Mucin HID-AB Staining Solution

Cat #: A-CSH370

Size: 3×25mL

Storage: Room temperature, avoid light (12 months)

Product Composition

Component		4×50mL	Store at
Reagent (A): HID Solution	A1: HID solution A	25ml	10~30°C, and were protected from light
	A2: HID solution B	1.5ml	10~30°C, and were protected from light
Before use, press A1: A2=50:3 mix is HID Solution, should not be prepared in advance.			
Reagent (B): Alcian staining solution		25ml	2~8°C, and were protected from light
Reagent (C): Nuclear solid staining solution		25ml	10~30°C, and were protected from light

Product Description

Alcian Blue, also known as Alcianine or Alcian S, is a copper phthalocyanine conjugate dye originally used for textile fiber staining. This cationic dye combines with acidic groups, specifically carboxyl and sulfate groups present in tissues, to form insoluble complexes. Alcian Blue is composed of a central copper-containing phthalocyanine ring connected to four isothiouronium groups through thioether bonds. These isothiouronium groups exhibit mild alkalinity, giving Alcian Blue its cationic nature. The exact mechanism by which Alcian Blue stains carbohydrates is unknown, but it is generally believed that the isothiouronium groups of the cationic dye form electrostatic interactions with polyanionic groups in tissues, such as carboxyl and sulfate groups in acidic mucous substances. This leads to the formation of insoluble complexes, where the positively charged salt bridges in the dye molecules combine with the negatively charged acidic groups in mucous substances, resulting in a blue color.

The principle of mucin HID-AB staining is based on the formation of complexes between the diammonium salt in high

ferric amine salt and sulfated acidic mucous substances, resulting in coloration. At pH values significantly lower than 2.5, sulfate ions in tissues become ionized, carrying a negative charge. They form salt bridges with the cation in Alcian Blue, leading to staining of sulfate-containing tissues (such as sulfated mucous substances), resulting in shades of brown-purple to brown-black. At pH 2.5, carboxyl groups in tissues become ionized, carrying a negative charge. They form salt bridges with the cation in Alcian Blue, leading to staining of carboxyl-containing tissues (such as proteoglycans/hyaluronic acid and epithelial acidic mucins), resulting in a blue coloration. The mucin HID-AB staining solution is primarily used to differentiate sulfated acidic mucous substances and sialic acid-rich mucous substances. The small intestine epithelium produces sulfated acidic mucous substances, while the large intestine epithelium produces sialic acid-rich mucous substances and sulfated acidic mucous substances. This method can be combined with AB-PAS staining to identify the types of metaplasia in intestinal epithelium, determine the mucin type in mucous-producing metastatic tumors, study the properties of gastrointestinal tumor cells, and assist in determining whether the primary tumor originates from the large intestine.

Usage

1. Dewax the sections with distilled water.
2. Immerse the sections in the prepared HID Solution for 18-24 hours (see Note 3).
3. Rinse with running water for 5 minutes.
4. Incubate the sections in the Alcian staining solution for 10-20 minutes.
5. Rinse briefly with water.
6. Incubate the sections in the nuclear fast red staining solution for 10 minutes.
7. Rinse with running water for 1 minute.
8. Gradually dehydrate with ethanol, clear with xylene, and mount with neutral mounting medium.

Staining Results

Sulphated acidic mucinous substances (E. g. sulfate mucin and salivary mucin)	Brown-purple to brown-black
Carboxylated protein of an acidic mucinous species (Such as proteoglycans and hyaluronic acid)	blue

nucleus	red

Notes

1. The fixative used is 10% neutral formalin.

2. The HID Solution should not be prepared in advance. After use, it can be stored at 4°C and reused 1-2 times, but the specificity may be compromised.

3. The appropriate temperature for the sections to be incubated in the HID Solution is 20-25°C. If the ambient temperature is too low, the staining time should be extended accordingly.

4. The HID Solution can be harmful to the human body, so handle with care and avoid contact with skin.

5. For your safety and health, please wear laboratory attire and disposable gloves during the procedure

Disclaimer

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