Alcian Blue Staining Kit, pH 0.4

Catalog No.: RA20101

Basic Information

Product name	Alcian Blue Staining Kit, pH 0.4
Sizes	50 mL
Storage	2-8 ℃, keep away from light
Shipping	Shipped with ice pack
Validity	6 months

Product Introduction

Alcian Blue, also known as Alcian Blue 8GX or Ingrain Blue 1, is a copper-containing phthalocyanin dye originally used in textile dyeing. This cationic dye binds to acidic groups; specifically, Alcian Blue forms insoluble complexes with anionic groups such as carboxyl and sulfate residues in tissues. The dye molecule consists of a central copper-containing phthalocyanine ring linked via thioether bonds to four isothiourea groups that confer a moderate basicity and a net cationic charge. At pH 2.5, carboxyl groups in tissues are ionized and carry a negative charge, forming electrostatic (salt) linkages with the cationic dye; consequently, acidic mucosubstances rich in carboxyl groups (sulfated and sialylated mucins) are stained. At pH < 1.0, sulfate groups are ionized and negatively charged, allowing Alcian Blue to bind strongly to sulfate-rich mucosubstances. Neutral mucins (e.g., those in gastric mucosa and Brunner’ s glands) do not react with Alcian Blue under any of these conditions.

EnkiLife Alcian Blue Staining Solution (pH 0.4) exploits these pH-dependent binding properties to discriminate mucosubstance classes: pH 2.5: carboxyl (-COOH) groups stain strongly; sulfate-containing mucins stain weakly. pH 1.0: carboxyl groups are unstained; sulfate-containing mucins stain. pH 0.4: only strongly acidic sulfated mucosubstances are stained.

Product Components

Components	3x 50mL
Reagent (A): Alcian Acidification Solution	50 mL
Reagent (B): Alcian Staining Solution	50 mL
Reagent (C): Nuclear Fast Red Staining Solution	50 mL

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Materials Required (Not Supplied)

1. Graded ethanol series, xylene or eco-friendly dewaxing/clearing reagent, neutral balsam or eco-friendly mounting medium.
2. Distilled water.

Experimental procedure

1. Dewax sections in xylene or eco-friendly clearing reagent; rehydrate through graded ethanols to distilled water.
2. Immerse slides in Alcian Acidification Working Solution for 3–5 min.
3. Incubate in Alcian Staining Solution for 30–60 min; rinse under running tap water for 10 min.
4. Rinse briefly with distilled water.
5. Counterstain with Nuclear Fast Red Staining Solution for 2–5 min; rinse under running tap water for 1 min.
6. Dehydrate through graded ethanols, clear in xylene or eco-friendly clearing reagent, and mount with neutral balsam or eco-friendly mounting medium.

Staining Results

Component	Color
Strongly sulfated acid mucosubstances	Blue
Weakly sulfated acid mucosubstances	Light blue
Non-sulfated mucosubstances	Unstained
Nuclei	Red

Notes

1. Use 10 % neutral-buffered formalin as fixative.
2. Opened reagents should be used within 3 months; recap bottles immediately after use to prevent evaporation or degradation.
3. Precipitate in Nuclear Fast Red Staining Solution is normal; use supernatant after settling, or vortex gently before use. If pigment residues appear after staining, centrifuge at 5 000 rpm and use the

supernatant.

4. Wear laboratory coat and disposable gloves for personal safety.

5. Use reagents promptly after opening to ensure optimal performance in subsequent experiments.

This product is for research use only!