Hydrochloric Acid-Ethanol Slow Differentiation Solution

H1507834

Storage: Room Temperature.

Introduction:

Differentiation refers to the process where, after tissue staining, certain specific solutions are used to remove excess stain bound to the tissue. The solution employed in this process is called a differentiation solution. In HE staining and other staining procedures, 1% hydrochloric acid-ethanol is commonly used as a differentiation solution. This is because acid can disrupt the quinoid structure of hematoxylin, causing the separation of tissue and pigment to achieve decolorization. Subsequent eosin staining can then ensure clear distinction between the staining of cell nuclei and cytoplasm.

Hydrochloric acid-ethanol differentiation solution mainly consists of hydrochloric acid, ethanol, deionized water, and other components. It is frequently used in hematoxylin staining, hematoxylin-eosin staining (HE staining), Masson staining, and other procedures involving hematoxylin staining. It is a solution that can slowly reduce the background hematoxylin staining in cytoplasm and other areas while enhancing the clarity of hematoxylin staining in cell nuclei, serving as a crucial auxiliary reagent. The use of this product enables better hematoxylin staining results. The basic principle of this product is that under acidic conditions, it can effectively wash away hematoxylin staining outside the cell nuclei to reduce background interference. Meanwhile, it can also appropriately weaken over-darkened staining in cell nuclei, resulting in clearer staining.

Hydrochloric acid-ethanol slow differentiation solution requires a relatively long differentiation time, generally 30-50 seconds, allowing for precise control of the differentiation effect. For rapid differentiation needs, options such as hydrochloric acid-ethanol fast differentiation solution, hydrochloric acid-ethanol ultra-fast differentiation solution, or 1% acidic ethanol differentiation solution can be considered. This reagent is for research use only and not intended for clinical diagnosis or other purposes.

Materials to Be Prepared by Users:

1. Tap water or distilled water, 4% paraformaldehyde or neutral formalin fixative, xylene or wax-immersed dewaxing and clearing solution.
2. Serial ethanol solutions, hematoxylin staining solution, eosin staining solution, bluing solution (dilute ammonia water, lithium carbonate solution, etc.), neutral gum.

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 slow differentiation solution for 30-50 seconds.
5. Rinse with tap water for 20-30 seconds.
6. Blue the tissue with bluing solution or warm water for 20-40 seconds.
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 gum, and perform microscopic examination.

Precautions:

1. The required differentiation time varies depending on different samples and staining requirements. For first-time users, it is recommended to test different differentiation times first and determine the optimal duration based on microscopic observation results.
2. Differentiation after staining is an optional step, but it can improve the clarity of nucleus-cytoplasm staining and enhance the visibility of nuclear membrane and chromatin morphology.
3. This product is volatile, so it should be stored in a sealed container. To prevent reduced effectiveness due to volatilization, it is advisable to use up the product as soon as possible after opening.
4. This product is corrosive. Handle with care during operation and take effective protective measures to avoid direct contact with the human body or corrosion of other items.
5. For your safety and health, wear a lab coat and disposable gloves during operation.
6. After opening, use the reagent as soon as possible to prevent adverse effects on subsequent experimental results.