Nissl Staining Solution (Toluidine Blue Method)

Cat #: A-CSH346

Size: 100mL

Storage: Room temperature, avoid light (12 months)

Product Composition

Component	Size	Store at
Nissl stain solution (toluidine blue method)	100ml	10~30°C, and were protected from light

Product Description

The cell body of a neuron includes a large nucleus with a folded nuclear membrane, sparse chromatin, and a prominent nucleolus. In the cytoplasm of the cell body, there are Nissl granules, which represent rough endoplasmic reticulum and exhibit specific basophilic staining in the form of spotted alkaline granules in many neurons. Nissl granules can be demonstrated using various stains such as neutral red, methylene blue, cresyl violet, and methyl violet. Variations in staining, pH, and differentiation time allow some stains to highlight Nissl substance alone, while others can also show the neuron's nucleus and neuroglia. Nissl bodies, also known as Nissl corpuscles, are triangular or elliptical blocks of material distributed in the cytoplasm of nerve cells that can be stained purple-blue by basic dyes such as thionine, methylene blue, cresyl violet, and tartrazine. Nissl bodies are present in various types of nerve cells, but their shape, quantity, and distribution can vary. Nissl bodies are also found in dendrites but not in axons and axon hillocks. Nissl bodies can change due to physiological conditions and are important sites for protein synthesis within neurons. When neurons are stimulated, the Nissl bodies within the cell body decrease significantly.

Nissl staining solution (Nissl Stain, toluidine blue method) uses toluidine blue as the core dye and can be used for Nissl staining of paraffin-embedded tissue sections. The presence or disappearance of Nissl bodies is an important indicator of neuronal damage. When conditions such as encephalitis, cerebral ischemia, or axon reaction occur, Nissl bodies can dissolve or even disappear.

Usage

1. Fresh tissue is fixed in ethanol, Carnoy's fixative, or 10% neutral formalin solution, followed by routine dehydration and embedding.

2. Cut sections to a thickness of 6-8μm and routinely deparaffinize to water.

3. Rinse with distilled water.

4. Place the sections in Nissl staining solution and immerse the staining dish in a thermostatic chamber at 50-60°C for 25-50 minutes.

5. Rinse briefly with distilled water.

6. Rinse with 70% ethanol.

7. Rapid differentiation in 95% ethanol. Differentiation is difficult to control. If differentiation fails, repeat step 4.

8. Dehydrate rapidly in absolute ethanol. Clear with xylene and mount with neutral mounting medium.

Staining Results

tigroid body	hyacinthine
nucleus	brownish red

Notes

1. Nissl bodies are prone to dissolution after being detached, so immediate fixation of the tissue after removal is necessary; otherwise, it is difficult to achieve staining.

2. Tissue fixation plays a crucial role and can be achieved using ethanol, Carnoy's fixative, or neutral formalin solution.

3. This staining solution provides good Nissl staining results for paraffin-embedded tissue sections.

4. After staining, it is important to store the specimens protected from light to prevent fading.

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.