Sudan III Saturated Solution

Cat #: A-CSH302

Size: 50mL, 100mL

Storage: Room temperature, avoid light (12 months)

Product Composition

Component	Size		Store at
Sudan saturated solution	50ml	100ml	10~30°C, and were protected from light

Product Description

Neutral fat is a type of lipid composed of three fatty acid molecules and one glycerol molecule, and it is neutral in nature. Neutral fat serves as a storage form of energy and releases energy upon oxidation. Under normal conditions, cells other than adipocytes are almost invisible for lipid droplets under an optical microscope. The presence of a large number of lipid droplets within the cytoplasm indicates lipid degeneration, which is commonly observed in hepatocytes, myocardial cells, renal tubular epithelial cells, and others. Sudan dyes, such as Sudan II, Sudan III, Sudan IV, Sudan Black B, and Oil Red O, are frequently used for neutral fat staining. The mechanism of lipid staining with Sudan dyes is believed to involve physical lipid solubilization and adsorption. Sudan dyes have a higher solubility in lipids than in organic solvents, so during staining, the dye transfers from the staining solution to the lipid, resulting in the lipid displaying the color of the staining solution. A saturated solution of Sudan III is mainly used to demonstrate lipid degeneration in tissue organs and abnormal lipid deposition, commonly occurring in the liver, kidney, heart, and other parenchymal organs, where numerous neutral fat droplets are present. It is also used to differentiate and diagnose tumors occurring in adipose tissue and their nature. The specimens should not be fixed with ethanol-containing fixatives (if fixation is needed, 10% neutral formalin can be used) and should not be sectioned with paraffin. Frozen sections or carbon wax sections should be used instead.

Usage

1. Cut fresh tissue sections at low temperatures, usually -20 to -25°C. If the sample is adipose tissue, adjust the temperature to -30°C.

2. Optimal thickness for frozen sections is 6-8 μm, and they should be mounted on glass slides.

3. Briefly rinse the sections with 70% ethanol.

4. Immerse the sections in a saturated solution of Sudan III for 30 minutes.

5. Differentiate the sections in 70% ethanol for a few seconds, then rinse with tap water.

6. Use filter paper to remove excess water from the sections and the surrounding area, allowing them to dry slightly.

7. Seal the sections with glycerol gelatin.

Staining Results

neutral fat	orange red

Notes

1. The specimens should not be fixed with ethanol-containing fixatives or sectioned with paraffin. Frozen sections should be used instead. If fixation is necessary, a 10% neutral formalin fixative or 10% formaldehyde-calcium solution can be used.

2. It is crucial to prevent dye precipitation during the staining process. Therefore, the sections should be sealed when placed in the staining solution to prevent contact with moving air and avoid precipitation due to solvent evaporation. If precipitation is observed, the solution should be filtered before use.

3. Sudan dyes are prone to fading and should be stored in a tightly sealed container.

4. Samples sealed with glycerol gelatin have a limited storage time. For long-term preservation, the edges of the cover glass, where it meets the slide, can be sealed with neutral gum.

Disclaimer

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