Saturated Oil Red O Staining Solution

S774135

Store at 2-8℃，and store in dark

Introduction:

Lipids are the general term for neutral fats, lipids and their derivatives. They are insoluble in water but soluble in organic solvents. There are mainly two types of lipids in the human body: one is stored lipids, such as neutral fats (i.e., triglycerides), which are mainly distributed in the subcutaneous layer, kidneys, pancreas and other parts; the other is structural lipids, such as lipids (phospholipids, glycolipids, cholesterol, etc.), which are mainly distributed within cells. Lipid droplets are the main storage sites for neutral fats within cells. Under normal circumstances, except for adipocytes, lipid droplets are almost invisible in other cells under an optical microscope. The appearance of a large number of lipid droplets in the cytoplasm indicates fatty degeneration, which is commonly seen in hepatocytes, cardiomyocytes, renal tubular epithelial cells, etc.

Oil Red O is a fat-soluble azo dye, a strong fat solvent and lipid staining agent. It can specifically stain neutral triglycerides, lipids, lipoproteins, etc. in tissues and cells, and its effect is better than traditional Sudan II, Sudan III, Sudan IV, Sudan Black B, etc. When stained with Oil Red O, the solubility of Oil Red O in the lipids within tissue cells is greater than that in the original solvent. Therefore, Oil Red O is transferred from the organic solvent into the lipids, staining them.

The Saturated Oil Red O Staining Solution (Oil Red O Solution) can reflect the fatty degeneration of tissues and organs and the abnormal deposition of lipids by showing the lipid droplets within cells; it can also identify the tumors occurring in adipose tissues and their properties. This product can be used for both tissue staining and analyzing the lipid status in cell samples. Depending on the concentration of lipids, the positive staining results of lipids can range from orange-yellow to red. This product uses high-quality imported raw materials, provides clear and stable staining, and is easy to operate. Approximately 166 ml of working solution can be prepared from 100 ml of saturated Oil Red O staining solution, and approximately 833 ml of working solution can be prepared from 500 ml of saturated Oil Red O staining solution.

Usage method:

A. Preparation of Working Solution

Prepare the Oil Red O working solution by mixing the saturated Oil Red O staining solution with distilled water at a ratio of 3:2. Mix well, let it stand at room temperature for 5-10 minutes, and then filter it before use. [The Oil Red O staining working solution is unstable and should not be prepared in advance.]

B. Staining Procedure

1. Frozen Sections

(1) The prepared frozen sections can either be left unfixed or fixed in 10% neutral formalin for 10 minutes, then thoroughly washed with distilled water.

(2) Immerse the sections in 60% isopropanol for 20 - 30 seconds.

(3) Stain the sections with the Oil Red O staining working solution for 10 - 15 minutes. [The time can be adjusted according to the staining results and requirements.]

(4) Differentiate the sections in 60% isopropanol until the interstitium is clear, and then briefly rinse them in distilled water.

(5) Counter - stain the nuclei with Mayer's hematoxylin staining solution for 1 - 5 minutes. [The time can be adjusted according to the staining results and requirements.]

(6) (Optional) Briefly differentiate the sections in 1% hydrochloric acid solution.

(7) (Optional) Rinse the sections in tap water for 10 minutes or promote bluing in a dilute lithium carbonate solution.

(8) Briefly rinse the sections in distilled water.

(9) Blot the surrounding moisture with filter paper, mount the sections with glycerin jelly, and observe them under a microscope.

2. Cultured Cells

(1) Remove the cell culture medium, wash the cells twice with PBS, and then add 10% neutral formalin fixative to fix the cells for 20 - 30 minutes.

(2) Discard the fixative and wash the cells twice with distilled water.

(3) Immerse the cells in 60% isopropanol for 5 minutes.

(4) After discarding the 60% isopropanol, add the Oil Red O staining working solution to cover the bottom of the plate and incubate for 10 - 20 minutes. [The time can be adjusted according to the staining results and requirements.]

(5) Discard the staining solution and wash the cells 2 - 5 times with distilled water until there is no excess staining solution.

(6) Counter - stain the nuclei with Mayer's hematoxylin staining solution for 1 - 2 minutes. [The time can be adjusted according to the staining results and requirements.] Discard the staining solution and wash the cells 2 - 5 times with water.

(7) Differentiate the cells in 1% hydrochloric acid solution for 1 minute and then discard the solution.

(8) Add distilled water to cover the cells and observe them under a microscope.

3. Cell Smears

(1) Prepare fresh bone marrow or blood smears and fix them in 10% neutral formalin for 10 - 15 minutes.

(2) Take out the smears and let them air - dry in a ventilated area for 10 - 15 minutes.

(3) Immerse the smears in the Oil Red O staining working solution for 15 minutes. [The time

can be adjusted according to the staining results and requirements.]

(4) Differentiate the smears in 60% isopropanol for 20 - 30 seconds, rinse them under running water, and then briefly rinse them with distilled water.

(5) Counter - stain the nuclei with Mayer's hematoxylin staining solution for 1 - 2 minutes. [The time can be adjusted according to the staining results and requirements.]

(6) Differentiate the smears in 1% hydrochloric acid solution for 1 minute and then briefly rinse them with distilled water.

(7) Blot the surrounding moisture with filter paper, mount the smears with glycerin jelly, and observe them under a microscope.

Precautions:

1. Oil Red O solution is a saturated solution. When stored at room temperature or 4℃, a small amount of precipitation may form, which does not affect the performance of this product.
2. Oil Red O working solution is prone to precipitation over time and therefore needs to be prepared freshly.
3. Please use 4% Paraformaldehyde Fix Solution or 10% Formalin for sample fixation. Do not use alcohols, acetone or other fixatives that can dissolve fat.
4. When staining with Oil Red O, evaporation of the working solution should be avoided, otherwise the working solution may precipitate and generate a high background.
5. Frozen sections used for Oil Red O staining should be appropriately thick, typically 10-15 μm. Sections that are too thin tend to lose fat.
6. The Oil Red O stained samples cannot be stored for a long time and should be examined as soon as possible.
7. This product is for research use only, not for drug, clinical diagnosis, food, or other uses.
8. For your safety and health, please wear a lab coat and disposable gloves during the operation.