Modified Oil Red O Staining Kit

Catalog No.: RA20128

Basic Information

Product name	Modified Oil Red O Staining Kit
Sizes	50 mL，100 mL
Storage	2-8 ℃
Shipping	Shipped with ice pack
Validity	12 months

Product Introduction

Lipids are a general term for neutral fats, lipoids, and their derivatives. Their common physical property is insolubility in water and solubility in organic solvents (e.g., ethanol, ether). Human fat mainly includes: Storage fat, such as neutral fat, primarily distributed in subcutaneous tissue, kidneys, pancreas, etc.; Structural fat, such as lipoids (phospholipids, glycolipids, cholesterol), mainly found intracellularly. Neutral fat is composed of three fatty acid molecules and one glycerol molecule. It is neutral and serves as one form of energy storage, releasing energy upon oxidation. Traditional neutral fat staining methods include Sudan II, Sudan III, Sudan IV, Sudan Black B, and Oil Red O. Recent studies have shown that the azo dye Oil Red O is more suitable for fat staining. Oil Red O is a strong lipid solvent and lipophilic dye, easily forming small lipid droplets with triglycerides, though its affinity for phospholipids is slightly weaker. The staining mechanism is generally considered a physical dissolution or adsorption process. The dye dissolves in lipids within frozen sections more readily than in the original solvent, thus transferring from the organic solvent into the lipid, resulting in fat staining.

EnkiLife Modified Oil Red O Staining Solution is primarily used to demonstrate fatty degeneration and abnormal lipid deposition in tissues and organs, commonly seen in fatty degeneration of parenchymal organs such as liver, kidney, and heart, where numerous neutral fat droplets appear intracellularly. It is also used for the identification and diagnosis of tumors in adipose tissue and their nature. Positive fat staining appears orange-yellow to red, with exact color depending on lipid concentration.

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Product Components

Components		2x 50mL	2x 100mL
Reagent (A): Modified Oil Red O Stain	A1: Oil Red O Stain A	30 mL	60 mL
	A2: Oil Red O Stain B	20 mL	40 mL
Mix A1 and A2 at a 3:2 ratio. Shake well. Let stand 20–40 min or centrifuge at 3000 rpm for 10 min. Use the supernatant.			
Reagent (B): Hematoxylin Staining Solution		50 mL	100 mL

Materials Required (Not Supplied)

1. 60% isopropanol, distilled water, glycerol gelatin or acacia gum.

Experimental procedure

1. Cut frozen sections at 6–10 μm. Do not fix, or fix in 10% formalin for 10 min, then rinse with water and briefly with distilled water.
2. Immerse in 60% isopropanol for 20–30 s.
3. Stain with modified Oil Red O Staining Solution (covered) for 10–15 min.
4. Rinse briefly with 60% isopropanol to remove excess dye, then rinse slightly with distilled water.
5. Counterstain with hematoxylin staining solution for 2–5 min.
6. Rinse with tap water for 10 min until nuclei turn blue.
7. Rinse briefly with distilled water and blot dry around the section with filter paper.
8. Mount with aqueous mounting medium (glycerol gelatin or acacia gum) and examine under microscope.

Staining Results

Component	Color
Neutral fat	Orange-red or orange
Nuclei	Blue

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Notes

1. Do not use fixatives containing organic solvents, as lipids are soluble in them. If fixation is needed, use 10% formalin. Do not use paraffin sections; use frozen or celloidin sections only.
2. Frozen sections for fat staining should not be too thin, as very thin sections may result in lipid loss.
3. Oil Red O working solution is unstable and prone to precipitation, which may affect staining. Prepare as needed, let stand 20–40 min or centrifuge at 3000 rpm for 10 min, and use the supernatant.
4. If 60% isopropanol is unavailable, 70% ethanol may be used as an alternative.
5. Do not prolong hematoxylin counterstaining.
6. Staining results are not permanent; observe and photograph as soon as possible.
7. Samples mounted with aqueous medium have limited shelf life. For long-term storage, seal the edges of the coverslip with neutral balsam.
8. Use reagents promptly after opening to maintain optimal performance.

This product is for research use only!