DAPI

(4',6-Diamidino-2-Phenylindole, Dihydrochloride)
for nucleic acid staining

Catalog number: AR1176-10

Boster's DAPI solution is a fluorescent dye with higher efficiency for immunofluorescence microscopy.

This package insert must be read in its entirety before using this product. For research use only. Not for use in diagnostic procedures.

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Product Overview

Material	DAPI dihydrochloride (MW = 350.3)
Form	Liquid
Size	10 mL(100 assys)
Concentration	1μg/ml
Buffer	8 mM sodium phosphate, 2 mM potassium phosphate, 140 mM sodium chloride, 10 mM potassium chloride; pH 7.4.
Storage	Upon receipt store at -20°C, protect from light.
Stability	When stored as directed, product should be stable for one year.
Molecular formula	C16H15N5 • 2 HCL
Excitation: DAPI	340nm
Emission: DAPI	488nm
Excitation: DAPI-DNA complexes	360nm
Emission: DAPI-DNA complexes	460nm
Equivalent	Thermofisher (Product No. 62247); Thermofisher (Product No. 62248); Millipore Sigma (Product No. D9542)

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Notes:

Type of DAPI	Molecular formula	Molecular weight	Catalog Number
DAPI dihydrochloride	C16H15N5 • 2 HCL	350.25	AR1176-10
DAPI dilactate	C16H15N5 • 2 C3H6O3	457.48	N/A

Introduction

DAPI (4',6-diamidino-2-phenylindole) is a fluorescent dye which can bind DNA strands robustly, the fluorescence being detected by fluorescence microscope. DAPI can dye both live and fixed cells as it can cross intact membrane, with higher efficiency in fixed cells. The molecular formula is C16H15N5·2HCl with 350.25 g/mol molecular weight, CAS Number 28718-90-3. DAPI could pass through the cell and nucleic membranes and bind the double-strand DNA in the nucleus, producing 20 times stronger fluorescence than itself. The efficiency detected by fluorescence microscope is very high (almost 100%), having no side effects for the live cells. The sensitivity for double stranded DNA DAPI staining is many times larger comparing to ethidium bromide (EB). DAPI staining is usually used in cell death detection, as it enters more effectively and generates stronger fluorescence in dead cells. After staining with DAPI, detect with fluorescence microscope or flow cytometry. Blue fluorescent cell would be seen under the microscope after staining. The largest excitation wavelength for DAPI is 340nm (ultraviolet), and the largest emission wavelength is 488nm (blue). When DAPI binds with double-strand DNA, the largest excitation wavelength is 360nm, while the largest emission wavelength becomes 460nm. DAPI's blue emission makes it suitable for combined assays where the fluorescence ranges of DAPI and other IHC-employed fluorescent molecules like green-fluorescent fluorescein and GFP, or red-fluorescent stains like Texas Red, are completely distinctive.

Properties

Enzymatic Activity	DNase-, RNase-, Protease- free
Cell Permeability	Intact membrane permeant
Sub-Cellular Localization:	Nucleus
Biomolecule Reactivity	Specific binding to AT-base pairs; intercalation into GC-base pairs
Fluorescence spectrum	White-blue fluorescence
Cite This Product	DAPI (4',6-Diamidino-2-Phenylindole, Dihydrochloride) for nucleic acid staining (Boster Biological Technology, Pleasanton CA, USA, Catalog # AR1176-10)

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Application

Fluorescent bioimaging; Immunofluorescence assays, flow cytometry; in situ hybridization; hystology; IHC; HCS; quantification of DNA content; labeling of DNA in cell cultures; cell death detection

Usage and Handling

- For DNA and chromosomes staining, In vitro laboratory use only. Not for any clinical, therapeutic, or diagnostic use in humans or animals. Not for animal or human consumption.
- DAPI is a known mutagen and should be handled with care.

Protocol

1. **Fixed cells and tissues:** wash appropriately to remove fixative. If necessary, immunofluorescent staining can be performed first, then perform the DAPI staining. If there is no other staining, perform DAPI staining directly.
   Adherent cells or tissue slices: add a sufficient volume of DAPI stain solution to completely cover the sample.
   Suspension cells: Add DAPI stain solution to suspend cell pellets at 3:1. Vortex to obtain an even suspension.
2. Incubate for 5-10 minutes at RT(room temperature).
3. Remove the stain solution.
4. Wash with TBST, PBS or physiological saline for 2-3 times, 3-5 minutes each.
5. Observe the sample under fluorescence microscope (excitation wavelength: 360nm, emission wavelength:460nm).

Notes:
1. Use Boster Antifade Mounting Medium (Product No. AR1109) to prevent rapid photobleaching of fluorescence within spectrum range.
2. Please wear the lab coat and disposable gloves to operate.

Chemical Information

Chemical Name	4′,6-Diamidino-2-phenylindole dihydrochloride
IUPAC Name	2-(4-Amidinophenyl)-1H-indole-6-carboxamidine dihidrochloride
Molecular Formula	C16H15N5•2HCl; C16H17Cl2N5
Molecular Weight	350.25
CAS	28718-90-3
EC Number	249-186-7
Chemical Sources	ChEMBL: CHEMBL48217; CHEMBL531243; SCHEMBL2464378; CHEMBL545547
	CHEBI: CHEBI:51231
	ChemSpider: 2848; 123458; 140783
	PubChem: 2954; 21924871; 67094309; 160166

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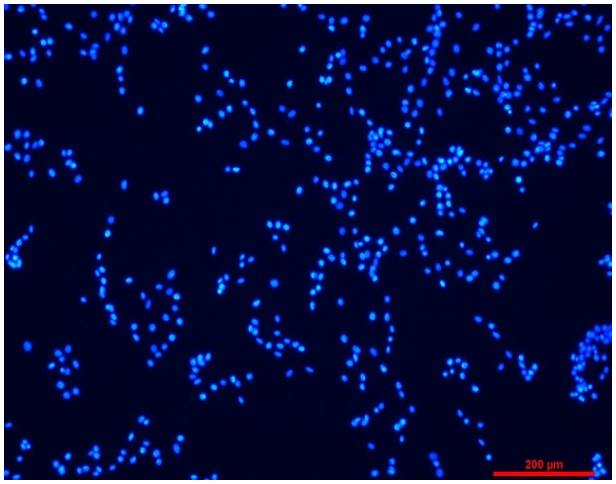
Result image



NIH-3T3 cells were grown in 96 well plates, fixed with paraformaldehyde and permeabilized. Then incubate with Boster DAPI solution for 5 minutes.