Succinate Dehydrogenase Staining Solution

S767030

Storage: Store at 2-8℃ long term (12 months), store in the dark

Introduction:

The succinate dehydrogenase staining solution is a specialized reagent used in histology and cytology research. Succinate dehydrogenase (SDH) is an important enzyme located on the inner side of the mitochondrial cristae membrane and bound to the inner mitochondrial membrane. It is the only membrane - bound enzyme in the tricarboxylic acid cycle and a key marker enzyme for mitochondria. By using this staining solution, we can visualize the activity and distribution of SDH in cells and tissues, which helps to understand mitochondrial function, cell metabolism, and tissue physiological states.

Usage method:

Tissue or Cell Preparation

Tissue Sections: Fix the fresh tissue in an appropriate fixative (such as formaldehyde), then dehydrate, clear, and embed it in paraffin. Cut the paraffin - embedded tissue into thin sections (usually 4 - 6 μm) and mount them on glass slides.

Cell Samples: Seed cells on coverslips or culture plates. After reaching the appropriate confluence, fix the cells with a fixative.

Deparaffinization and Rehydration (for Paraffin - embedded Sections)

Immerse the paraffin - embedded sections in xylene to remove the paraffin, then gradually rehydrate the sections through a series of graded alcohols (such as 100%, 95%, 80%, 70% ethanol) and finally rinse with distilled water.

Staining

Incubate the tissue sections or cell samples in the succinate dehydrogenase staining solution at an appropriate temperature (usually 37°C) for a certain period of time (usually 30 minutes - 2 hours). During this process, SDH in the sample catalyzes the oxidation of succinate, and the electrons are transferred to NBT, resulting in the formation of blue - purple formazan granules at the site of SDH activity.

Washing

After staining, wash the samples with distilled water to remove the excess staining solution.

Mounting

Mount the stained samples with a suitable mounting medium and cover with a coverslip for microscopic observation.

Positive Staining

The sites with SDH activity appear as blue - purple granular structures. In normal tissues, these granules are mainly distributed in cells rich in mitochondria, such as cardiomyocytes.

The density and size of the granules are related to the activity level of SDH. Higher SDH activity is indicated by denser and coarser granules.

Negative Staining

Areas without SDH activity, such as the interstitium of some tissues, remain unstained.

Precautions:

1. A fluorescence microscope capable of observing blue fluorescence or a laser - scanning confocal microscope is required.
2. You need to prepare PBS, fixative solution, and anti - fluorescence quenching mounting medium on your own.
3. When using this kit for the first time, it is recommended to conduct a preliminary experiment with 1 - 2 samples first.
4. For your own safety, please take protective measures such as wearing a lab coat and gloves before using the reagent.