

Hydrochloric Acid-Ethanol Fast Differentiation Solution

Cat. No.: A743394 | Pack size: 100ml / 500ml | Storage: Room temperature

Product Description

Differentiation refers to the process of removing excess stain bound to tissues using specific solutions after tissue staining. The solution used in this process is called a differentiation solution. In HE staining and other staining methods, 1% hydrochloric acid-ethanol is commonly used as a differentiation solution. Acids can disrupt the quinone structure of hematoxylin, separating tissues from the pigment and causing discoloration. Subsequent eosin staining ensures clear differentiation between cell nuclei and cytoplasm.

Hydrochloric acid-ethanol differentiation solution mainly consists of hydrochloric acid, ethanol, and deionized water. It is frequently used in hematoxylin staining, hematoxylin-eosin staining (HE staining), Masson staining, and other procedures involving hematoxylin. As a crucial auxiliary reagent, it can slowly reduce background hematoxylin staining in structures like cytoplasm while enhancing the clarity of hematoxylin staining in cell nuclei. Using this product ensures better hematoxylin staining results. Its basic principle is that under acidic conditions, it can effectively remove hematoxylin staining outside cell nuclei to reduce background. Meanwhile, it can appropriately lighten over-stained areas of cell nuclei, resulting in clearer staining.

The differentiation time of Rapid Hydrochloric Acid-Ethanol Differentiation Solution is relatively short, generally about 5 to 15 seconds. If faster differentiation is required, Ultra-Rapid Hydrochloric Acid-Ethanol Differentiation Solution or 1% Acidic Ethanol Differentiation Solution can be selected. This reagent is for research use only and not intended for clinical diagnosis or other applications.

Materials to Be Prepared by the User

1. Tap water or distilled water, 4% paraformaldehyde or neutral formalin fixative, xylene or wax-immersion dewaxing and clearing solution.
2. A series of ethanol solutions, hematoxylin staining solution, eosin staining solution, bluing solution (e.g., dilute ammonia water, lithium carbonate solution), and neutral balsam.

Operating Procedures (HE Staining Steps, for Reference Only)

1. Dewax the tissue to water.
2. Stain with hematoxylin staining solution for 3-8 minutes.

3. Rinse with tap water or distilled water for 5-10 seconds.
4. Differentiate with Hydrochloric Acid-Ethanol Fast Differentiation Solution for 5-15 seconds.
5. Rinse with tap water for 20-30 seconds.
6. Blue the tissue with bluing solution for 20-40 seconds or with warm water for 10 minutes.
7. Dehydrate with 80% ethanol for 30-60 seconds.
8. Stain with alcoholic eosin staining solution for 20-60 seconds.
9. Dehydrate with gradient ethanol solutions, clear with xylene or environment-friendly dewaxing and clearing solution, mount the slide with neutral balsam, and examine under a microscope.

Precautions

1. The required differentiation time varies depending on different samples and staining requirements. For first-time use, it is recommended to test different differentiation times and determine the optimal duration based on microscopic observations.
2. Post-staining differentiation is an optional step, but it improves the clarity of nucleus-cytoplasm staining and enhances the visibility of nuclear membranes and chromatin morphology.
3. This product is volatile; store it in a sealed container. To avoid reduced effectiveness due to volatilization, use it as soon as possible after opening.
4. This product is corrosive. Operate with caution and take effective protective measures to avoid direct contact with the human body or corrosion of other items.
5. Wear appropriate personal protective equipment, including lab coat, gloves, and eye protection.
6. Use the reagent as soon as possible after opening to prevent adverse effects on subsequent experimental results.
7. Read the current Safety Data Sheet (SDS) before use and follow local laboratory safety and EHS requirements.
8. Use only for research and laboratory applications. Do not use for human or animal diagnostics, therapeutics, food, household, or cosmetic applications.

Product Information

Item	Information
Cat. No.	A743394
Product Name	Hydrochloric Acid-Ethanol Fast Differentiation Solution
Storage	Room temperature
Shipped In	Normal
Application	Research use applications described in the Product Description section.

Specifications

Parameter	Specification
Stability And Storage	Store at room temperature, valid for at least 1 year.
Storage	Room temperature
Shipped In	Normal

Quality Control

QC Item	Method	Acceptable Range
Appearance	Visual inspection	Solution should be clear and free from visible contamination unless otherwise stated on the COA.
Product identity and specifications	Lot-specific quality testing	Conforms to the approved product specification and certificate of analysis.
Storage and packaging	Label and packaging inspection	Pack size, storage condition, lot number, and expiry information are verified before release.

Troubleshooting

Issue	Possible Causes	Corrective Action
Product performance below expectation	Suboptimal sample preparation or incompatible workflow conditions	Review the Product Description and optimize reagent amount, incubation time, and sample handling.
Inconsistent results	Variation in sample type, storage, or operator technique	Use consistent sample preparation, follow the recommended storage condition, and validate the workflow for the intended application.
Storage deviation	Temperature or light exposure outside labeled conditions	Consult the SDS and COA before use. Discard material if performance or safety is uncertain.

Recommended Applications

Research use applications described in the Product Description section.

Contact & Global Offices

Whether you have a technical question, need help with a quotation, or want to inquire about an order, our regional teams are ready to assist. Please contact the office for your region; for general inquiries, the North American office is the corporate primary.

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Limitations & Disclaimer

1. For Research Use Only (RUO). Not for use in human or animal diagnostics, therapeutics, or in vivo applications. Not for food, cosmetic, or household use.
2. This product is not a CE-marked in vitro diagnostic device under IVDR (EU) 2017/746 and is not an FDA-cleared device under 21 CFR. Use is restricted to verified businesses, institutions, and qualified professionals for research and development purposes.

3. Where any component is classified as hazardous under CLP (EC) 1272/2008 or OSHA HCS (29 CFR 1910.1200), the product Safety Data Sheet (SDS) takes precedence over this document for handling, storage, and disposal information.
4. Performance depends on sample type, sample condition, handling, and operator technique. Users are responsible for validating the product for their specific application.
5. Aladdin product labels, SDS, COA, and approved specifications take precedence over this document. If product formulation, label, SDS, storage conditions, pack size, or quality specifications change, this document should be reviewed and reissued.