



# PolyStain DS Kit - for Mouse and Rabbit antibody on Human tissue

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(DAB/Permanent Red)

**NB-23-00086-3 (120 ml)**

**NB-23-00086-2 (36 ml)**

**NB-23-00086-1 (12 ml)**



## PolyStain DS Kit - for Mouse and Rabbit antibody on Human tissue

NB-23-00086-1; NB-23-00086-2; NB-23-00086-3

**Storage: 4-8°C**

### INTENDED USE:

PolyStain DS Kit is designed to use with user supplied mouse and rabbit antibodies to detect two distinct antigens on human tissue or cell samples. This kit has been tested in paraffin embedded tissues. However, this kit can be used to stain frozen specimen and/or freshly prepared monolayer cell smears.

Double staining is a common method used in immunohistochemistry to evaluate two distinct antigens in a single tissue. NeoBioTech Labs PolyStain DS Kit contains a HRP-Polymer anti-Mouse IgG, an AP-Polymer anti-Rabbit IgG, and two distinct chromogens. The DAB chromogen (brown color) is used with the HRP-Polymer anti-Mouse IgG and GBI-Permanent Red (red color) is used with the AP-Polymer anti-Rabbit IgG. Simplified steps offer a much faster protocol as the enzyme conjugates are applied to the specimen as a mixture.

PolyStain DS Kit is non-biotin system that avoids endogenous biotin non-specific binding.

### KIT COMPONENTS:

Component No.	Content	12mL Kit	36mL Kit	120mL Kit
Reagent 1	HRP Polymer anti-Mouse (RTU)	6mL	18mL	60 mL
Reagent 2	AP Polymer anti-Rabbit (RTU)	6mL	18mL	60mL
Reagent 3A	DAB Substrate (RTU)	12mL	18mL x 2	120 mL
Reagent 3B	DAB Chromogen (20x)	1.5mL	2mL	6mL
Reagent 4A	Permanent Red Substrate (RTU)	15mL	18mL x 2	120 mL
Reagent 4B	Permanent Red Activator (5x)	3mL	7.2mL	12 mL x 2
Reagent 4C	Permanent Red Chromogen (100x)	150µL	360µL	1.2 mL
Reagent 5	NeoMount Universal (RTU)	12mL	18mLx2	120mL

## RECOMMENDED PROTOCOL:

1. Fixation: To ensure the quality of the staining and obtain reproducible performance, user needs to supply appropriately fixed tissue and well prepared slides.
2. Tissue need to be adhered to the slide tightly to avoid tissue falling off.
3. Paraffin embedded section must be deparaffinized with xylene and rehydrated with a graded series of ethanol before staining.
4. Cell smear samples should be made as much monolayer as possible to obtain satisfactory results.
5. Three control slides will aid the interpretation of the result: positive tissue control, reagent control (slides treated with Isotype control reagent), and negative control.
6. Proceed with IHC staining: **DO NOT** let specimen or tissue dry from this point on.
7. We recommend TBS-T to be used as the wash buffer to get the highest sensitivity and clean background. Phosphate in the PBS-T may inhibit the activity of the alkaline phosphatase. Note: 1X TBS-T =50mM Tris HCl, 150mM NaCl, 0.05% Tween-20 pH7.6.

Reagent	Staining Procedure	Incubation Time (Min.)
1. Peroxidase and Alkaline Phosphatase Blocking Reagent Not provided Fast, easy and it will block endogenous alkaline phosphatase	<ol style="list-style-type: none"> <li>a. Incubate slides in peroxidase and alkaline phosphatase blocking reagent. We recommend GBI Dual Block E36xx.</li> <li>b. Rinse the slide using distilled water at least twice.</li> </ol>	10 min.
2. <b>HIER Pretreatment:</b> Refer to antibody data sheet.	<ol style="list-style-type: none"> <li>a. Heat Induced Epitope Retrieval (HIER) may be required for primary antibody suggested by vendor.</li> <li>b. Wash with PBS-T containing 0.05% Tween-20 or 1X TBS-T(See note 7 above); 3 times for 2 minutes each</li> </ol>	
3. <b>Preblock (optional)</b>	For paraffin section, Improved formula saves the need for a preblock step. For frozen tissue, preblock may or may not be required depending on fixative.	
4. <b>Mouse antibody 1 and Rabbit antibody 2:</b> Supplied by user	<p><b>Notes:</b> Investigator needs to optimize dilution and incubation times prior to double staining.</p> <ol style="list-style-type: none"> <li>a. Apply 2 drops or enough volume of both Primary Antibody 1 and Antibody 2 to cover the tissue completely. Mix well on the slide and Incubate in moist chamber for 30-60 min.</li> <li>b. Wash with PBS-T containing 0.05% Tween-20 or 1X TBS-T; 3 times for 2 minutes each.</li> </ol>	30-60 min.

<p><b>5. Reagent 1 and 2:</b></p> <p><b>Reagent 1 :</b> HRP Polymer anti-Mouse (RTU)</p> <p><b>Reagent 2:</b> AP Polymer anti-Rabbit (RTU)</p>	<p>a. Apply 1 drop (50µl) of <b>Reagent 1</b> (HRP Polymer anti-Mouse) and 1 drop of <b>Reagent 2</b> (AP Polymer anti-Rabbit) to cover each section, mix well on the slide. Or you may prepare secondary antibodies cocktail in advance: 50µl <b>Reagent 1</b> (HRP Polymer anti-Mouse) plus 50µl <b>Reagent 2</b> (AP Polymer anti-Rabbit) per slide.</p> <p>b. Incubate in moist chamber for 30 min.</p> <p>c. Wash with PBS-T containing 0.05% Tween-20 or 1X TBS-T; 3 times for 2 minutes each</p>	<p>30 min</p>
<p><b>6. Reagents 3A, 3B:</b></p> <p><b>Reagent 3A:</b> DAB Substrate(RTU)</p> <p><b>Reagent 3B:</b> DAB Chromogen(20x)</p>	<p>a. Add 1 drop of or 2 drops (for higher sensitivity and contrast) Reagent 3B to 1 mL of Reagent 3A. Mix well. Protect from light and use within 7 hours.</p> <p>b. Apply 2 drops or enough volume of DAB CHROMOGEN to completely cover tissue. Incubate for 5 min.</p> <p>c. Rinse thoroughly with distilled water.</p> <p>d. Wash with 1X TBS-T only; 3 times for 2 minutes each.</p>	<p>5 min</p>
<p><b>7. Reagent 4A, 4B, 4C</b></p> <p><b>Reagent 4A:</b> Permanent Red Substrate (RTU)</p> <p><b>Reagent 4B:</b> Permanent Red Activator (5x)</p> <p><b>Reagent 4C:</b> Permanent Red Chromogen (100x)</p> <p><b>To get maximum sensitivity of AP polymer, Please repeat chromogen step)</b></p>	<p><b>Note: Make fresh working solution and use immediately. Shake Permanent Red Activator well before adding into Permanent Red Substrate.</b></p> <p>a. Add 200µL of <b>Reagent 4B</b> (Activator-shake well) into 1mL of <b>Reagent 4A</b> (Substrate buffer) and mix well. Add 10µL of <b>Reagent 4C</b> (Chromogen) into the mixture and mix well. [Note: For fewer slides, Add 100µL of <b>Reagent 4B</b> (Activator) into 500µL of <b>Reagent 4A</b> (Substrate buffer) and mix well. Add 5µL of <b>Reagent 4C</b> (Chromogen) into the mixture and mix well.]</p> <p>b. Apply 2 drops (100µL) or enough volume of Permanent Red working solution to completely cover the tissue. Incubate for 10 min, observe appropriate color development. <b>To increase AP signal, make fresh working solution again, tap off previous chromogen, apply 2-3 drops (100µL) immediately and incubate additional 10min.</b></p> <p>c. Rinse well with distilled water.</p>	<p>10min</p> <p>OR</p> <p>10 min + 10 min</p>
<p><b>8. HEMATOXYLIN</b> Not provided</p>	<p>a. Counterstain with 2 drops (100µl) or enough volume of hematoxylin to completely cover tissue. Incubate for 10-15 seconds.</p> <p>b. Rinse thoroughly with tap water for 2-3 min.</p> <p>c. Put slides in PBS until show blue color (about ½ - 1 min.)</p> <p>d. Rinse well in distilled water</p>	<p>10-15 sec</p>

**9. Reagent 5: NeoMount Universal (RTU)**

- a. Apply 2 drops (100 $\mu$ L) or enough volume of Reagent 5 NeoMount Universal to cover tissue when tissue is wet. Rotate the slides to allow NeoMount Universal spread evenly.
- b. Place slides horizontally in an oven at 40-50°C for at least 30 minutes or leave it at room temperature until slides are thoroughly dried.

## **PROTOCOL NOTES:**

1. The fixation, tissue slide thickness, antigen retrieval and primary antibody dilution and incubation time affect results significantly. Investigator needs to consider all factors and determine optimal conditions when interpreting the result.
2. Permanent Red is insoluble in organic solvent and can be coverslipped as well. However the dehydration steps must be shorter for optimal tissue structure and chromogen signal maintenance.

Note: Please wipe off extra water and air dry slides before dehydration and clear. Use fresh ethanol and xylene.

- a. 1x 80% Ethanol 20 seconds;
- b. 1x 95% Ethanol 20 seconds;
- c. 3x 100% Ethanol 20 seconds each;
- d. 1x 100% Xylene 20 seconds;
- e. Add 1 drop of xylene NeoMount Perm (Cat. No. Permanent mount, NB-23-00156) and coverslip. Press to push the air bubble out.

**CAUTION: DO NOT dehydrate in xylene longer than 20 seconds! It will erase Permanent Red stain!**

## **PRECAUTIONS:**

DAB may be carcinogenic. Please wear gloves and take other necessary precautions.

**FOR RESEARCH USE ONLY**

## Work Sheet for NB-23-00086 Kit

We designed these work sheets to help you track of each step. When staining fails these sheets help our technical support staff to pinpoint the problem. To insure that all steps are done properly, we recommend that the user fill in the actual time of their experimental step and any variation. Results will vary if time recommendations are not followed. RTU translates to ready to use.

- Used for tester to check “√” “each step during the experiment
- Steps follow after de-paraffinization
- Refer to insert for details of each step

NB-23-00086 Protocol is suitable when both mouse and rabbit primary antibodies need or do not need pre-treatment step.

Protocol Step	NB-23-00086 Protocol Reagent / Time	Experiment 1 Date:	Experiment 2 Date:	Experiment 3 Date:	Experiment 4 Date:
<b>Step 1</b>	Peroxidase or Alkaline Phosphatase Block User supplied				
<b>Step 2 (Optional)</b>	HIER if needed User supplied (up to 60 min)				
<b>Step 3</b>	Mouse 1°Ab & Rabbit 1°Ab mixture (30-60 min.)				
<b>Step 4</b>	<b>Reagent 1 &amp; Reagent 2</b> HRP-Polymer anti-Mouse IgG and AP-Polymer anti-Rabbit IgG require mixing (30min)				
<b>Step 5</b>	<b>Reagent 3A &amp; Reagent 3B</b> DAB Requires mixing! (5min.)				
<b>Step 6</b>	<b>Reagent 4A, Reagent 4B &amp; Reagent 4C</b> Note: Make fresh working				

	<p>solution and use immediately. Shake <b>Reagent 4B</b> well before adding into Reagent 4A. Permanent Red Requires mixing! (10 min)</p> <p><b>To increase sensitivity, please repeat this step.</b></p>				
<b>Step 7</b>	<p>Counter stain(10-15sec)</p> <p>User supplied</p>				
<b>Step 8</b>	<p><b>Reagent 5</b></p> <p>NeoMount Universal (RTU)</p>				
<b>Result</b>	<p>Stain pattern on controls are correct: Fill in Yes or NO</p>				

**The result:**