800	800	800	800	150	-	-
Keep Temp.	45	45	40	0	0	50	-	-
Action	For.	For.	For.	For.	For.	For.	-	-
Name	LB	WB1	WB2	WB2	MB	EB	-	TIP

Step	Plate	Temp. (°C)	Mixing (min)	Mixing (rpm)	Collect (sec)	Vapor (min)	Pause
1	5	0	0	3000	30	0	Off
2	1	60	10	3000	30	0	Off
3	2	50	1	3000	30	0	Off
4	3	40	1	3000	30	0	Off
5	4	0	1	3000	30	10	Off
6	6	65	5	3000	30	0	Off
7	5	0	0.1	3000	0	0	Off

⚠ **Temperature set as "0" represents room temperature!**

- **Maelstrom 9610**

Program Name: 6EM								
Plate	1	2	3	4	5	6	7	8
Volume (µL)	1100	800	800	800	800	150	-	-
Keep Temp.	45	45	40	0	0	50	-	-
Action	For.	For.	For.	For.	For.	For.	-	-
Name	LB	WB1	WB2	WB2	MB	EB	-	TIP

Step	Plate	Temp. (°C)	Mixing (min)	Mixing (rpm)	Collect (sec)	Vapor (min)	Pause
1	5	25	0	0	30	0	Off
2	1	60	10	3000	30	0	Off
3	2	50	1	3000	30	0	Off
4	3	40	1	3000	30	0	Off
5	4	25	1	3000	30	10	Off
6	6	65	5	3000	30	0	Off
7	5	25	0.1	3000	0	0	Off

⚠ **Temperature set as "25" represents room temperature!**

12. Reagent performance

- **Broad Sample type**
  This kit enables DNA extraction from various environmental samples, such as soil (clay, sand, silt, and loam) and stool.
- **Time-Efficient**
  This kit with the walk-away system only requires 15-20 minutes of pretreatment followed by 45 minutes of automated extraction.
- **High throughput**
  This kit can perform up to 32 DNA extractions simultaneously when used with TANBead® Automated Nucleic Acid Extraction Instruments.

13. Troubleshooting

- **Inhibitor carryover**
  A possible inhibitor carryover is sometimes, although not necessarily, identified by a colored eluate. Use the enhancer to remove the inhibitor from starting material pretreatment or dilute the sample at least 1:10 or use an enhancer before PCR analysis.
- **Insufficient or excess DNA used in downstream application**
  Optimize the amount of DNA used in the downstream application, if necessary. Downstream applications can be adversely affected by insufficient or excess DNA.

14. Explanation of Symbols

	Manufacturer		Consult instructions for use
	Temperature limit		Contains sufficient for test
REF	Catalogue number		Caution
LOT	Batch code		Non-sterile
	Do not re-use		Keep away from sunlight
	Date of manufacture		Use-by date
RUO	For research use only		

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