TANBead® Nucleic Acid Extraction Kit

Universal Pathogen Auto Tube

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

RUO

M66PS46

(For Research Use Only) V3

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 (M66PS46) is suitable for extracting nucleic acids from various samples, such as pure cultures of any pathogenic microorganisms (*e.g.*, Gram-positive bacteria, Gram-negative bacteria, virus, fungi, and mycoplasma), clinical samples, and samples containing multiple pathogens with complex backgrounds (*e.g.*, urine, serum, blood, swab, saliva, plasma, VTM, and UTM). Specimens are processed through a series of automatic extraction steps and finally the high-quality nucleic acids can be applied directly to the following qualitative and quantitative assays (qPCR, and PCR). With high sensitivity, this reagent kit can be applied for research.

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	300 µL liquid-based sample
Elution Volume	50~80 µL

5. Component Supplied with the Kit

Σ 96

Auto Tube	8 Trays	Auto Tube with reagent buffers
Proteinase K	1.0 mL x 1	Proteinase K
Elution Buffer	1.5 mL x 1	Nuclease-Free Water
Base	2	A rack for 8 Auto Tubes
Spin Tips	48 Tips x 2 Boxes	Spin Tip Assembled Box
Protocol	1	Instruction guide for user

6. Auto Tube Content

Well	Buffer	Volume (µL)
1	Lysis Buffer with Glass beads	600
2	Washing Buffer 1	800
3	Washing Buffer 1	800
4	Magnetic Beads	800
5	-	-
6	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 Tubes in an oven (preheated 42~60°C) for 5 to 10 min.
4) Avoid vigorous shaking, to avoid excessive formation of foam.
5) Carefully remove aluminum foil to avoid splashing.
6) Do not expose the opened reagents or 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 Tubes 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 a bleach-containing detergent.
11) Avoid eye, skin, and clothing contact with reagents. In case of any contact, flush with flowing water.
12) Please set the 8 gearbox or 8+ gearbox on Maelstrom Switch 8 before powering on. If the connection is successful, the number "8" (8 gearbox; 8 channel) or "8+" (8+ gearbox; 16 channel) will be shown on the screen.

9. Materials required, Not Supplied

1) TANBead® Nucleic Acid Extraction System
   Model: Maelstrom 8 series, Maelstrom 4800 series, Maelstrom Switch 8 (non-sterile)
2) Disposable gloves
3) Scissors, utility knife
4) Micropipette, disposable tips (10 µL / 200 µL / 1000 µL)
5) Microcentrifuge tube (1.5 mL)
6) Conical tube (15 mL / 50 mL)

10. Sample Collection, Transportation, and Storage

■ **Sample collection and storage**

1) Swab or liquid-based cytology samples (*e.g.*, urine, saliva, VTM, and UTM)
   a. The collection of samples should follow the guidance of collecting containers provided by the supplier. The storage of collected samples should follow the guidance or regulation of local authorities.
   b. The transportation of cervical swabs or liquid-based cytology samples should be followed by specific pathogen transportation-related regulations.
2) Serum, whole blood, or plasma
   a. Serum specimens must be obtained from serum collection tubes, and whole blood specimens must be obtained from sodium citrate or EDTA collection tubes.
   b. Fresh whole blood specimens can be stored at room temperature for 6 hr.
   c. Plasma samples collected in Streck BCT tubes are recommended. It is stable for up to 14 days.
   d. After centrifugation, the serum sample can be stored at as below:
      i. Room temperature for 24 hr
      ii. 2~8°C up to 7 days
      iii. -20°C long-term preservation

   Note: The sample could be concentrated with centrifugation or filtration to get better extraction performance if the sample concentration is too low.
3) Liquid sample broth: **300 µL** is recommended for the following automatic process.
4) Solid culture sample (spores and aerial mycelium on the plate): Scrape colonies by using an inoculation loop or autoclaved pipette tip (1.2*1.2 cm) and grind with **300 µL PBS**. This mixture is used for the following automatic process.

   Note: If the sample contains too much agar, it may cause Elution Buffer coagulation. The nucleic acid yield of solid culture samples may be lower than that of liquid culture ones, but it is sufficient for PCR analysis generally.
5) Sporocarp: **50 mg** small fragments are recommended for the following automatic process.

■ **Specimen transportation**

The transportation of whole blood and serum specimens should be followed by specific pathogen transportation-related laws. The whole blood sample should be kept between 2~25°C during transportation and within 6 hr for separated serum. Serum samples can be transported between 2~8°C or by freezing.

11. Nucleic Acids Extraction Protocol

1) Set the heating block onto the loading position.
2) Preparing the Assembled Auto Tube by inserting Auto Tube into the Base completely.
3) Carefully remove the aluminum foil on the Auto Tube.
4) Add **300 µL** liquid based sample (*e.g.* Serum, UTM etc.) and **10 µL Proteinase K** into well **#1 / #7** of Auto Tube (Well filled with **Lysis Buffer** and **Glass Beads**).

Note: The volume ratio of the sample and Lysis buffer is about 300 µL: 600 µL. Changing this ratio might affect the performance.

5) 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 / Switch 8: Go to Tip page and press the mount / pick-up tips region.
6) Push Assembled Auto Tube completely to the bottom of the plate rack. Make sure that the chamfer of the reagent plate is at the lower left.
7) Select the program.
   Maelstrom 8 series: Press "66P-1" for input sample in well #1 or "66P-7" for input samples in well #7.
   Maelstrom Switch 8 (8 gearbox, 8 channel):
   a. Press "SW8-66P"
   b. Press "L" for input samples in well #1 or "R" for input samples in well #7.
   Maelstrom 4800 series / Switch 8 (8+ gearbox, 16 channel): Press "66P" / "SW8-66P".
   The parameters are given in the following section.
8) Carefully remove the Auto Tube when the program is finished. Be careful of the heat block to avoid burn injury.
9) Use micropipette to transfer the purified nucleic acid from well #6 / #12 to a clean tube.
10) Discard used Auto Tube and Spin Tips into the waste recycling bin.

12. Program

■ **Maelstrom 8 series**

Program Name: 66P-1/7							
Well	1/7	2/8	3/9	4/10	5/11	6/12	
Volume	900 (µl)	800 (µl)	800 (µl)	800 (µl)	0 (µl)	80 (µl)	
Step	Well	Action	RPM	Time (Second)	CW/CCW (Second)	Temp.	Temp. Control
1	4/10	Collection	0	5	0	60	YES
2	1/7	Mixing	3000	6	0	80	YES
3	1/7	Mixing	3000	210	0	100	YES
4	1/7	Collection	0	15	0	45	NO
5	2/8	Mixing	3000	6	0	45	NO
6	1/7	Mixing	3000	6	0	45	NO
7	1/7	Collection	0	15	0	45	NO
8	2/8	Mixing	3000	30	0	45	NO
9	2/8	Collection	0	25	0	45	NO
10	3/9	Mixing	3000	60	0	60	YES
11	3/9	Collection	0	20	0	80	YES
12	6/12	Mixing	2500	48	0	100	YES
13	6/12	Collection	0	25	0	100	YES
14	5/11	Mixing	3000	60	0	0	NO

■ **Maelstrom 4800 series**

Program Name: 66P				Model: Maelstrom 4800 series			
Temp1	Temp2						
40	40						
Well	Name	Volume	Action	Mixing	Collect		
1/ 7	LB	900	For. U/D	Low	Low		
2/ 8	WB1	800	For.	Low	Low		
3/ 9	WB1	800	For.	Low	Low		
4/ 10	MB	800	For.	Low	Low		
*5 / 11	WB2	800	For.	Low	Low		
6/ 12	EB	80	For.	Low	Low		
Step	Well	Temp (°C)	Mixing (M)	Mixing Speed (RPM)	Collect (M)	Vapor (M)	Pause
1	4	-	0	0	0.1	0	OFF
2	1	OFF	0.1	3000	0	0	OFF
3	1	100	3.5	3000	0.2	0	OFF
4	2	-	0.1	3000	0	0	OFF
5	1	-	0.1	3000	0.2	0	OFF
6	2	-	0.5	3000	0.4	0	OFF
7	3	-	1	3000	0.3	0	OFF
8	6	100	0.8	2500	0.4	0	OFF

*This parameter has to be set in order for the machine to operate properly.

■ **Maelstrom Switch 8**

Program Name: SW8-66P				Model: Maelstrom Switch 8			
Temp							
OFF							
Well	Name	Volume	Action	Mixing	Collect		
1/ 7	LB	900	For. U/D	Low	Low		
2/ 8	WB1	800	For.	Low	Low		
3/ 9	WB1	800	For.	Low	Low		
4/ 10	MB	800	For.	Low	Low		
*5 / 11	WB2	800	For.	Low	Low		
6/ 12	EB	80	For.	Low	Low		
Step	Well	Temp (°C)	Mixing (M)	Mixing Speed (RPM)	Collect (M)	Vapor (M)	Pause
1	4	-	0	0	0.1	0	OFF
2	1	OFF	0.1	3000	0	0	OFF
3	1	70	3.5	3000	0.2	0	OFF
4	2	-	0.1	3000	0	0	OFF
5	1	OFF	0.1	3000	0.2	0	OFF
6	2	-	0.5	3000	0.4	0	OFF
7	3	-	1	3000	0.3	0	OFF
8	6	OFF	1.8	2500	0.4	0	OFF
9	2	-	0.1	500	0	0	OFF

*This parameter has to be set in order for the machine to operate properly.

13. Result

Nucleic acid products purified by TANBead® nucleic acid extraction kit can perform qualitative/quantitative analysis of specific genes by PCR, RT-PCR, q-PCR, or qRT-PCR. Please refer to the molecular diagnostic kit manual.

14. Reagent Performance

■ **The stability of extracted DNA / RNA**

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

15. Explanation of Symbols

	Manufacturer		Consult instructions for use
15°C 35°C	Temperature limit	Σ	Contains sufficient for test
REF	Catalog number		Caution
LOT	Batch code	NON STERILE	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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