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eZwest Lite

Automated Western Device

Start Your Easy Western from Here



 **GenScript**
Make Research Easy

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Components and initial setup

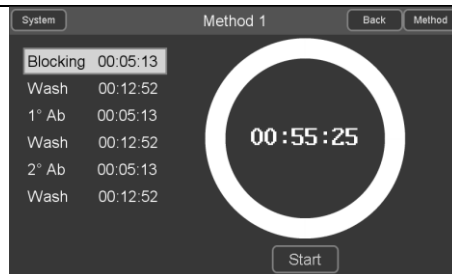
Important! Please check that all parts listed below are included with your package.

Components	Cat.	Unit	Quantity
eZwest Lite Automated Western Device		1 unit	1
Membrane Cassette	L00820	1 unit	1
Cleaning Cassette	L00821	1 unit	1
Power Cord		1 pc	1
Forceps		1 pc	1
Roller		1 pc	1
Silicone Tubing		3/pk	1
Waste Bottle		1 pc	1
Stylus Pen	L00822	1 pc	1
Wash Buffer Bottle		1 pc	1
50 mL Tube		3/pk	1
eZwest Spacer	L00824	10/pk	1
Quick Guide		1 pc	1
Manual		1 pc	1

For best result, please follow these instructions to set up the device before your first experiment

Note: Before relocating the instrument, please drain the system completely.

Step	Description
1	Check and make sure the power plug matches the outlet
2	Place eZwest Lite device on a steady and levelled lab bench
3	Keep the vicinity of the instrument clean and ventilated
4	Make sure the power switch is OFF before plug in the instrument
5	Locate the three ports on the back of the device and connect them to corresponding bottles with supplied tubing: wash buffer port to wash buffer bottle, waste 1 and waste 2 ports to waste bottle
6	Power on the system
7	The device should beep and start self-check. Once the screen displays the main menu as shown on the right, the unit is ready to go.



Warranty

GenScript warrants that eZwest Lite Automated Western Device is free from defects in material and workmanship for a period of **one year** from the date of purchase or an accumulative working time of **(10,000 minutes)**, whichever comes first. If any defects occur during this warranty period GenScript will at its option, repair, replace, or refund the purchase price of the product at no charge to you.

Note: Damage caused by improper transportation, or any of the following actions are excluded:

- Improper operation.
- Repair or modification done by any other party than GenScript or an authorized agent
- Use of fittings or other spare parts supplied by any other party than GenScript.
- Damages caused by disasters.

For consultation and maintenance services, please contact GenScript's customer service and provide the following information.

Instrument model:

Instrument serial number:

Order number:

Date of purchase:

If sending the instrument to GenScript for repair (with GenScript's consent), please ensure proper packaging to avoid unnecessary damage during transportation.

1. Instrument Overview

1.1 Instrument overview

eZwest Lite is a fully automated blotting device that frees researchers from the manual labor of traditional western protocol. eZwest Lite can be programmed to run a sequence of western blot membrane incubation steps automatically including: blocking, primary antibody and secondary antibody incubations and washing. When desired, the primary antibody can be recovered for re-use. The processed membranes are ready for detection. Automation of the incubation steps minimizes errors and variability typically associated with manual operations contributing to experimental reproducibility.

The eZwest Lite device is compatible with the traditional reagents and protocols used for conventional western blotting. No proprietary reagents are required. Fully customizable steps and solutions make eZwest Lite a powerful tool fitting specific experiment needs for both routine and novel western blotting conditions.

Features and Benefits

Hands-free: Press “START” and walk away

Easy-to-use: Set up in less than 10 minutes

Reliable: Comparable results to conventional manual method

Flexible: Fully customized procedures and solutions

Antibody saver: Recovery of primary antibody

Multi-Blot Processing: Incubate up to two membranes at once

1.2 Specifications

eZwest Lite automated western device

weight:	6.48 Kg
Dimensions(LxWxH):	230×230×230 mm, 9.06x9.06x9.06 in
Electrical Requirements:	100-120 V or 220-240 V, 50/60 Hz
Operating temperature:	15-40°C, 59-104°F
Max membrane size(WxH)	90x83 mm, 3.5x3.2 in
Throughput	1 channel for up to 2 membranes
Application:	Western blotting
eZwest Lite	ABS, PP, stainless steel, silicone
Forceps:	Stainless Steel
Roller:	PC

1.3 Ordering information

eZwest membrane cassette (included in L00816)

Product	Size	Quantity	Cat.
eZwest Membrane Cassette	1 unit	1	L00820

Accessories and other reagents

Product	Size	Quantity	Cat.
Membrane Spacer	10/pk	1	L00824
Stylus Pen	1/pk	1	L00822

1.4 Safety & Maintenance

To ensure optimal performance, we recommend regularly cleaning the eZwest instrument.

Component	Description
eZwest device: routine cleaning	After each use, please clean the device following the procedures below. <ol style="list-style-type: none">1. Insert the membrane cassette into the device.2. Select “system clean” method3. Prepare 30mL wash buffer (PBST or TBST) in a 50 mL tube and place it in the Blocking buffer slot. Add distilled water in the 1° Ab and 2° Ab tubes. Click OK4. Ensure there is at least 100 ml buffer in the Wash buffer bottle and the Waste bottle is empty.5. Start “System Clean” method by clicking OK again.6. After method finishes, remove the membrane cassette.
eZwest device: extensive cleaning	After every 20 use or every 2 weeks, perform the extensive cleaning following the procedures below. <ol style="list-style-type: none">1. Empty the Wash bottle and Waste bottle2. Add 100 mL deionized water in Wash bottle3. Insert the cleaning cassette into the device.4. Select “system clean” method5. When prompted, prepare 30ml of eZwest cleaning solution (Appendix I) in 50 mL tube and place it in the Blocking buffer slot. Add distilled water in the 1° Ab and 2° Ab tubes. Click OK.6. Start “system clean” program.7. After method is finished, dispose the solution in Waste bottle.8. Perform the routine cleaning protocol once.
Membrane cassette	Open the membrane cassette and rinse with distilled water or 10% ethanol and let it dry after each use.
Note	If the device will be left unused for a long period of time. Please ensure pipelines in machine is filled with Regular wash buffer.

2. Instructions

2.1 Instrument display and feature location

eZwest Lite automated western device

Fig.1 Front view

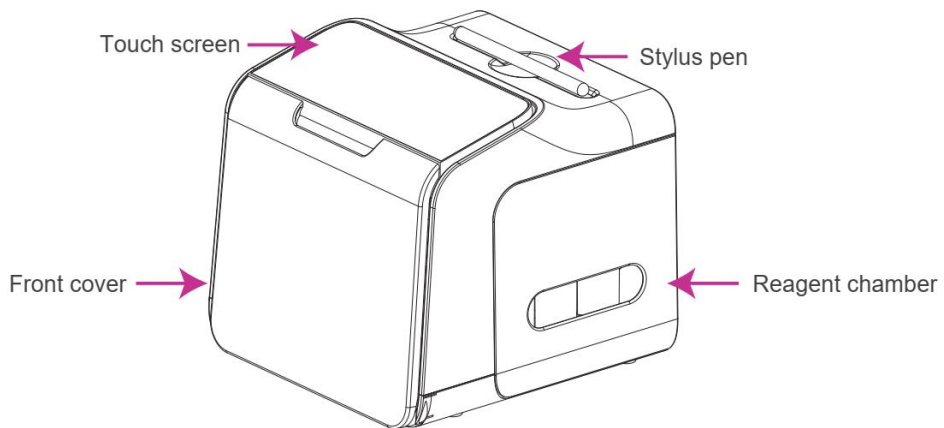


Fig.2 Back view

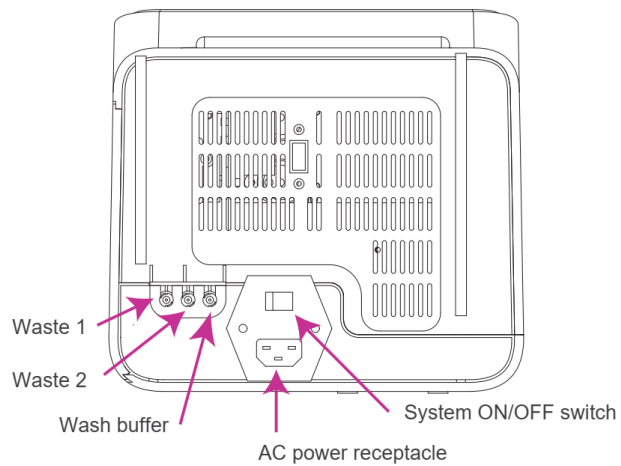


Fig.3 Top view

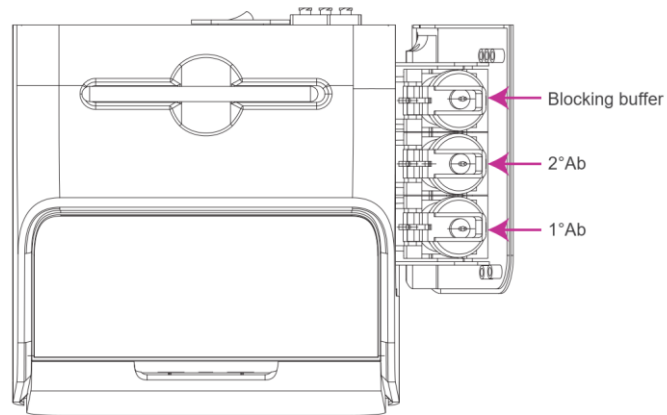


Fig.4 Membrane cassette

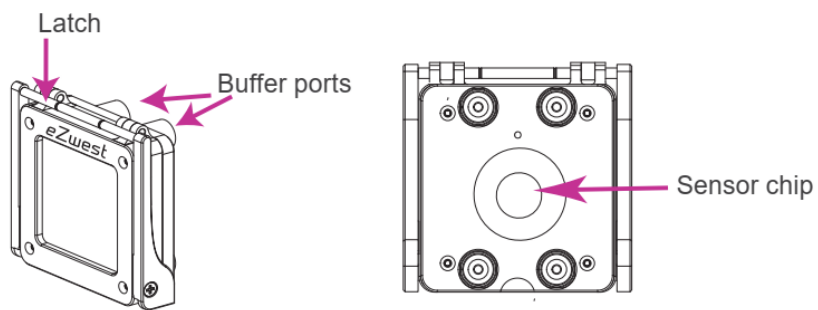


Fig.5 Display (main menu)

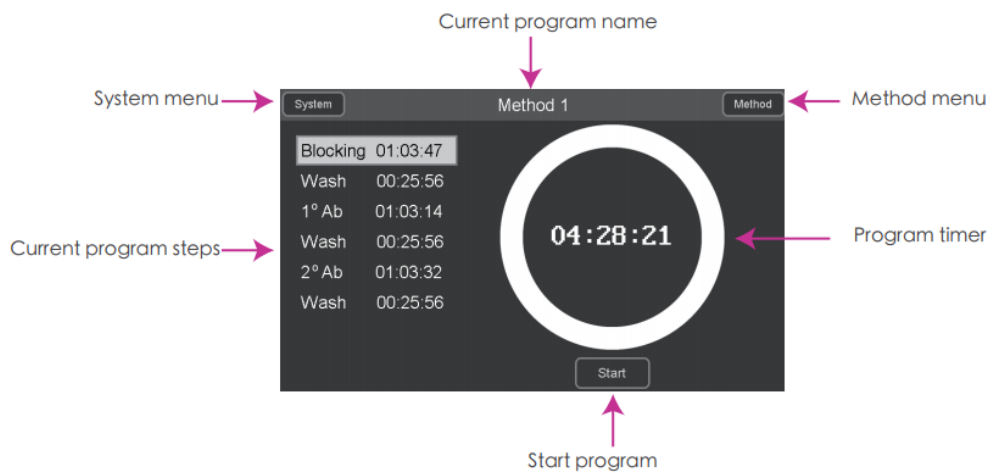
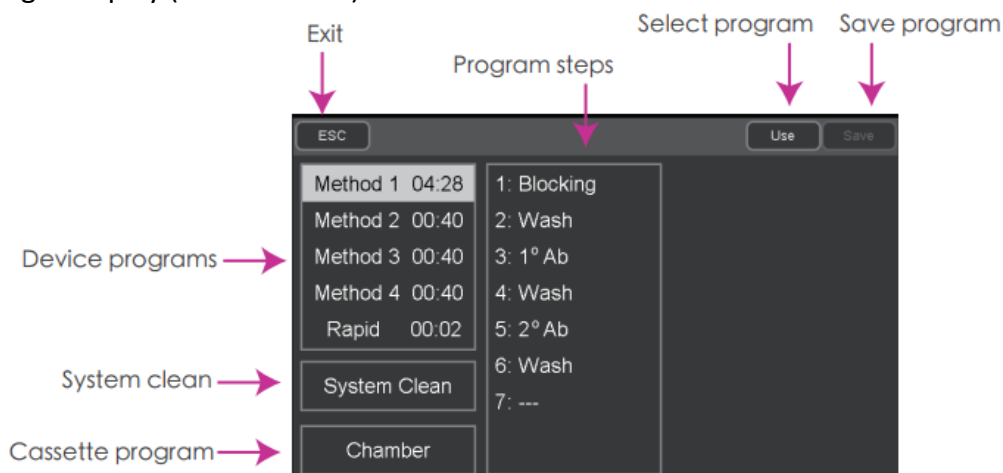


Fig.6 Display (Method view)



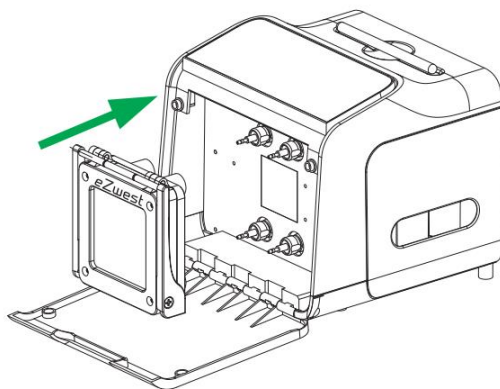
2.2 Basic operation

Save cassette ID when using the cassette for the first time

1. Position the membrane cassette as shown in Fig.7
2. Switch on the device, insert the membrane cassette into the device. Make sure the pins are pushed all the way in, and the side with the “eZwest” logo is upright.

Note: The pins are designed to be movable as part of the auto-seal mechanism. They may appear to be in different position after removing the cassette, which is normal.

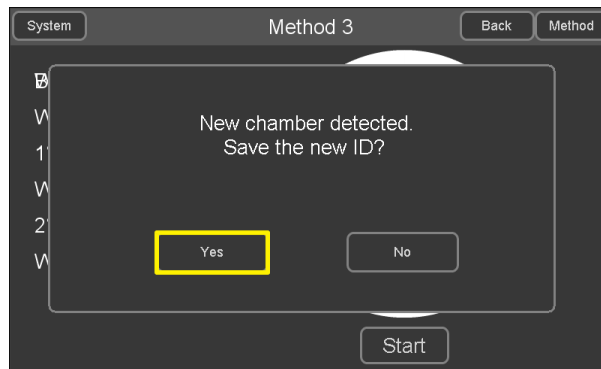
Fig.7



3. After the cassette is inserted, you will be asked if you want to “save ID”. Press OK to save cassette ID as show in Fig.8

Note: Each eZwest Lite device could save up to 5 cassette IDs.

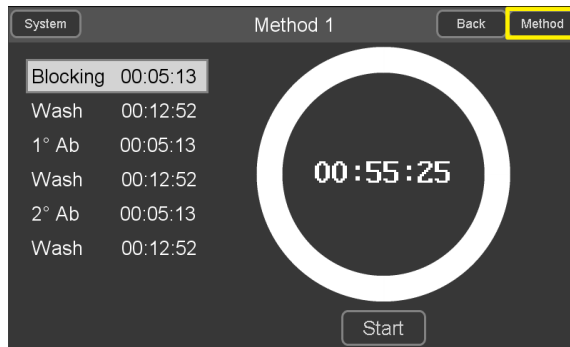
Fig.8



View and adjust method

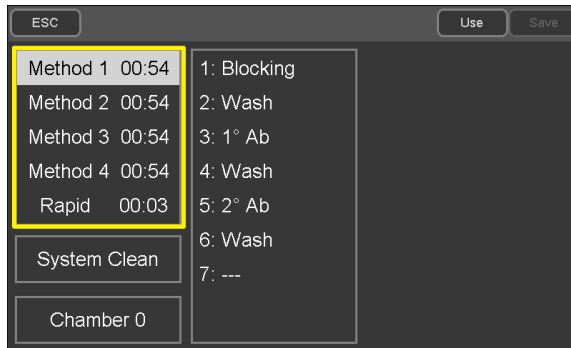
1. Enter method setting by pressing "Method" on the upper right corner of the main menu

Fig.9

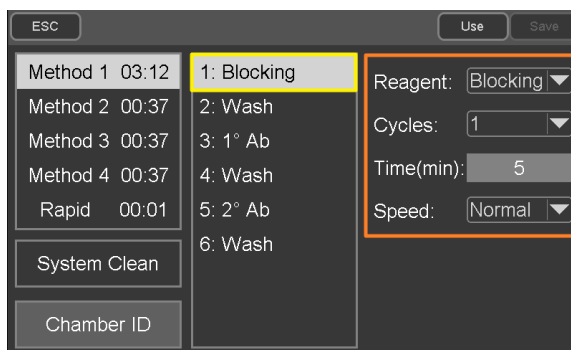


2. Select method on the left to show the steps

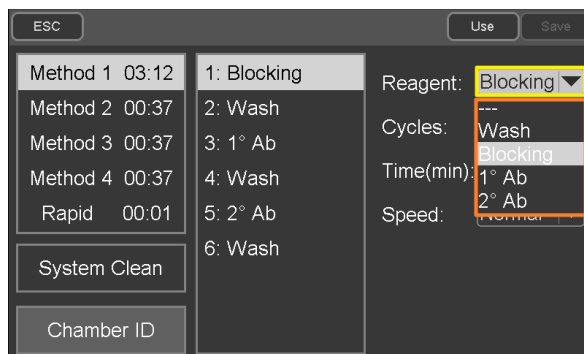
Fig.10



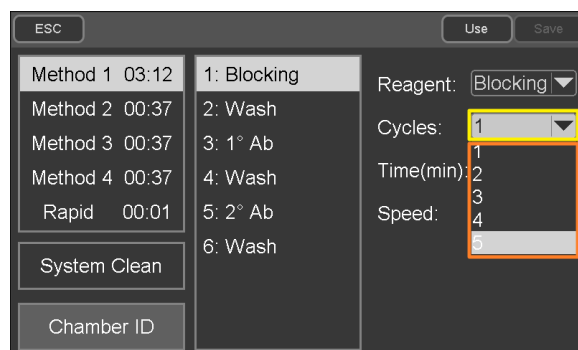
3. Select a step to show and modify the associated details.
Note: Each Method may be programmed with 7 steps.
Fig.11



4. Each step within a Method is customizable :
 - a. Reagent option
- Fig.12

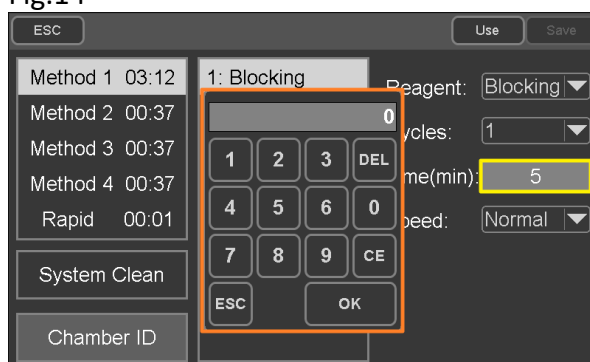


- b. Number of Cycles required to repeat the step
- Fig.13



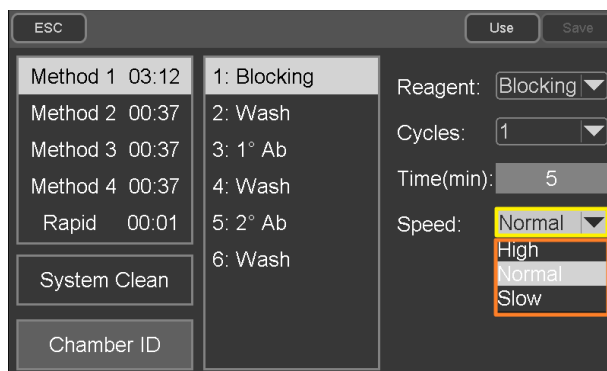
- c. Run time for each cycle in minutes

Fig.14



- d. Pump Speed for recirculating the liquid flow through the membrane cassette

Fig.15



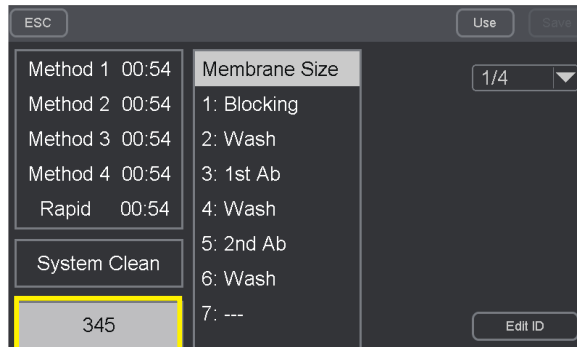
5. Once you have finished setting up your Method, press "Save"

Set cassette specific method

The eZwest Lite device can store up to four dedicated methods for each cassette. Upon cassette installation, select the associated method.

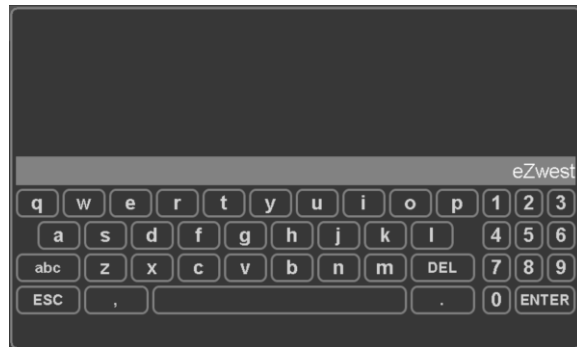
1. Method settings can be changed as described above
2. Change name of membrane cassette
 - a. Under parameter interface, select the name of membrane cassette

Fig.16



- b. Press “Edit ID” and change name with the pop-up keyboard.

Fig.17



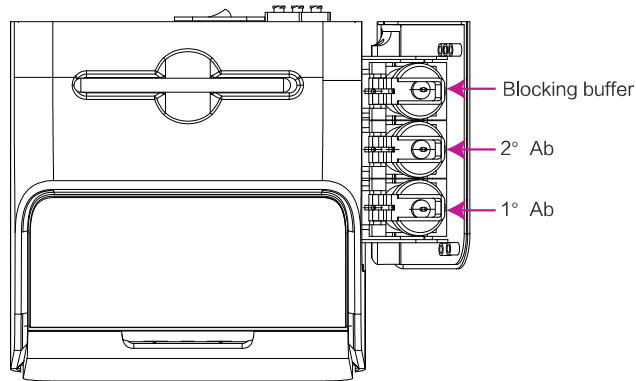
2.3 Using the Pre-programmed blotting method

1. Prepare blotting solutions
 - a. Blocking buffer, 10 mL
 - b. Primary antibody solution, 10 mL
 - c. Secondary antibody solution, 10 mL
 - d. Wash buffer, 10 mL per wash cycle, e.g. 90 mL if wash 3 times and each with 3 cycles

2. Place the prepared solutions into eZwest Lite device as indicated below.

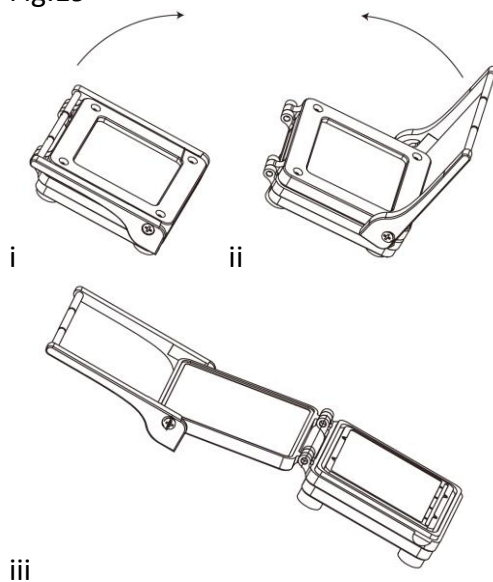
Note: Assure all fittings and caps are tightly sealed.

Fig.18



3. Open the membrane cassette: release the latch by rotating it up as shown in Fig.19(i), lift the latch and pull it towards the top of the cassette as in Fig.19(ii), the opened cassette is shown in Fig.19(iii).

Fig.19



4. Placing membrane(s) in the cassette
 - a. Processing a single membrane:
Place the membrane in the center of the cassette surface as shown below in Fig.20(i), with the protein side facing up and

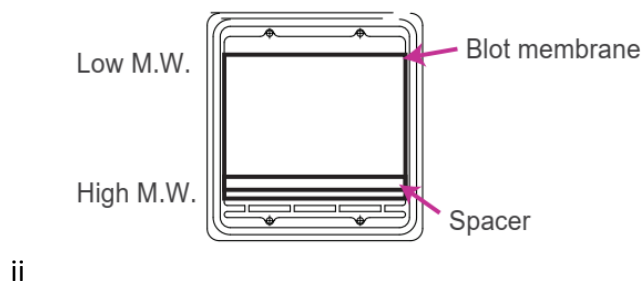
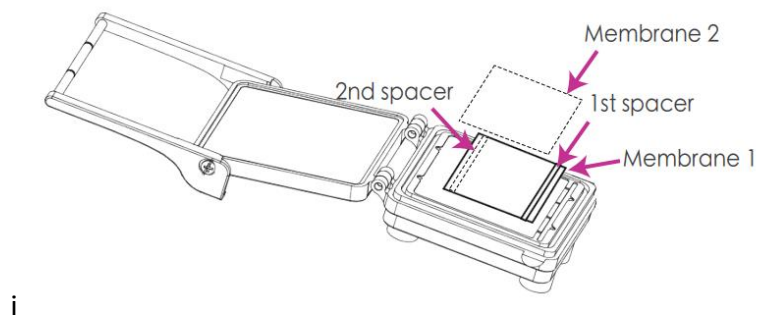
the high MW side aligning towards the bottom edge of the cassette as Fig.20(ii). Place a spacer across the high MW end (bottom) of the membrane along the membrane edge.

b. Processing two membranes simultaneously:

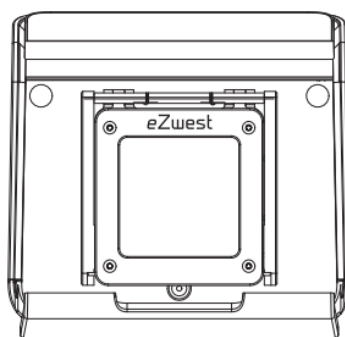
Place the first membrane as described in a. Then place a second spacer across the low MW side of the first membrane along the membrane edge. Lay the second membrane on top with the protein side facing down and high MW side align towards the bottom edge of the cassette. Make sure both spacers are in between membranes.

Note: The spacers are reusable for up to 20 times. Replace spacer if deformed or contaminated.

Fig.20



5. Carefully close the cassette and lock the latch
6. Securely insert the membrane cassette into the device as shown below, make sure the side with “eZwest” logo is facing up-right.



7. Check and ensure all the tubes and bottles contain adequate amount of reagents.
Warning: insufficient buffer or incorrect solution placement may result in experiment failure.
8. Select the method on the main menu and click “START” to run
9. Once method finish, click “FINISH”, and replace the membrane cassette with cleaning cassette. Membranes are ready for detection.
10. Replace all solutions in the reagent chamber with wash buffer or distilled water to start the system cleaning cycle when prompted.

3. Sample Protocols

Quick Protocol:

Requires a sensitive antibody and/or higher abundant protein. All steps performed at room temperature.

Step	Cycles	Time	Pump Speed
Blocking	1	30 min	Normal
Wash	3	3 min	Normal
1°Antibody	1	60 min	Normal
Wash	4	3 min	Normal
2°Antibody	1	30 min	Normal
Wash	4	3 min	Normal

Normal Protocol:

All steps performed at room temperature.

Step	Cycles	Time	Pump Speed
Blocking	1	60 min	Normal
Wash	5	3 min	Normal
1°Antibody	1	120 min	Normal
Wash	5	3 min	Normal
2°Antibody	1	60 min	Normal
Wash	5	3 min	Normal

Overnight Protocol:

For very low abundant proteins and/or antibodies with low affinity.

Step	Cycles	Time	Pump Speed
Blocking	1	60 min	Normal
Wash	5	3 min	Normal

Note: alternatively, perform blocking and wash steps manually

1° Antibody: Remove membrane and incubate with primary antibody overnight at 4°C with shaking

The following day, insert membrane into eZwest and run the following method at room temperature:

Step	Cycles	Time	Pump Speed
Wash	5	3 min	Normal
2°Antibody	1	60 min	Normal
Wash	5	3 min	Normal

4. Troubleshooting and FAQs

Error messages

Error Message	Possible causes	Solutions
Buffer Error	Can't read cassette chip/no cassette	Replace cassette/ insert cassette
No Tank	Cassette not secured in position	Check Pins and Reinsert cassette securely
Pump Error	Pump malfunction	Contact GenScript
System Error	System malfunction	Contact GenScript

FAQ

Description	Possible causes	Solutions
Strong background	Insufficient wash	<ol style="list-style-type: none"> 1. Increase number of wash cycles (set to 5 cycles for 3 minutes each) 2. Increase pump flow per wash cycles (set to normal)
Weak signal	<ol style="list-style-type: none"> 1. Antibody is too diluted 2. Instrument needs cleaning 3. Insufficient antibody incubation time 	<ol style="list-style-type: none"> 1. Reduce antibody dilution factor 2. Clean eZwest Lite instrument 3. Increase antibody incubation time or reduce incubation pump flow
Fluorescent detects only strong signal around spacer	Weak target signal contrasted out by interference	<ol style="list-style-type: none"> 1. Adjust detection area to omit spacer position 2. Cover spacer signal region with paper or tape

5. Technical Support

Visit the GenScript web site at www.genscript.com for:

1. Technical resources, including manuals, vector maps and sequences, application notes, MSDSs, FAQs, formulations, citations, handbooks, etc.
2. Complete technical support contact information
3. Access to the GenScript Online Catalog
4. Additional product information and special offers

For more information or technical assistance, call, write, fax, or email.

GenScript USA Inc.

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FAX: 1-732-5185-5150

Email: product@genscript.com

Appendix

A-1. Buffer recipes

eZwest cleaning solution (0.1M NaOH, 10% ethanol)

Recipe	
NaOH	4g
Ethanol	100 ml
Add water to	1L
	Mix thoroughly

Regular wash buffer

Recipe	
1× PBST / TBST	1L

10x TBS buffer

Recipe	
Tris base	24g
NaCl	88g
	Dissolve in 900mL water, pH to 7.4 with 12N HCl
Add water to	1L

1x TBST buffer

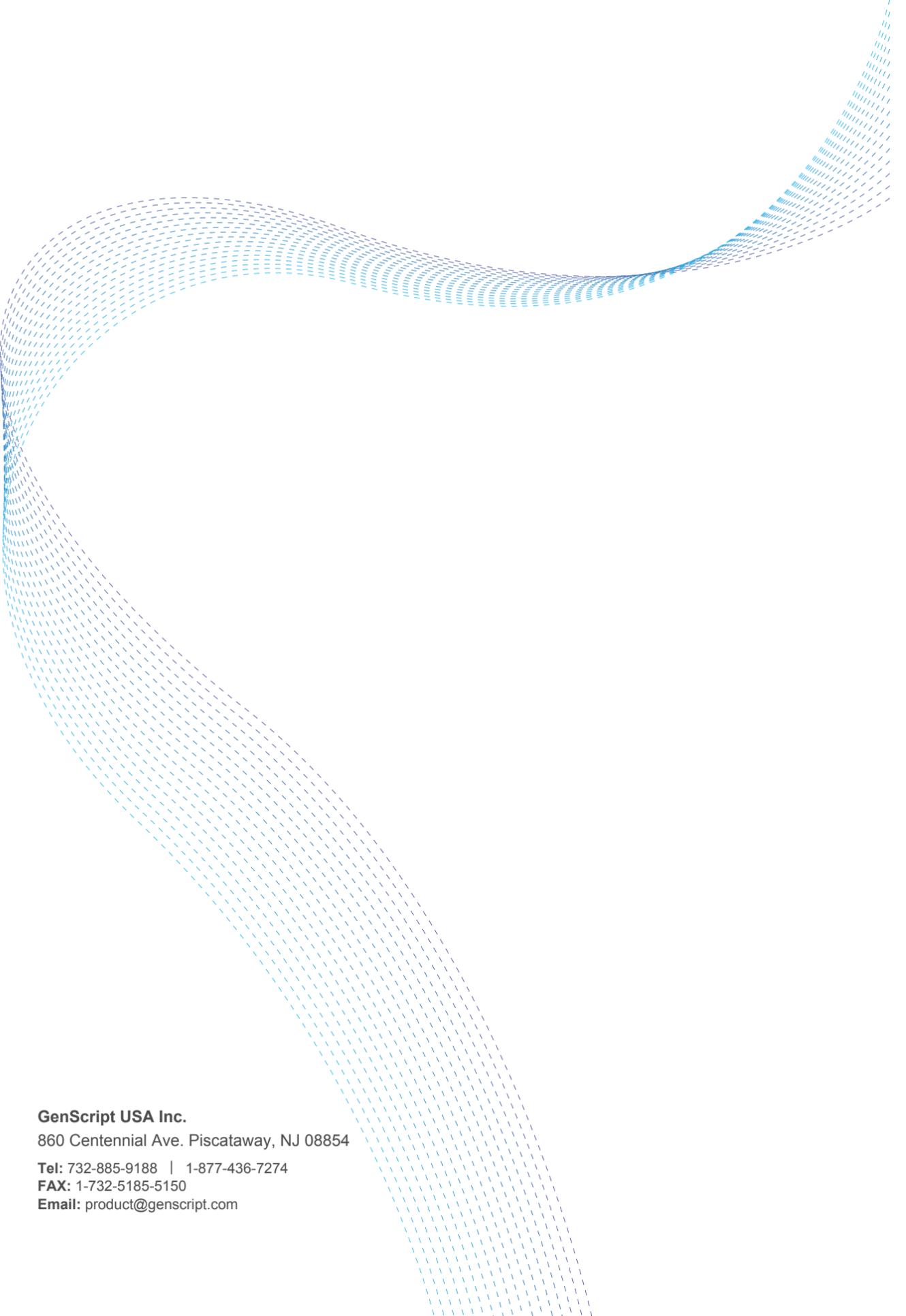
Recipe	
10× TBS	100mL
Tween20	0.5mL
Add water	900mL
	Mix thoroughly, pH to 7.4

10x PBS buffer

Recipe	
Na ₂ HPO ₄ ·2H ₂ O	17.8 g
NaCl	80g
KCl	2g
KH ₂ PO ₄	2.4g
Add water to	1 L
	Mix thoroughly

1x PBST buffer

Recipe	
10× PBS	100mL
Tween20	0.5mL
Add water	900mL
	Mix thoroughly, pH should be around 7.4

A decorative graphic consisting of a series of parallel blue dashed lines that form a wavy, ribbon-like shape. It starts from the top right, curves down and to the left, then curves back up and to the right, ending near the bottom right.

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