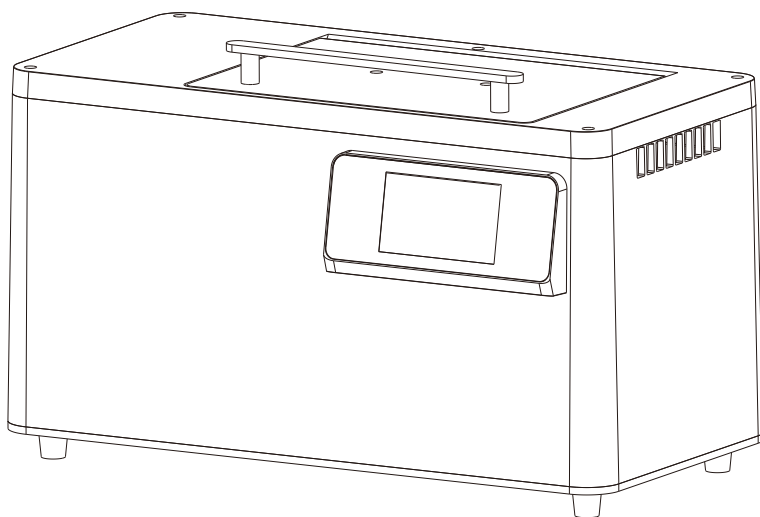




# User Manual

## Antigen Retrieval System

### ARI-4

Please read the user manual carefully and keep it properly  
before using the product for future reference

Wuhan Servicebio Technology Co., Ltd.



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# 01 Important Notes

## ⚠ Notes / Warnings

- The "Notes" section contains particularly important information. Please read it carefully. Failure to follow the instructions may result in equipment damage or malfunction
- The "Warnings" section requires special caution during operation. Incorrect handling may lead to serious personal injury

## Safety

Basic safety precautions must be followed during all stages of operating, maintaining, and repairing this instrument. Failure to comply with these measures or the warnings elsewhere in this manual may compromise the protection provided by the instrument and violate safety standards. The company assumes no responsibility for consequences arising from non-compliance.

## ⚠ Notes

- This instrument is designed for indoor use only

## 1. Stay Away from Live Circuits

Do not open the instrument without authorization. Replacement of components or internal adjustments must be performed by certified professionals. Do not replace components while the power cord is connected.

## 2. Power Supply Precautions

Before connecting to the AC power supply, ensure the voltage matches the instrument's requirements (allowable deviation:  $\pm 10\%$ ). Also, ensure the power socket's rated load meets the instrument's specifications.

## 3. Proper Placement

Place the instrument in a low-humidity, low-dust environment, away from water sources (e.g., sinks, pipes). Ensure good ventilation and avoid corrosive gases or strong magnetic interference.

The openings on the instrument are designed for ventilation. To prevent overheating, do not block or cover these vents. For single-unit use, maintain a distance of at least 25 cm between the ventilation holes on the sides and nearby objects. High temperatures may affect performance or cause malfunctions. Avoid direct sunlight, radiators, stoves, or other heat sources.

When the instrument is not in use for extended periods, unplug the power cord and cover it with a soft cloth or plastic sheet to prevent dust accumulation.

## ⚠ Notes

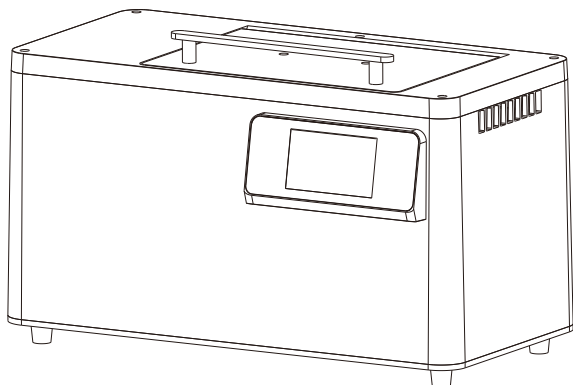
Immediately unplug the instrument and contact the supplier or a qualified technician under the following circumstances:

- Liquid has spilled into the instrument
- The instrument has been dropped or the casing is damaged
- The instrument has been exposed to rain or water
- There is a significant change in performance
- The instrument malfunctions, especially if unusual sounds or odors occur

## ⚠ Warnings

- Always disconnect the power supply before cleaning the instrument's surface
- Do not use corrosive cleaning agents on the instrument's surface

# 02 Product Introduction



ARI-4 Antigen Retrieval System

## Product Features

1. Capable of simultaneously processing up to 96 slides;
2. Precise temperature control for stable results;
3. Direct heating of acidic or alkaline (pH 6~9) antigen retrieval solutions;
4. Two modes available: preheating or direct operation;
5. Post-retrieval cooling of antigen retrieval solutions.

# 03 Product Features

## 3.1 Normal Operating Conditions

|                           |                                  |
|---------------------------|----------------------------------|
| Environmental Temperature | 10°C~30°C                        |
| Relative Humidity         | ≤70%                             |
| Input Power               | AC220V±10% (AC110V±10% optional) |
| AC Frequency              | 50Hz/60Hz                        |
| Power Rating              | 550W/1000W                       |

Note: Before use, confirm the operating conditions meet the above requirements.

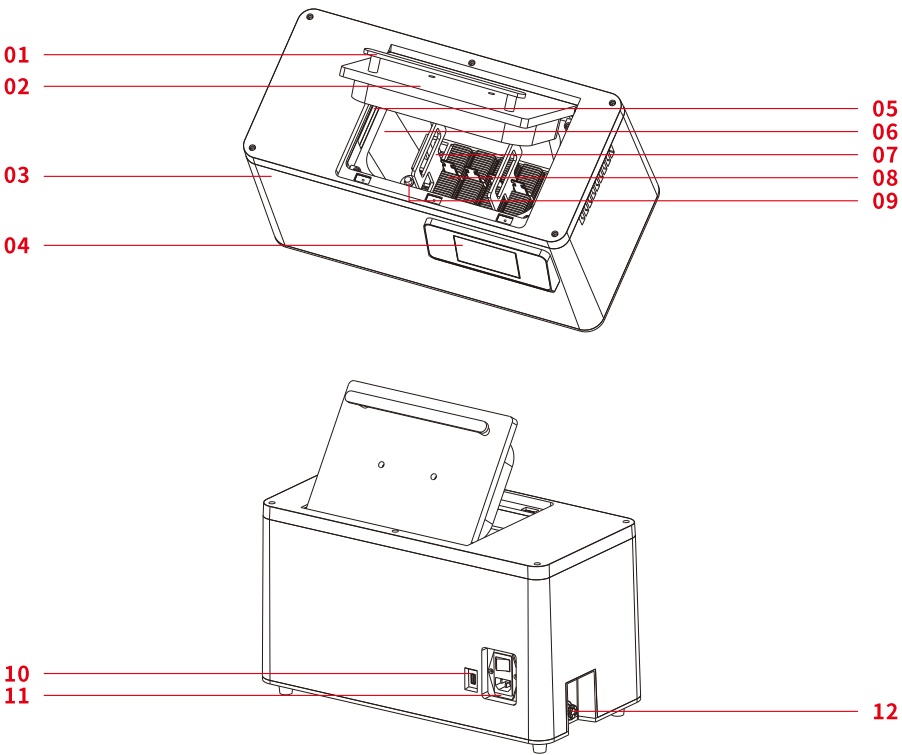
## 3.2 Transportation and Storage Conditions

|                           |             |
|---------------------------|-------------|
| Environmental Temperature | -20°C~+55°C |
| Relative Humidity         | ≤80%        |

## 3.3 Product Parameters

|                           |               |
|---------------------------|---------------|
| Cat.No.                   | ARI-4         |
| Dimensions                | 463×232×290mm |
| Weight                    | 7.1Kg         |
| Temperature Range         | RT+5~100°C    |
| Temperature Accuracy      | ±2°C          |
| Minimum Setting Precision | 1°C           |

# 04 Structural Diagram



- |                   |                          |                    |
|-------------------|--------------------------|--------------------|
| 01 Handle         | 02 Door                  | 03 Casing          |
| 04 Display Screen | 05 Fan                   | 06 Heating Chamber |
| 07 Basket Rack    | 08 Staining Rack         | 09 Float Switch    |
| 10 USB Port       | 11 Integrated Power Cord | 12 Drainage Port   |

# 05 Operating Guide

## 5.1 Pre-Startup Checks

Before plugging in and powering on the instrument, confirm the following:

1. The power supply matches the instrument's voltage requirements (see Chapter 2);
2. The power plug is securely inserted into the socket;
3. The drainage valve is fully closed or the drainage tube is removed.

## 5.2 Process Introduction

After startup, the home screen will appear (Figure 5.1).

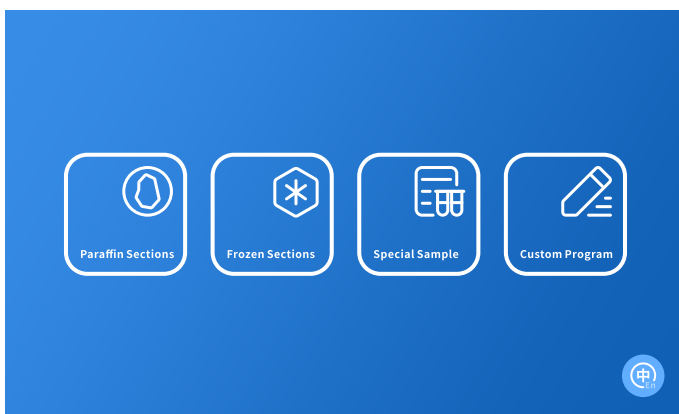


Figure 5.1

Select "Paraffin Sections," "Frozen Sections," or "Custom Program" as needed.

For example, select "Paraffin Sections" to enter the interface shown in Figure 5.2.

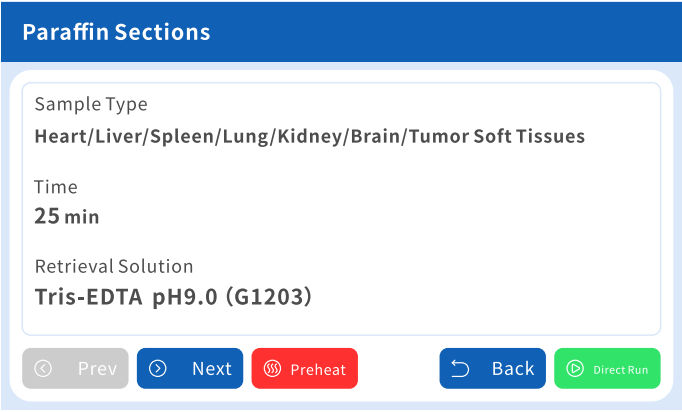


Figure 5.2

Click "Next" to select the sample type, "Back" to return to the home screen, "Preheat" to start preheating, or "Direct Run" to begin direct operation.

5.2.1 Preheat Process

Using "Heart/Liver/Spleen/Lung/Kidney/Brain/Tumor Soft Tissues)" as an example.  
Click "Preheat" to open the prompt screen (Figure 5.3). Add the specified antigen retrieval solution as instructed.

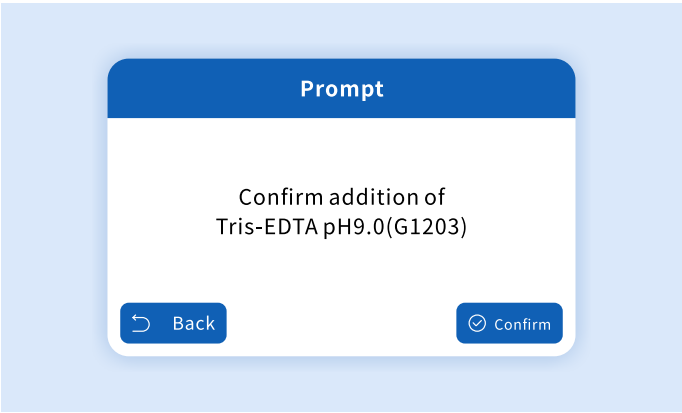


Figure 5.3

The minimum volume must cover the float switch's spring position, while the maximum should not exceed the float's top. The optimal volume fully submerges the slides (Figure 5.4).

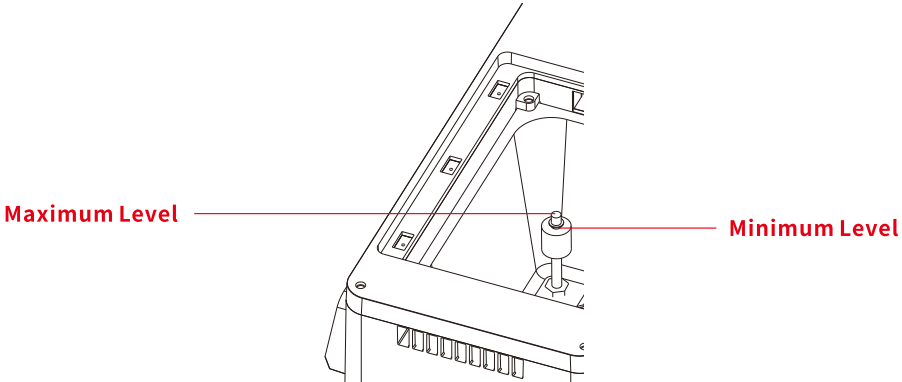


Figure 5.4

After adding the solution, click "Confirm" to enter the interface shown in Figure 5.5.

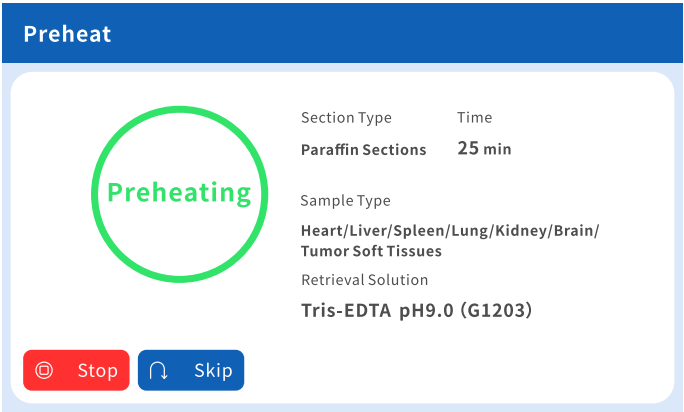


Figure 5.5

Click "Stop" to terminate the experiment or "Skip" to proceed directly to the operation process (follow prompts to add slides).  
When the temperature reaches the set value, a prompt will appear (Figure 5.6), instructing you to add the slides.

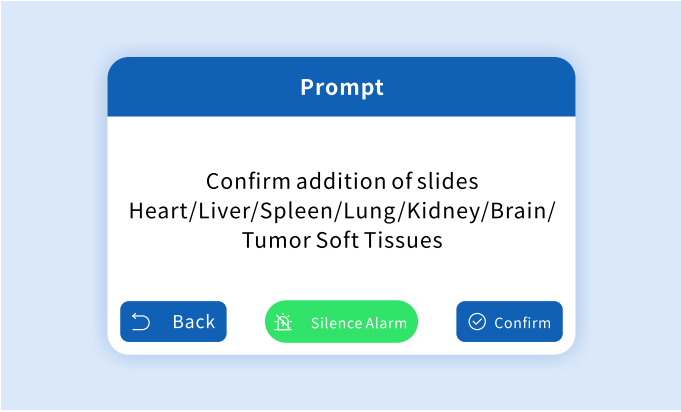


Figure 5.6

Click "Back" to stop the experiment, "Silence Alarm" to mute the buzzer, or "Confirm" to proceed. After confirmation, the interface shown in Figure 5.7 will appear.

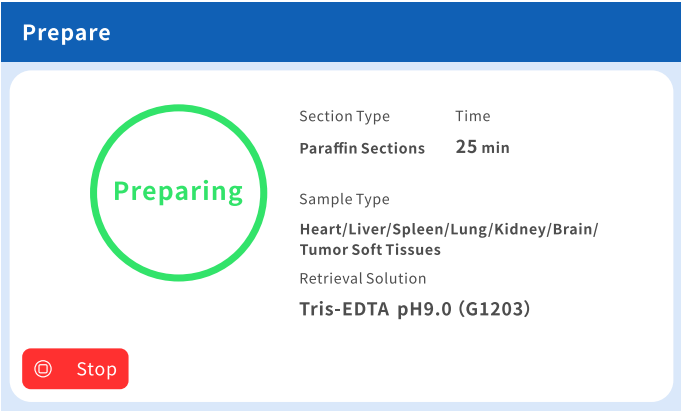


Figure 5.7

When the temperature stabilizes, the buzzer will sound once, and the countdown will begin (Figure 5.8).

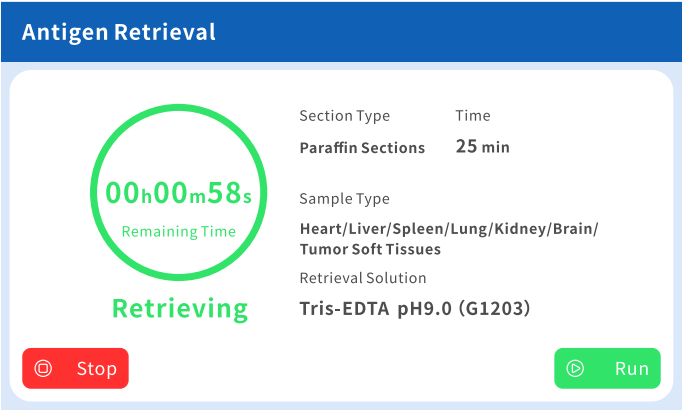


Figure 5.8

After the countdown ends, the completion screen will appear (Figure 5.9).

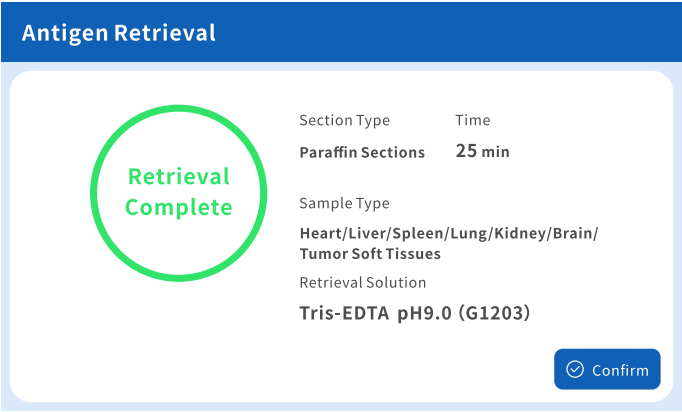


Figure 5.9

Click "Confirm" to open the prompt screen (Figure 5.10).

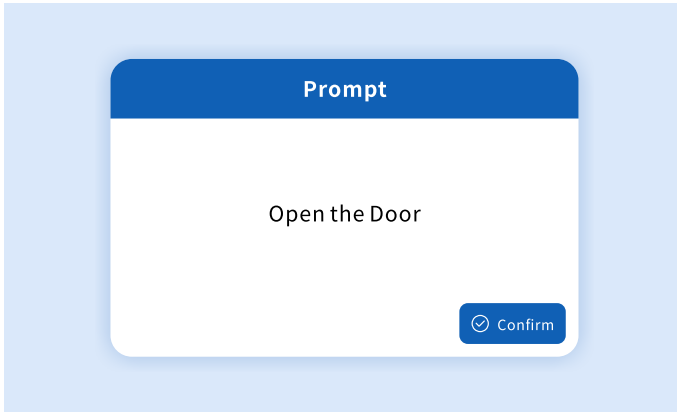


Figure 5.10

Open the door as instructed. After clicking "Confirm," the prompt in Figure 5.11 will appear.

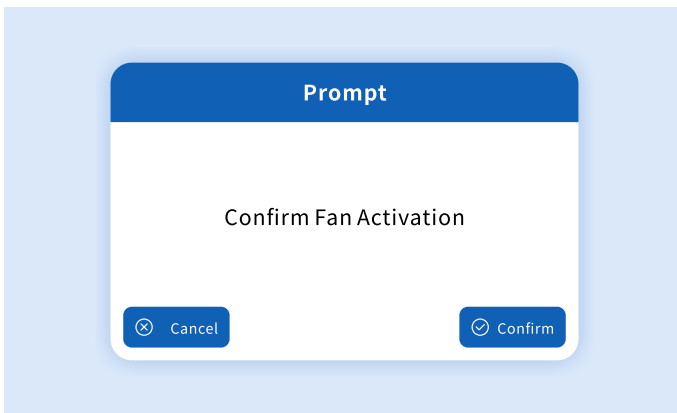


Figure 5.11

Click "Cancel" to return to the home screen or "Confirm" to activate the fan (Figure 5.12). Ensure the door remains open during cooling to avoid affecting performance or fan lifespan.

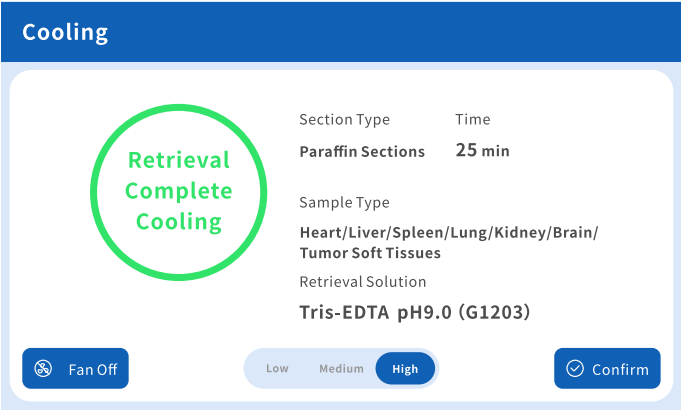


Figure 5.12

Adjust the fan speed (Low/Medium/High) or Fan off. Click "Confirm" or wait for cooling to complete to proceed to Figure 5.13.

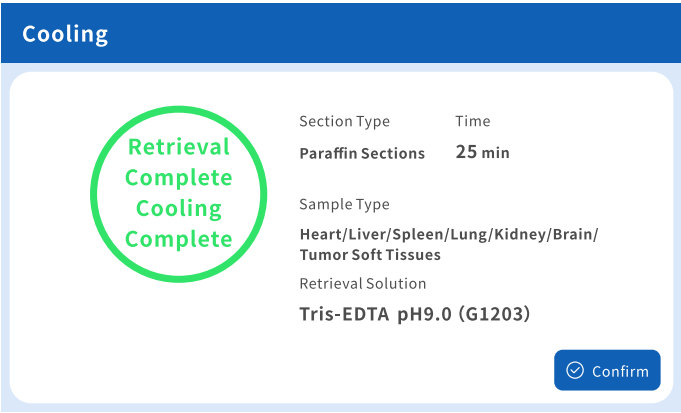


Figure 5.13

The experiment is now complete. The buzzer will sound for two minutes. Click "Confirm" to return to the home screen.

5.2.2 Direct Run Process

Using "Aortic Valve/Aorta/Skin/Trachea/Bone/Muscle (easily detached tissues)" as an example:  
Click "Direct Run" to open the prompt screen (Figure 5.14). Add the specified antigen retrieval solution (refer to Figure 5.4 for volume).



Figure 5.14

After adding the antigen retrieval solution, click "OK", and a prompt interface (as shown in Figure 5.15) will pop up. Follow the instructions to load the corresponding tissue sections.



Figure 5.15

After clicking "Confirm" following sectioning, the system will enter the interface shown in Figure 5.16, where the reagent is being heated.

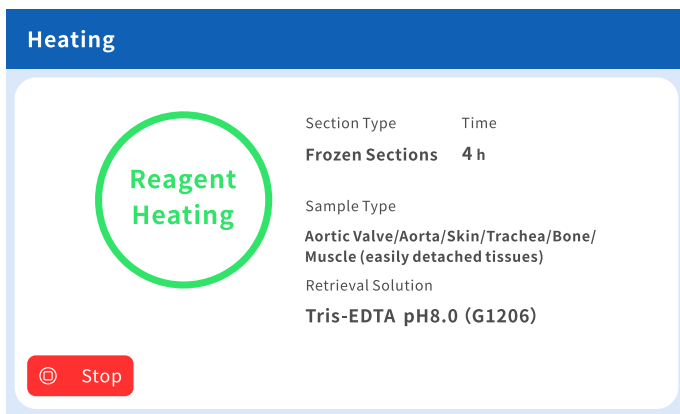


Figure 5.16

When the temperature stabilizes, the buzzer will sound once, and the countdown will begin (Figure 5.17).

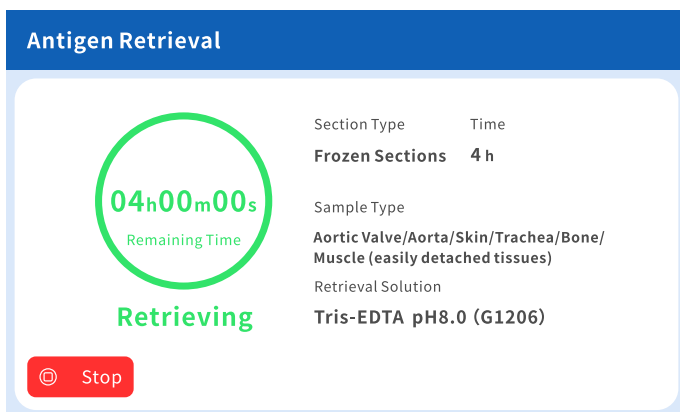
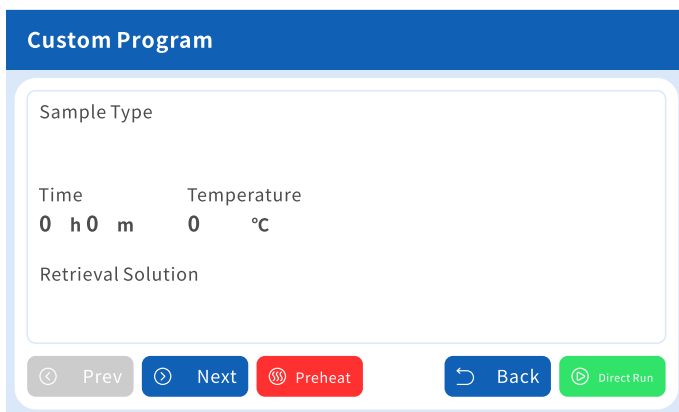


Figure 5.17

The subsequent steps are identical to the preheat process.

### 5.2.3 Custom

In addition to predefined programs, the instrument allows custom settings for section name, time, temperature, and retrieval solution (Figure 5.18).



**Custom Program**

Sample Type

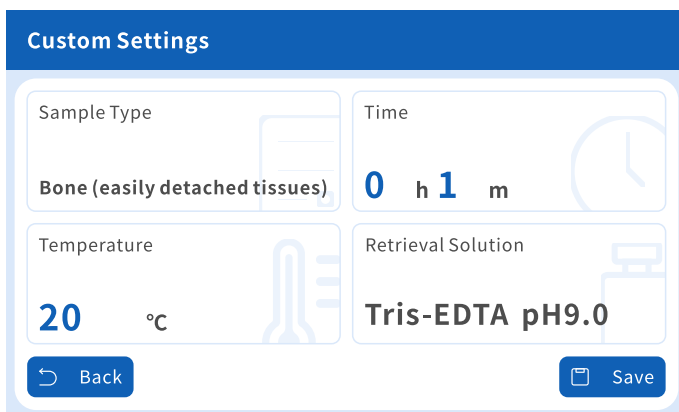
Time 0 h 0 m Temperature 0 °C

Retrieval Solution

Prev Next Preheat Back Direct Run

Figure 5.18

Tap the input fields to open the editing interface (Figure 5.19).



**Custom Settings**

Sample Type Bone (easily detached tissues)

Time 0 h 1 m

Temperature 20 °C

Retrieval Solution Tris-EDTA pH9.0

Back Save

Figure 5.19

After entering the parameters, click 'Save' to bring up the saving interface. Once completed, the system will return to the interface shown in Figure 5.19. Click 'Back' to return to the custom interface. All entered parameters will be saved and remain available upon next startup, as shown in Figure 5.20

Custom Program

Sample Type

Bone (easily detached tissues)

Time

0 h 1 m

Temperature

20 °C

Retrieval Solution

Tris-EDTA pH9.0(G1203)

⏪ Prev

⏩ Next

🔥 Preheat

↶ Back

▶ Direct Run

Figure 5.20

Select "Preheat" or "Direct Run" as needed.

# 06 Troubleshooting

This chapter covers potential malfunctions, causes, and solutions.

## Troubleshooting Guide

| No. | Fault Phenomenon                                                   | Cause Analysis                                                                             | Troubleshooting Method                                                                              |
|-----|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| 1   | Electronic screen does not light up after turning on the power     | 1.Power not connected<br>2.Switch damaged<br>3.No communication with the electronic screen | 1.Check if the power is connected<br>2.Replace the switch<br>3.Contact the supplier or manufacturer |
| 2   | Actual temperature significantly deviates from the set temperature | Sensor damaged or poor contact                                                             | Contact the supplier or manufacturer                                                                |
| 3   | Instrument does not heat                                           | 1.Heating film damaged<br>2.Temperature sensor damaged<br>3.Temperature switch damaged     | Contact the supplier or manufacturer                                                                |
| 4   | "Low liquid level" warning persists after adding repair solution   | Liquid level switch damaged                                                                | Contact the supplier or manufacturer                                                                |
| 5   | Fan does not spin during cooling                                   | Fan damaged or poor contact                                                                | Contact the supplier or manufacturer                                                                |

# 07 Product Configuration List

| No. | Item                         | Quantity |
|-----|------------------------------|----------|
| 1   | Antigen Retrieval Instrument | 1        |
| 2   | Power Cord                   | 1        |
| 3   | Drainage Tube + Ball Valve   | 1        |
| 4   | Basket Rack                  | 1        |
| 5   | User Manual                  | 1        |
| 6   | Warranty Card                | 1        |
| 7   | Maintenance Record           | 1        |
| 8   | Product Certificate          | 1        |



## Note

- Fragile components are included. Avoid impact or dropping during handling, as this may cause irreparable damage
- After use, wipe away water stains and dust from the instrument's surface

# 08 After-Sales Service

## Warranty Coverage

During the warranty period, the company will repair or replace parts damaged by non-human factors or unforeseeable causes.

Out-of-warranty repairs may incur costs.

## Warranty Exclusions

The warranty does not cover damage caused by improper use, operation under non-compliant conditions, or unauthorized modifications.



### Note

- Upon unboxing, inspect all items against the packing list. Report any damage or missing items immediately to the supplier
- After acceptance, complete the product acceptance form and return a copy (or fax) to the supplier for records and future service
- Retain the packaging for repairs. The company is not responsible for damage caused by inadequate packaging during transit

# Warranty Card

|              |  |                |  |
|--------------|--|----------------|--|
| User Name    |  | Contact Number |  |
| Device Model |  | Factory Number |  |

# Maintenance Record

| Date of Repair Request | Faults and Maintenance Status | Date of Repair | Maintenance Technician |
|------------------------|-------------------------------|----------------|------------------------|
|                        |                               |                |                        |
|                        |                               |                |                        |
|                        |                               |                |                        |
|                        |                               |                |                        |
|                        |                               |                |                        |
|                        |                               |                |                        |
|                        |                               |                |                        |



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