PAS Staining Solution (Specific For Cultured Cells)

Cat #: A-CSH284

Size: 4×20mL, 4×50mL

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

Product Description

Component	5×50mL	Store at
Reagent (A): PAS Fixative Solution	50ml	2-8 °C, Avoid exposure to light
Reagent (B): Periodic Acid Solution	50ml	2-8 °C, Avoid exposure to light
Reagent (C): Schiff Reagent	50ml	2-8 °C, Avoid exposure to light
Reagent (D): Sodium Bisulfite Solution	50ml	10-30°C
Reagent (E): Mayer's Hematoxylin Staining Solution	50ml	2-8 °C, Avoid exposure to light

Periodic Acid-Schiff (PAS) staining is one of the routine staining methods in pathology. It was first introduced by McManus in 1946 using the periodic acid-Schiff technique to demonstrate glycoproteins. This method is commonly used to visualize glycogen and other polysaccharides. In addition to glycogen, this technique can also reveal 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 then combine with Schiff reagent to form a magenta-colored compound, resulting in a purple-red color. However, since periodic acid can also oxidize other substances within the cells, it is important to carefully select the concentration and duration of oxidation to control the oxidation process, ensuring the conversion of glycol groups to aldehyde groups without excessive over-oxidation. This is a critical step in the procedure.

The PAS staining solution for glycogen (cell-specific) is specifically designed for staining cultured cells. It utilizes a unique formulation technology that significantly enhances the staining effect. It offers stable performance and high specificity.

The procedure is simple and only requires 1 hour. The concentrations of periodic acid and hematoxylin are lower, making it more suitable for staining cells and ultra-thin tissue sections. It eliminates the need for hydrochloric acid ethanol differentiation steps. This reagent is suitable for research purposes and not intended for clinical diagnosis.

Usage

1. Fix the cultured cells with PAS Fixative Solution for 10-20 minutes.
2. Rinse with water and allow to air dry.
3. Incubate in Periodic Acid Solution at room temperature for 15-20 minutes.
4. Rinse twice with tap water, followed by immersion in distilled water for two times.
5. Add Schiff Reagent and cover the samples. Incubate in a dark place at room temperature for 20-30 minutes.
6. Rinse with Sodium Bisulfite Solution for 2 minutes, repeated twice. This step can also be omitted.
7. Rinse with running water for 2 minutes.
8. Incubate in Mayer's Hematoxylin Staining Solution for 3-5 minutes. Rinse with water, allow to air dry, and examine under a microscope.

Negative control (optional):

A. Dissolve 1g of amylase in 100ml of PBS (pH 5.3). Incubate for 30-60 minutes and treat it with other samples in the Periodic Acid Solution. The result should be negative.

B. (Alternative method) Treat a filtered saliva slide for 30-60 minutes and incubate it with other samples in the Periodic Acid Solution. The result should be negative.

C. (Alternative method) If using the same sample as the control slide, skip the step of incubating in the Periodic Acid Solution and directly add Schiff Reagent. The result should be negative.

Staining Results

Positive substances in PAS reaction (glycogen or polysaccharides)	Red or purple-red color
Cell nuclei	Blue
Cytoplasm	Varying shades of red

Notes

1. The oxidation time with periodic acid should not be too long, and the optimal temperature during oxidation is between 18-22° C.

2. Store the periodic acid solution, Schiff Reagent, and hematoxylin staining solution in a closed container at 4° C. Avoid excessive exposure to sunlight and air. It is recommended to take them out 30 minutes prior to use and allow them to reach room temperature in a dark place.

3. The timing of oxidation with periodic acid and the incubation time with Schiff Reagent are crucial and should be determined based on factors such as the thickness of the tissue section and the type of cells or tissues.

4. This reagent is commonly used for staining cells and extremely thin tissue sections. For routine tissue sections, it is recommended to purchase the PAS staining solution specifically designed for glycogen staining.

Disclaimer

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