DAPI Staining Solution

Cat. no. TAAR-WBH7
Storage: Store at −20 °C in the dark for 1 year
Product Size: 50 mL (500–1000 assays)

Introduction

4',6-Diamidino-2-phenylindole (DAPI) is a type of fluorescent dye that can bind DNA strands robustly, and the fluorescence can be detected using a fluorescence microscope. DAPI can dye live cells and fixed cells as well as penetrate an intact cell membrane. The molecular formula of DAPI is $C_{16}H_{15}N_5 \cdot 2HCl$, its molecular weight is 350.2, and its CAS Number is 28718-90-3.

DAPI can penetrate cell membranes, bind double-stranded DNA in the nucleus, and produce fluorescence that is 20 times stronger than itself. The sensitivity for double-stranded DNA staining is several times larger than that of EB. Blue fluorescent cells can be observed under the microscope. The efficiency of DAPI staining, as indicated by fluorescence microscopy, is very high (almost 100%), with no side effects in live cells. DAPI staining is usually used in cell death detection. After staining with DAPI, detection is performed with a fluorescence microscope or through flow cytometry. DAPI is also used in nucleus staining and double-strand DNA staining in certain situations. After heat treatment, DAPI is used to stain the cell for 3 minutes. The morphological changes in the nucleus can then be detected under a fluorescence microscope.

The largest excitation wavelength for DAPI is 340 nm, and the largest emission wavelength is 488 nm. When DAPI binds with double-strand DNA, the largest excitation wavelength is 360 nm and the largest emission wavelength is 460 nm.

This DAPI Staining Solution can be used to stain fixed cells or nuclei.

Protocol

1. For fixed cells and tissues, wash appropriately to remove the fixing agent. If necessary, immunofluorescent staining can be performed before DAPI staining. Otherwise, DAPI staining can be performed directly.
2. For adherent cells or tissue slices, add a small volume of DAPI staining solution directly (approximately 50–100 µL of DAPI overlying the sample is sufficient). For suspended cells, add a volume of DAPI staining solution that is at least 3 times the volume of the sample and mix thoroughly.
3. Incubate for 5–10 minutes at room temperature.

4. Pipette the DAPI out, and wash the slices 2–3 times with TBST, PBS, or physiological saline for 3–5 minutes each to remove the unbound DAPI.
5. Observe the cell under a fluorescence microscope with an optical filter at an excitation wavelength of 360 nm and emission wavelength of 460 nm.

Note:

1. Because all fluorescent dyes are limited by cancellation, we suggest performing all detections on the day of staining.
2. Antifade solution can be used to retard the cancellation of fluorescent dyes.
3. Please pay attention to the irritation caused by DAPI.
4. Please operate with gloves.

The product is for research only, not for diagnostic and clinical use.