Glycogen Periodic Acid-Schiff (PAS) Staining Kit

Catalog No.: RA20121

Basic Information

Product name	Glycogen Periodic Acid-Schiff (PAS) Staining Kit
Sizes	4x 50 mL, 4x 100 mL
Storage	2-8 ℃, keep away from light
Shipping	Shipped with ice pack
Validity	12 months

Product Introduction

Glycogen staining is one of the routine staining methods in pathology. In 1946, McManus first used the periodic acid – Schiff technique to visualize mucins. This method is commonly used to demonstrate glycogen and other polysaccharides. In addition to glycogen, PAS staining can also reveal neutral mucosubstances, certain acidic substances, and structures such as cartilage, pituitary tissue, molds, fungi, pigments, amyloid, and basement membranes. Periodic acid (also known as metaperiodic acid) is a strong oxidizing agent that oxidizes 1,2-glycol groups in carbohydrates and related substances to dialdehydes. These aldehydes then react with Schiff reagent to form a magenta-colored compound. Since periodic acid can also oxidize other intracellular components, it is critical to select appropriate concentrations and oxidation durations to ensure that oxidation is sufficient to convert glycol groups to aldehydes without over-oxidation.

EnkiLife Glycogen PAS Staining Solution features a proprietary formulation that significantly enhances staining performance. It offers high stability and specificity, and is easy to use, requiring only approximately 1 hour.

Product Components

Components	4x 50mL	4x 100mL
Reagent (A): Periodic Acid Solution	50 mL	100 mL
Reagent (B): Schiff Reagent	50 mL	100 mL
Reagent (C): Hematoxylin Staining Solution	50 mL	100 mL

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Reagent (D): Acidic Ethanol Differentiation Solution	50 mL	100 mL

Materials Required (Not Supplied)

1. 10% formalin fixative.
2. Distilled water, graded ethanol series, xylene or eco-friendly dewaxing and clearing agent, neutral balsam.

Perimental procedure

1. Routine fixation is typically performed using 10% formalin fixative, followed by standard dehydration and paraffin embedding.
2. Deparaffinize paraffin sections with xylene or dewaxing agent, then rehydrate to distilled water. For frozen sections, directly immerse in distilled water.
3. Rinse with tap water for 2–3 min, then rinse twice with distilled water.
4. Immerse in periodic acid solution at room temperature for 5–8 min; generally do not exceed 10 min.
5. Rinse once with tap water, then rinse twice with distilled water.
6. Immerse in Schiff Reagent at room temperature in the dark for 10–20 min, then rinse with tap water for 10 min.
7. Stain nuclei with hematoxylin staining solution for 1–2 min, then differentiate with acidic ethanol differentiation solution for 2–5 s.
8. Rinse with tap water for 10–15 min, then change to distilled water to allow bluing.
9. Dehydrate through graded ethanol series, clear with xylene or clearing agent, and mount with neutral balsam.

Staining Results

Component	Color
PAS-positive substances (glycogen or polysaccharides)	Red or magenta
Nuclei	Blue
Cytoplasm	Shades of red

Note: Color intensity largely depends on the duration of exposure to periodic acid solution and Schiff Reagent.

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Negative Control (Optional)

1. Dissolve 1 g of amylase in 100 mL PBS (pH 5.3), treat sections for 30–60 min, then proceed with periodic acid treatment alongside other sections. The result should be negative.
2. (Alternative) Use filtered saliva to treat sections for 30–60 min, then proceed with periodic acid treatment. The result should be negative.
3. (Alternative) Use a control section from the same sample, but skip the periodic acid step and proceed directly to Schiff Reagent. The result should be negative.

Notes

1. Sections should be thoroughly dewaxed; residual wax will affect staining quality.
2. Do not over-oxidize with periodic acid; optimal temperature is 18–22 °C.
3. Periodic acid solution and Schiff Reagent should be stored at 4 °C in sealed containers. Avoid excessive exposure to air and light. Allow reagents to equilibrate to room temperature for 30 min before use, and perform staining in the dark.
4. Replace acidic ethanol differentiation solution regularly. Differentiation time should be adjusted based on section thickness, tissue type, and freshness of the solution. Ensure adequate rinsing with tap water after differentiation.
5. Exposure time in periodic acid and Schiff Reagent is critical and should be optimized based on section thickness and tissue type.
6. This staining solution is designed for routine tissue sections. For fungi, cells, or extremely thin sections, consider using specialized glycogen PAS staining kits with lower concentrations of periodic acid and hematoxylin to avoid over-staining.
7. Keep staining time short for frozen sections.
8. Use reagents promptly after opening to maintain optimal performance.

This product is for research use only!