Carazzi's Hematoxylin Stain Solution

Introduction

Hematoxylin is a basic natural dye that stains cell nuclei. The primary component of nuclear chromatin is DNA; within the double helix structure of DNA, phosphate groups on the two nucleotide chains face outward, causing the exterior of the DNA double helix to carry a negative charge and exhibit acidic properties. Consequently, it readily binds to the positively charged hematoxylin basic dye via ionic or hydrogen bonds, resulting in staining.

This solution is primarily composed of hematoxylin and potassium aluminum sulfate (alum), classifying it as an alum hematoxylin solution. This staining solution contains a low concentration of hematoxylin, which prevents the formation of an oxide film (scum). It provides clear staining of the cell nucleus without staining the cytoplasm or fibrous components. As a progressive stain, it does not require hydrochloric acid ethanol differentiation after staining.

Storage

Store at 4°C protected from light, stable for 6 months.

Protocol

1. Dewax and rehydrate the sections.
2. Stain in Carazzi's Hematoxylin Stain Solution for 5 min, then rinse with distilled water for 10-20 sec.
3. Rinse with tap water for 10 min to blue.
4. (Optional) Blue with a bluing solution for 2 min, then rinse with distilled water for 2 min.

Note: Bluing solutions such as 0.1% ammonia solution, 0.05% lithium carbonate solution, or other bluing agents can be used.

5. Counterstain with eosin solution (K2610, K2611, K2612) for 30 sec to 2 min, then rinse with distilled water for 30 sec.
6. Perform gradient dehydration with alcohol, followed by xylene clearing, and finally mount with neutral balsam.
7. Staining Result

Nucleus	Blue

Note

1. Slices should be thoroughly dewaxed. The series of ethanol solutions should be frequently replaced with fresh ones.
2. For your safety and health, please wear lab coats and gloves during the experiment.
3. For research use only. Not to be used in clinical diagnostic or clinical trials.

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