Alizarin Red S Staining Kit, 0.2%, pH 4.2

Catalog No.: RA20115

Basic Information

Product name	Alizarin Red S Staining Kit, 0.2%, pH 4.2
Sizes	100 mL
Storage	RT
Shipping	RT
Validity	12 months

Product Introduction

Calcium is abundant in the human body, constituting the skeleton that supports the body and playing essential roles in secretion, transport, muscle contraction, and nerve conduction. Calcium exists in two forms: ionized calcium in the circulation (so-called blood calcium) and bound calcium that is deposited in tissues in combination with proteins, carbonate, or phosphate. Except for bone and teeth, calcium is normally distributed throughout all tissues and cells and usually does not appear in solid form; however, under certain conditions calcium precipitates and deposits in tissues as pathological calcification, mainly calcium phosphate and, to a lesser extent, calcium carbonate. Calcium salts are usually monorefringent, but calcium oxalate is birefringent. With H&E staining calcium appears generally bluish-purple. Many dyes can chelate calcium, including Alizarin Red S, purpurin, and nuclear fast red.

Alizarin Red S, an anthraquinone derivative and the sodium salt of alizarin sulfonate, chelates calcium in calcium carbonate or calcium phosphate to form an orange-red complex. Alizarin Red S often yields more reliable results for small amounts of deposits and is frequently combined with Fast Green or Mayer' s hematoxylin to produce an orange-red precipitate, making it suitable for staining tissues containing scant calcium salts.

Materials Required (Not Supplied)

1. Fixative: 10% neutral buffered formalin, formalin-ethanol and ethanol mixtures, 95% ethanol, distilled water.
2. Staining jars, microscope.

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Perimental procedure

1. Fix tissues in 10% neutral buffered formalin or ethanol, dehydrate, and embed routinely.
2. Section slides to 95% ethanol.
3. Stand slides upright and air-dry completely.
4. Immerse sections in Alizarin Red S Staining Solution (0.2%, pH 4.2) for 5–10 min (see Precaution 1).
5. Rinse quickly with distilled water.
6. (Optional) Counterstain, then rinse three times with distilled water.
7. Dehydrate routinely, clear with xylene or a xylene substitute, and mount with neutral resin.

Staining Results

Component	Color
Calcium deposits	Orange-red

Notes

1. Staining time must be adjusted according to calcium content; monitor under the microscope and rinse as soon as deposits show a deep orange-red. Over-staining causes diffusion; 5 min is usually sufficient.
2. After Alizarin Red S staining, calcium deposits are birefringent.
3. When Fast Green is used as counterstain, the background appears green; with Mayer' s hematoxylin, nuclei appear blue.
4. This method is particularly useful for identifying and detecting small amounts of calcium, e.g., abnormal calcification in kidney (hypercalciuria).
5. Wear lab coat and disposable gloves for safety.
6. Use the reagent promptly after opening to ensure consistent performance.

This product is for research use only!