



# TANBead® Nucleic Acid Extraction Kit

## OptiPure Blood DNA Auto Tube

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

**RUO**

**M61ES46**

(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 (M61ES46) has an excellent performance and can be applied to most of the blood samples, especially for those viscous blood samples, which are usually difficult to handle, frozen blood stored at -20°C as an example. Samples are processed through a series of automatic extraction steps. The nucleic acid products have high purity with an extremely low salt content, no contaminants of proteins and inhibitors. It can be directly applied for the downstream tests, such as the polymerase chain reaction (PCR), enzyme reactions.

### 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 whole blood, frozen blood, or buffy coat
Elution Volume	70 – 100 µL
Typical DNA yield	≥2 µg
Typical A260 / A280	≥1.8
Typical A260 / A230	≥1.8

### 5. Component Supplied with the Kit

Auto Tube	8 Trays	Auto Tube with reagent buffers
Elution Buffer	1.5 mL x 1	Nuclease-Free Water
Proteinase K	1.0 mL x 1	Proteinase K
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	500
2	Washing Buffer 1	800
3	Washing Buffer 2	1200
4	Magnetic Beads	1200
5	Washing Buffer 3	1200
6	Elution Buffer	100

### 7. Kit Storage and Shelf Life

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

### 8. Precautions

- For research use only.
- Avoid using expired reagents.
- When the temperature is below 20°C, place the Auto Plates / Auto Tubes in an oven (preheated 42 – 60°C) 5 to 10 minutes.
- Avoid vigorous shaking, in order to avoid excessive formation of foam.
- Carefully remove aluminum foil to avoid splashing.
- 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.
- Please check the integrity of the Auto Plates / Auto Tubes and remember to mount the spin tips into the appropriate position of the suitable instrument before operating them.
- Please wear a mask and disposable gloves when handling.
- 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) 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

- TANBead® Nucleic Acid Extraction System  
Model: Maelstrom 8 series, Maelstrom 4800 series, Maelstrom Switch 8 (non-sterile)
- Disposable gloves
- Scissors, utility knives
- Micropipette, disposable tips (10 µL / 200 µL / 1000 µL)
- 1.5 mL microcentrifuge tube
- 15 mL / 50 mL conical tube

### 10. Sample Collection, Storage and Transportation

#### ■ Sample collection and storage

- Whole blood and buffy coat collection
  - Whole blood and buffy coat samples must be obtained from sodium citrate or EDTA collection tubes.
- Sample storage
  - Fresh whole blood samples can be stored at room temperature for 6 hours.
  - After centrifugation, the buffy coat sample can be stored at
    - 2 – 8°C up to 7 days
    - 20°C for long-term preservation

#### ■ Sample transportation

Transportation of whole blood and buffy coat sample should follow specific blood transportation related law. Whole blood sample and buffy coat should be kept between 2 – 25°C during transportation and separate buffy coat within 6 hours.

### 11. Nucleic Acids Extraction Protocol

- Preparing the Assembled Auto Tubes by inserting Auto Tubes into the Base completely.
- (Switch 8) Set the heating block onto the loading position.
- Carefully remove the aluminum foil on the Auto Tubes.
- Use micropipette to load **300 µL samples** into well #1 / #7.
- Add **10 µL Proteinase K** into well #1 / #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 / Switch 8:** Go to Tip page and press the mount tips region.

- Push Assembled Auto Tubes completely to the bottom of the plate rack. Make sure that the chamfer of the plate is at the lower left.

- Select the program.

**Maelstrom 8 series:** Press “61E-V2-1” for input samples at column #1 or “61E-V2-7” for input samples at column #7.

**Maelstrom Switch 8 (8 gearbox, 8 channel):**

- Press “61E-V2”.
- Press “L” for input samples in column #1 or “R” for input samples in column #7.

- Maelstrom 4800 series/ Switch 8 (8+ gearbox, 16 channel):** Press “61E-V2”.

The parameters are given in the following section.

- Carefully remove the Assembled Auto Tubes when the program is finished. Be careful of the heat block to avoid burn injury.
- Use micropipette to transfer the purified nucleic acids from well #6 / #12 to a clean tube.
- Discard used Auto Tubes and spin tips into the waste recycling bin.

## 12. Program

### ■ Maelstrom 8 series

Program Name: 61E-V2-1/7							
Well	1 / 7	2 / 8	3 / 9	4 / 10	5 / 11	6 / 12	
Volume	800 (μL)	800 (μL)	1200 (μL)	1200 (μL)	1200 (μL)	100 (μL)	
Step	Well	Action	RPM	Time (Second)	CW/CCW (Second)	Temp.	Temp. Control
1	4 / 10	Mixing	3000	30	0	70	NO
2	4 / 10	Collection	0	30	0	70	NO
3	1 / 7	Mixing	3000	600	0	70	YES
4	1 / 7	Collection	0	60	0	70	YES
5	2 / 8	Mixing	3000	120	0	60	NO
6	2 / 8	Collection	0	30	0	60	NO
7	3 / 9	Mixing	3000	180	0	60	NO
8	3 / 9	Collection	0	30	0	60	NO
9	4 / 10	Mixing	3000	180	0	60	NO
10	4 / 10	Collection	0	30	0	60	NO
11	5 / 11	Mixing	3000	180	0	60	NO
12	5 / 11	Collection	0	30	0	60	NO
13	5 / 11	Vapor	0	300	0	60	NO
14	6 / 12	Mixing	3000	600	0	60	YES
15	6 / 12	Collection	0	90	0	60	NO
16	5 / 11	Mixing	3000	12	0	0	NO

### ■ Maelstrom 4800 series

Program Name: 61E-V2						Model: Maelstrom 4800 series	
Temp1	Temp2						
40	40						
Well	Name	Volume (μL)	Action	Mixing	Collect		
1 / 7	LB	800	For.	Low	Low		
2 / 8	WB1	800	For.	Low	Low		
3 / 9	WB2	1200	For.	Low	Low		
4 / 10	MB	1200	For.	Low	Low		
5 / 11	WB3	1200	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	4	-	0.5	3000	0.5	0	Off
2	1	70	10	3000	1	0	Off
3	2	-	2	3000	0.5	0	Off
4	3	-	3	3000	0.5	0	Off
5	4	-	3	3000	0.5	0	Off
6	5	-	3	3000	0.5	5	Off
7	6	60	10	3000	1.5	0	Off
8	3	-	0.2	3000	0	0	Off

### ■ Maelstrom Switch 8

Program Name: 61E-V2				Model: Maelstrom Switch 8			
Temp1							
40							
Well	Name	Volume (μL)	Action	Mixing	Collect		
1 / 7	LB	800	For.	Low	Low		
2 / 8	WB1	800	For.	Low	Low		
3 / 9	WB2	1200	For.	Low	Low		
4 / 10	MB	1200	For.	Low	Low		
5 / 11	WB3	1200	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	4	-	0.5	3000	0.5	0	Off
2	1	70	10	3000	1	0	Off
3	2	-	2	3000	0.5	0	Off
4	3	-	3	3000	0.5	0	Off
5	4	-	3	3000	0.5	0	Off
6	5	-	3	3000	0.5	5	Off
7	6	60	10	3000	1.5	0	Off
8	3	-	0.2	3000	0	0	Off

## 13. Reagent performance

### ■ Repeatability

Under repeatability conditions where nucleic acids are extracted with the same reagent kit on the same source samples by the same operator. The coefficient of variation of nucleic acid extraction concentration is less than 5%.

### ■ Reproducibility

A five-day reproducibility test was carried out with the same source samples for 5 consecutive days with the same reagent kit by different operators. The coefficient of variation of nucleic acid extraction concentration is less than 5%.

### ■ 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	5 times

## 14. Explanation of Symbols

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