TANBead® Nucleic Acid Extraction Kit

Food and Feed DNA Auto Plate

(For use with the Maelstrom 8 series and Maelstrom 4800 series)

RUO

M6GMA46

(For Research Use Only) V2

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 (M6GMA46) is designed as a simple and convenient way for extracting high-quality DNA and the highly fragmented DNA (down to 100 bp) from raw materials (soybean, corn), processed food (Tofu), genetically modified food (GM-Tofu), and feed (swine food). With Maelstrom 8 series and Maelstrom 4800 series, this kit simplifies nucleic acids extraction, reducing time for manual processing without repetitive centrifugations, and lowering the risk of cross-contamination.

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	Food material or products
Elution Volume	60-80 µL

5. Component Supplied with the Kit

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
Spin tips	96 tips	Spin tip assembled box
Protocol	1	Instruction guide for user

6. Auto Plate Content

Well	Buffer	Volume (µL)
1 / 7	Lysis Buffer	600
2 / 8	Washing Buffer 1	800
3 / 9	Washing Buffer 2	800
4 / 10	Washing Buffer 2	800
5 / 11	Magnetic Beads	800
6 / 12	Elution Buffer	80

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 receipt, 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 Auto Plates in an oven (preheated 42 - 60°C) for 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 to air. The evaporation would lead to pH change or affect the extraction effectiveness.
7) Please check the integrity of the Auto Plates 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.
13) The reagents are all colorless and transparent. Colored reagents indicate contamination, please replace it with a fresh tube before proceeding.

9. Materials required, Not Supplied

1) TANBead® Nucleic Acid Extraction System
   Model: Maelstrom 8 series, Maelstrom 4800 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. Sample Collection, Transportation, and Storage

■ **Sample collection and storage**

Food and feed samples should be collected properly and stored according to sample characteristics.

■ **Sample transportation**

Generally, food and feed samples should be kept between 2 - 25°C during transportation. For certain cases, such as the frozen food samples, we suggest keep and transport them at corresponding conditions.

11. Nucleic Acids Extraction Protocol

■ **Sample preparation**

1) Homogenize about **50 mg sample** in a 1.5 mL tube.
2) Add **500 µL incubation buffer** and **20 µL Proteinase K** and mix well.
   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 the sample at **60°C for 10 minutes**.
4) Centrifuge at **13,000 RPM for 5 minutes**, take the supernatant as the sample for the following step.

■ **Automatic process**

5) Carefully remove the aluminum foil on the Auto Plates.
6) Transfer up to **500 µL** of the supernatant without pellet and debris into well of column **#1 / #7** of the Auto Plate.
7) Set up spin tips.
   Maelstrom 8 series: Handle to mount tips and make sure that there is no gap between the necks of spin tips and the spin shaft.
   Maelstrom 4800 series: Go to the "Tip" page and press the "mount tips" button.
8) Push Auto Plates completely to the bottom of the plate rack. Make sure that the chamfer of the plate is at the lower left.
9) Select the program:
   Maelstrom 8 series: "**6GM-1**" or "**6GM-7**" for input specimen at column **#1** or column **#7**, respectively.
   Maelstrom 4800 series: "**6GM**"
   The parameters are given in the following section.
10) Carefully remove the Auto Plates when the program is finished.
11) Use a micropipette to transfer the purified nucleic acids from well of column **#6 / #12** to clean tubes.
12) Discard used Auto Plates and spin tips into the waste recycling bin.

12. Program

■ **Maelstrom 8 series**

Program Name: 6GM-1/7						
Well	1/7	2/8	3/9	4/10	5/11	6/12
Volume	1100 (µL)	800 (µL)	800 (µL)	800 (µL)	800 (µL)	100 (µL)

Step	Well	Action	RPM	Time (Second)	CW/CCW (Second)	Temp.	Temp. Control
1	5/11	Collection	0	30	0	60	YES
2	1/7	Mixing	2500	720	0	60	YES
3	1/7	Collection	0	30	0	60	YES
4	2/8	Mixing	2500	120	0	45	YES
5	2/8	Collection	0	30	0	45	YES
6	3/9	Mixing	1500	60	0	45	YES
7	3/9	Collection	0	30	0	45	YES
8	4/10	Mixing	1500	60	0	45	YES
9	4/10	Collection	0	30	0	45	YES
10	5/11	Mixing	1500	60	0	45	YES
11	5/11	Collection	0	30	0	45	YES
12	5/11	Vapor	0	600	0	45	YES
13	6/12	Mixing	2500	300	0	45	YES
14	6/12	Collection	0	30	0	45	YES
15	3/9	Mixing	2500	30	0	45	YES
16	3/9	Collection	0	30	0	0	NO

■ **Maelstrom 4800 series**

Program Name: 6GM				Model: Maelstrom 4800 series			
Temp1	Temp2						
40	40						
Well	Name	Volume (µL)	Action	Mixing	Collect		
1/ 7	LB	1100	Rev. U/D	Low	Low		
2/ 8	WB1	800	For.	Low	Low		
3/ 9	WB2	800	For.	Low	Low		
4/ 10	WB2	800	For.	Low	Low		
5/ 11	MB	800	For.	Low	Low		
6/ 12	EB	100	For.	Low	Low		
Step	Well	Temp (°C)	Mixing (M)	Mixing Speed (RPM)	Collect (M)	Vapor (M)	Pause
1	5		0	2500	0.5	0	Off
2	1	55	12	2500	0.5	0	Off
3	2		2	2500	0.5	0	Off
4	3		1	1500	0.5	0	Off
5	4		1	1500	0.5	0	Off
6	5		1	1500	0.5	10	Off
7	6	OFF	5	2500	1.5	0	Off
8	3		0.5	2500	0	0	Off

13. Reagent performance

■ **The stability of extracted DNA**

Storage Conditions	DNA stability
-80°C	Over 90 days
-20°C	28 days
4°C	14 days
25°C	2 days
Freeze-thaw	10 times

14. Troubleshooting

■ **Inhibitor carryover**

A possible inhibitor carryover is sometimes, although not necessarily, identified by a colored eluate. Dilute the sample at least 1:10 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.

15. Explanation of Symbols

	Manufacturer		Consult instructions for use
15°C 35°C	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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