PAS Staining Solution (Specific For Fungi)

Cat #: A-CSH283

Size: 4×20mL, 4×50mL

Storage: 2-8 °C, Avoid exposure to light (1 year)

Product Description

Component	4×50mL	Store at
Reagent (A): Periodic acid solution	50ml	2-8 °C, Avoid exposure to light
Reagent (B): Schiff reagent	50ml	2-8 °C, Avoid exposure to light
Reagent (C): Sodium metabisulfite solution	50ml	10-30°C

Glycogen staining is one of the routine staining methods in pathology. In 1946, McManus first used the periodic acid-Schiff (PAS) technique to demonstrate mucins. This method is commonly used to visualize glycogen and other polysaccharides. It not only stains glycogen but also stains neutral mucinous substances, certain acidic substances, as well as cartilage, pituitary glands, molds, fungi, pigments, amyloid-like substances, and basement membranes. Periodic acid (also known as periodic acid) is a strong oxidizing agent that oxidizes the 1,2-glycol groups in carbohydrates and related substances, converting them into aldehydes. The aldehydes react with Schiff reagent to form a magenta compound, resulting in a purple-red color. However, periodic acid can also oxidize other substances within the cells. Therefore, it is important to carefully select the concentration of periodic acid and the duration of oxidation to ensure controlled oxidation that converts the glycol groups into aldehyde groups without excessive over-oxidation. This is a crucial step in the process.

The PAS staining solution for glycogen (specific for fungi) utilizes the presence of polysaccharides in fungi. The periodic acid oxidizes the polysaccharides on the fungal cell wall, exposing aldehyde groups. The aldehyde groups combine with the colorless Schiff reagent, resulting in a red color. This staining method is stable and highly specific. It is a simple procedure that only requires 0.5 hours. Lower concentrations of periodic acid are more suitable for fungal staining, eliminating the need for the differentiation step with hydrochloric acid-ethanol solution.

Usage

1. Routine fixation (commonly using 10% formalin) and routine dehydration and embedding.

2. For cell smears, immerse them in distilled water (no need for embedding or dewaxing). For tissue sections, dewax them and immerse them in distilled water.

3. Immerse in periodic acid solution and oxidize at room temperature for 10 minutes.

4. Rinse twice with tap water, followed by two washes with distilled water.

5. Add Schiff Reagent and cover the samples, allowing them to stain at room temperature in a dark place for 10-20 minutes.

6. Rinse with sodium bisulfite solution twice, each time for 2 minutes.

7. Rinse with running water for 2 minutes.

8. Perform stepwise ethanol dehydration. Clear with xylene and seal with neutral mounting medium.

Negative control (optional):

A. Dissolve 1g of amylase in 100ml of PBS (pH 5.3), treat for 30-60 minutes, and immerse in periodic acid solution together with other samples. The result should be negative.

B. (Alternative method) Treat a saliva smear (filtered) for 30-60 minutes and immerse it in periodic acid solution together with other samples. The result should be negative.

C. (Alternative method) If using the same sample as the control, skip the step of the periodic acid solution and directly immerse it in Schiff Reagent. The result should be negative.

Staining Results

Fungi	Purple-red color
Cytoplasm	Varies shades of red

Note: The intensity of color largely depends on the duration of the sample's exposure to the periodic acid solution and Schiff Reagent.

Notes

1. The oxidation time with periodic acid should not be excessively long, and the optimal temperature during oxidation

is 18-22°C.

2. Avoid excessive exposure of the periodic acid solution and Schiff Reagent to sunlight and air. It is recommended to remove them from storage and let them reach room temperature for 30 minutes before use in a dark place.

3. The duration of exposure to the periodic acid solution and Schiff Reagent is crucial and should be determined based on factors such as the thickness of the sections and the type of cells or tissues.

4. For routine sections, it is recommended to use the PAS staining solution for glycogen since both the concentration of the periodic acid solution and the solution of hematoxylin are relatively high.

5. For your safety and health, please wear a lab coat and disposable gloves when performing the procedure.

Disclaimer

The reagent is only used in the field of scientific research, not suitable for clinical diagnosis or other purposes.