Mallory's Phosphotungstic Acid-Hematoxylin (PTAH) Staining Kit, Chemical Oxidation Method

Catalog No.: RA20137

Basic Information

Product name	Mallory's Phosphotungstic Acid-Hematoxylin (PTAH) Staining Kit, Chemical Oxidation Method
Sizes	3x 100 mL
Storage	RT，keep away from light
Shipping	RT
Validity	6 months

Product Introduction

Muscle fibers are components of muscular tissue composed of muscle cells. Based on morphological and functional characteristics, muscle fibers can be classified into smooth muscle (also known as non-striated muscle), skeletal muscle, and cardiac muscle. There are various staining methods for muscle fibers, such as the ponceau method, aniline blue method, and phosphotungstic acid hematoxylin method. When Mallory originally developed the phosphotungstic acid hematoxylin staining solution, there were several variations of PTAH methods. Around 1900, Mallory combined phosphotungstic acid aqueous solution with hematoxylin stain and found that this method worked well for muscle fiber staining. The widely used method today is Mallory' s phosphotungstic acid hematoxylin staining solution (PTAH natural oxidation method). Hematoxylin can also be chemically oxidized using PTAH, but the resulting solution has a shorter shelf life and its staining capacity tends to decline. Although natural oxidation takes more time, the resulting hematoxylin can be used for over 2 years without significant loss of staining capacity, making it an ideal staining solution. It is suitable for CNS tissue, general histological structures, and tissues fixed with all standard fixatives. Staining time may vary depending on the preparation method, fixative used, and tissue structure being demonstrated.

EnkiLife Mallory PTAH staining solution (chemical oxidation method) is mainly composed of PTAH oxidizer, oxalic acid solution, and Mallory PTAH staining solution. The Mallory PTAH staining solution is chemically oxidized, offering good staining capacity in a short time, but it should not be stored for long periods. It is commonly used to demonstrate the cross-striations of striated muscle and is clinically applied in the diagnosis of rhabdomyosarcoma. The histological morphology of rhabdomyosarcoma is highly variable and difficult to distinguish from undifferentiated mesenchymal

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tumors. After phosphotungstic acid hematoxylin staining, if blue cross-striations are observed in the cytoplasm of tumor cells, it indicates rhabdomyoid differentiation.

Product Components

Components		3x 100mL
Reagent (A): PTAH oxidant	A1: PTAH Oxidizer A	50 mL
	A2: PTAH Oxidizer B	50 mL
Before use, mix A1 and A2 in equal parts to prepare PTAH oxidizer. Prepare fresh and use immediately.		
Reagent (B): Oxalic Acid Solution		100 mL
Reagent (C): Mallory PTAH Staining Solution (Chemical Oxidation Method)		100 mL

Materials Required (Not Supplied)

1. 10% formalin fixative, distilled water, graded ethanol, xylene or eco-friendly dewaxing and clearing solution, neutral balsam.
2. Optical microscope.

Perimental procedure

1. Fix tissue in 10% formalin fixative, dehydrate routinely, and embed in paraffin.
2. Cut paraffin sections to 4 μm thickness. Dewax with xylene or dewaxing solution and hydrate to water.
3. Immerse in freshly prepared PTAH oxidizer for 5 min, then rinse briefly with water.
4. Immerse in oxalic acid solution for 1–2 min, rinse with tap water for 2 min, then rinse once with distilled water.
5. Immerse in Mallory PTAH staining solution (chemical oxidation method) with cover for 24–48 h.
6. Remove slide and quickly rinse off excess stain with 95% ethanol.
7. Dehydrate routinely, clear with xylene or clearing solution, and mount with neutral balsam.

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Staining Results

Component	Color
Cross-striations of striated muscle, fibrin, nuclei, erythrocytes, and neuroglial fibers	Deep blue
Collagen fibers, cartilage matrix	Brownish red
Thick elastic fibers	Purple

Notes

1. If the blue cross-striations are not clearly visible or appear bright red, it may indicate insufficient oxidation or over-oxidation. Replace or freshly prepare the staining solution as needed.
2. Do not rinse with water after Mallory PTAH staining. When washing with 95% ethanol, proceed quickly, as prolonged water or ethanol washing may remove the stain.
3. Mallory PTAH staining solution is a progressive stain. Do not over-stain. After 24 h of staining, remove the slide and check the staining intensity under a microscope.
4. For safety and health, wear lab coats and disposable gloves during operation.

This product is for research use only!