Modified Fuchsin O-Resorcin Green Cartilage Staining Solution

Cat #: A-CSH365

Size: 5×50mL, 5×100mL

Storage: Room temperature, avoid light (12 months)

Product Composition

Component		5×50mL	5×100mL	Store at
Reagent (A): Weigert Hematoxylin staining solution	A1: Weigert A solution	25ml	50ml	10~30°C, and were protected from light
	A2: Weigert B solution	25ml	50ml	10~30°C
Take equal amounts of A1 and A2 to mix Weigert dye solution, lose staining force after 24h, should not be prepared in advance.				
Reagent (B): Acid ethanol differentiation solution		50ml	100ml	10~30°C
Reagent (C): solid green staining solution		50ml	100ml	10~30°C, and were protected from light
Reagent (D): Red O staining solution		50ml	100ml	10~30°C, and were protected from light
Reagent (E): Acetic acid solution		50ml	100ml	10~30°C

Product Description

Cartilage tissue consists of chondrocytes and cartilage matrix, and the cartilage membrane surrounding the cartilage forms the cartilage structure. Depending on the different components of the matrix, cartilage can be classified into hyaline cartilage, elastic cartilage, and fibrocartilage. There are various methods for staining cartilage, such as toluidine blue staining, Alizarin blue staining, and fuchsin staining.

The principle of the modified Alcian Blue-Safranin O staining method for cartilage is based on the alkaline-loving cartilage binding with the basic dye Safranin O, resulting in a red color. Acidophilic bone binds with the acidic dye Fast Green, resulting in a green or blue color. This provides a clear contrast between the red-stained cartilage and bone

tissue, allowing differentiation between the two. Safranin O is a cationic dye that binds to polyanionic groups (such as chondroitin sulfate or keratan sulfate) in the polysaccharides of cartilage. The staining with Safranin O is approximately proportional to the concentration of anions, indirectly reflecting the content and distribution of protein polysaccharides in the matrix. When cartilage is damaged, the proteoglycans in the cartilage are released, leading to an uneven distribution of matrix components, resulting in faint or no staining with Safranin O. Quantitative analysis of the cartilage matrix stained with Safranin O can be performed using image analysis software. Fast Green binds to collagen fibers and should not be faded. The differentiation step in Safranin O-Fast Green staining is crucial, as excessive differentiation can result in poor staining, while insufficient differentiation can lead to excessive staining.

Usage

1. Perform thorough deparaffinization using three changes of xylene, each for 5 minutes. Hydrate with absolute ethanol and 95% ethanol, each for 10 dips.
2. Rinse with distilled water.
3. Immerse the sections in freshly prepared Weigert's staining solution for 5-10 minutes.
4. Rinse with running water for 1 minute, and if necessary, differentiate with acid alcohol differentiation solution, followed by a rinse with distilled water.
5. Immerse the sections in Fast Green staining solution for 3-5 minutes.
6. Rinse the sections with acetic acid solution for 10-15 seconds to remove residual Fast Green.
7. Immerse the sections in Safranin O staining solution for 2-5 minutes.
8. Perform three rounds of dehydration with absolute ethanol.
9. Clear with xylene and mount with an optical resin.

Staining Results

mesochondrium	peony
Cartilaginous cell nuclei	bluecolour
Cytoplasm, muscle, collagen fibers, and bone tissue	celadon

Cartilaginous cytoplasm	red
nucleus	cinereus

Notes

1. When nuclear staining is required, it is advisable to use iron hematoxylin staining, as it provides strong staining power and a concentrated color tone. Regular hematoxylin staining may not provide strong staining.

2. Weigert's staining solution should not be prepared in advance and left standing, as it generally loses its staining power after 24 hours.

3. The staining time of the sections in Safranin O staining solution should not be excessively long, as it can result in difficulty in differentiating the deep red background.

4. The differentiation time of the sections should be appropriate, with a green background being desirable.

5. After staining with Safranin O staining solution, it is not advisable to undergo dehydration in low-concentration ethanol, as it may cause fading of the stain.

6. The dehydration time in 95% ethanol should not be excessively long.

7. For your safety and health, please wear laboratory attire and disposable gloves while performing the procedure.

Disclaimer

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