Sudan Black B Staining Solution

Cat #: A-CSH304

Size: 2×50mL, 2×100mL

Storage: Room temperature, avoid light (12 months)

Product Composition

Component	2×50mL	2×100mL	Store at
Reagent (A): Sudan Black B staining solution	50ml	100ml	10~30°C, and were protected from light
Reagent (B): Nuclear solid staining 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 is one of the ways energy is stored and released 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 in the cytoplasm indicates lipid degeneration, commonly observed in hepatocytes, myocardial cells, renal tubular epithelial cells, and others.

Staining techniques commonly used for neutral fat visualization include Sudan II, Sudan III, Sudan IV, Sudan Black B, and Oil Red O. The mechanism of lipid staining with Sudan dyes is generally attributed to the physical lipid solubilization and adsorption. Sudan dyes have higher solubility in lipids compared to organic solvents, allowing the dye to transfer from the staining solution to the lipid, resulting in the lipid acquiring the color of the staining solution.

Saturated solutions of Sudan III are primarily used to demonstrate lipid degeneration in tissue organs and abnormal lipid deposition in lipids, commonly observed in the fatty degeneration of solid organs such as the liver, kidney, and heart, where numerous neutral fat droplets appear within the cells. This staining technique helps in the identification

and diagnosis of tumors occurring in fatty tissues and their nature.

To perform neutral fat staining, it is recommended not to use fixatives containing ethanol (10% neutral formalin can be used for fixation if needed) and not to use paraffin for sectioning. Instead, frozen sections or carbon wax sections should be used.

Usage

1. Fresh tissues should be sectioned at low temperatures, typically -20 to -25°C. If the sample is a lipoma, the temperature should be adjusted to -30°C.
2. The optimal thickness for frozen sections is 6-8 µm, and they should be placed on glass slides.
3. Gently rinse the sections in 70% ethanol.
4. Immerse the sections in Sudan Black staining solution and let them stain for 30 minutes.
5. Differentiate the sections in 70% ethanol for a few seconds, then rinse with tap water followed by distilled water for 1 minute.
6. Perform a light staining of the cell nuclei using Mayer's hematoxylin.
7. (Under the microscope) If the color appears too dark, differentiate slightly with 1% acidified ethanol.
8. Rinse briefly with tap water, followed by a rinse with distilled water.
9. Use filter paper to remove excess water and air-dry the sections.
10. Seal the sections with glycerol gelatin.

Staining Results

neutral fat	black
phosphatide	cinereus
nucleus	red

Notes

1. Specimens should not be fixed with fixatives containing ethanol or be sectioned with paraffin. Frozen sections should

be used. If fixation is necessary, 10% neutral formalin or 10% formaldehyde-calcium solution can be used.

2. During the staining process, it is important to prevent the precipitation of the dye. Therefore, when placing the sections into the staining solution, they should be sealed and protected from exposure to moving air to avoid precipitation caused by solvent evaporation. If precipitation occurs, 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 shelf life. If long-term preservation is required, neutral gum can be applied at the edges where the cover glass meets the slide to create a seal.

5. For your safety and health, please wear a lab coat 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.