Mast Cell Staining Solution (Aldehyde Fuchsin-Orange G Method)

Cat #: A-CSH333

Size: 4×20mL, 4×50mL

Storage: 2~8°C, avoid light (12 months)

Product Composition

Component	4×50mL	Store at
Reagent (A): Weigert iodine solution	50ml	10~30°C, and were protected from light
Reagent (B): Weigert differentiation solution	100ml	10~30°C
Reagent (C): aldehyde-magenta liquid	50ml	2~8°C, and were protected from light
Reagent (D): Orange yellow G solution	50ml	10~30°C, and were protected from light

Product Description

The discovery of mast cells has a history of over a hundred years. They originate from undifferentiated mesenchymal cells and are common cells in loose connective tissue. They are often found in clusters along small blood vessels and lymphatic vessels. They are also commonly found around the interlobular ducts of bronchi and pancreas. Mast cells are generally larger cells with a diameter of about 20-30μm. They are round or oval in shape, with small nuclei and cytoplasm filled with coarse and metachromatic acidophilic granules.

The mechanism of Aldehyde Fuchsin-Orange G staining is based on the strong affinity of Aldehyde Fuchsin for acidic glycosaminoglycans containing sulfate groups. Mast cell granules contain heparin, which has carboxyl and sulfate groups, allowing them to form complexes and be stained by Aldehyde Fuchsin. Orange G is an acidic dye that can stain other tissue components yellow. The staining solution for mast cells (Aldehyde Fuchsin-Orange G method) can demonstrate metachromatic granules. After staining, mast cell granules are stained purple or deep purple, while other cells are mostly unstained. The background appears orange-yellow, creating a distinct contrast.

Usage

1. Immediately fix fresh tissue in 10% neutral formalin fixative, followed by routine dehydration and embedding.

2. Cut sections to a thickness of 4-5μm and perform routine dewaxing until water.

3. Treat with Weigert's iodine solution for 5 minutes.

4. Rinse briefly with water.

5. Differentiate with Weigert's differentiation solution for 2 minutes.

6. Rinse with running water for 5 minutes.

7. Briefly rinse with 70% ethanol.

8. Cover the sections with Aldehyde Fuchsin staining solution and let it soak for 10-20 minutes.

9. Wash away excess staining solution with 70% ethanol.

10. Rinse briefly with water.

11. Apply Orange G staining solution to the sections for 1-2 seconds.

12. Rinse briefly with water.

13. Perform routine dehydration, clear with xylene, and seal with neutral mounting medium.

Staining Results

mast cell granule	Purple or dark purple
spandex	purple
red blood cell	aurantiacus
The rest of the organization	popcorn

Notes

1. For your safety and health, please wear a lab coat and use disposable gloves while performing the procedure.

2. When staining mast cells, it is important to ensure that the tissue is fresh and should be fixed immediately after removal.

3. If 10% neutral formalin fixative is not available, it can be replaced with 4% formaldehyde physiological saline.

4. Although Aldehyde Fuchsin solution can stain beta cells in pancreatic islets and basophilic cells in the pituitary gland, the staining time for the former is around 30 minutes, and for the latter, it is about 1 hour. However, the staining time for mast cells is only 10-15 minutes, and there will be no confusion due to the differences in tissue composition.

5. Pay attention to controlling the degree of staining during Orange G staining to avoid over-staining, as it may mask the purple granules.

6. After differentiation, it is important to quickly transfer the sections to 95% ethanol, absolute ethanol, and xylene. Prolonged exposure to these solutions can lead to fading of the stain.

Disclaimer

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