

## Cartilage Staining Solution (Alcian Blue, pH2.5)

### C1511664

**Storage:** 2-8°C. Room Temperature. Store in the dark.

**Shipping:** Shipped with ice packs.

#### Introduction:

Alcian Blue, also known as Alcian, is a copper phthalocyanine-based conjugated dye originally used for dyeing textile fibers. This cationic dye binds to acidic groups; that is, Alcian Blue forms insoluble complexes with anionic groups in tissues such as carboxyl groups and sulfate groups. Alcian Blue consists of a central copper-containing phthalocyanine ring linked to four isothiuronium groups via thioether bonds. The isothiuronium groups are moderately basic, rendering Alcian Blue cationic. At pH 2.5, carboxyl groups in tissues are ionized and carry a negative charge, forming salt linkages with the cationic groups in Alcian Blue, thus staining acidic mucinous substances (sulfated mucins and sialomucins) that contain carboxyl groups. At pH 1.0, sulfate groups in tissues are ionized and carry a negative charge, forming salt linkages with the cationic groups in Alcian Blue, thus staining tissues containing sulfate groups (e.g., sulfated mucins).

Cartilage Staining Solution (Alcian Blue Method, pH 2.5) differentiates types of mucinous substances by using different pH values. At pH 1.0, carboxyl groups (-COOH) are not stained, while sulfate groups (-OSO<sub>3</sub>H) are stained. At pH 2.5, carboxyl groups are stained well but sulfated mucins are poorly stained, allowing differentiation between sulfated mucins and sialomucins. This reagent is for research use only and is not suitable for clinical diagnosis or other purposes.

#### Product Components and Storage Conditions:

C1511664	Component	2×50mL	Storage
C1511664A	Alcian Acid Solution	50mL	RT
C1511664B	Alcian Staining Solution (pH 2.5)	50mL	2-8°C. Store in the dark.

#### Protocol (For Reference Only):

1. Routine decalcification, dewax with xylene, pass through graded ethanol, then rehydrate in distilled water.
2. Immerse in Alcian Acid Solution.
3. Stain in Alcian Staining Solution.
4. Rinse in running water.
5. Dehydrate in graded ethanol, clear in xylene, and mount with neutral balsam.

**Staining Results:**

Acid mucins (hydroxyl groups): Blue.

Cell nuclei: Pale blue.

**Precautions:**

1. Neutral formalin is used as the fixative.
2. For selective identification of sulfated mucins and proteoglycans, Alcian Blue with a low pH value (pH=1.0) should be used. The staining procedure at pH=1.0 is the same as that for Alcian Blue at pH=2.5, and the staining time should be prolonged accordingly.
3. Opened reagents should be used within 6 months after opening. Recap tightly immediately after each use to prevent evaporation or deterioration.
4. For your safety and health, please wear lab coat and disposable gloves during operation.
5. This product is for research use only. Strictly prohibited for other purposes.

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