

DAPI

4',6'-Diamidino-2-phenylindole dihydrochloride

Product	Cat#	Package size
DAPI, min. 98%	M3176.0010	10mg
DAPI, min. 98%	M3176.0050	50mg
DAPI, min. 98%	M3176.0100	100mg

Product description

DAPI is an excellent dye for staining DNA. Originally, only specific binding to AT-base pairs without an intercalation was known (2), but later on, the intercalation into GC-base pairs was shown (3). The most popular application of DAPI is its use as a reagent to detect mycoplasma or virus DNA (e.g., vaccinia virus infection or "unwanted" viral contamination of cell culture media) in cell culture.

The following staining procedure is recommended

Grow cells on a coverslip in a cell culture dish to approx. 70% confluence. Pour off the medium from the cells. Wash coverslip once with 1µg/mL DAPI in methanol. Incubate cells on the coverslip at 37°C for 15 minutes in 1µg DAPI/mL methanol. Pour off staining solution and wash coverslip once with methanol. Put coverslip up-side-down on a slide with PBS or glycerol as mounting medium. Do not use water. Examine cells under a microscope (excitation: 365nm, emission maximum: 450nm). Prolonged incubation with DAPI increases the nuclear fluorescence, shorter incubation time leads to a weaker nuclear staining, which facilitates the examination of the cytoplasmic fluorescence.

Solubility / Stability

Dissolve DAPI in double-distilled water to a final concentration of 1-5mg/mL. The maximum solubility in water is approx. 25mg/mL. DAPI is insoluble in PBS. Do not use any buffers, Dilute stock solution with methanol to a final concentration of 1µg/mL. Solutions are stable at RT for 1-2 weeks, up to 6 months at +4°C and 6-12 months if frozen in aliquots (1mL) at -20°C. If solutions become turbid, DAPI is hydrolysed. DAPI bleaches quickly in contact with light, even if it is quite stable against UV-light. Incubate your samples in the dark. If your samples are stored at +2°C to +8°C for one day, fluorescence is stabilised.

Product data:

Assay (HPLC):	min. 98%
Melting Point:	ca. 330°C
Chloride:	min. 18.2%
Nitrogen:	min. 18.0%
UV-Spectrum:	λ _{max} 223nm, 261nm and 342nm λ _{min} 246nm and 282nm
Formula:	C ₁₆ H ₁₅ N ₅ x 2HCl
Molecular Weight:	350.25 g/mol
CAS-No.:	[28718-90-3]

Storage:	+2°C to +8°C, protect from light
recommended stock solution:	1-5mL in water (insoluble in PBS)
recommended working solution:	0.1µg/mL - 200mg/mL in methanol

Caution: DAPI is a potential carcinogen, like all chemicals binding selectively to DNA!

References

- 1) A simple dytochemical technique for demonstration of DNA in cells infected with mycoplasma and viruses.
(Rusel, W.C. et al. (1975) Nature **253**, 461-462)
- 2) Interaction of DAPI with synthetic polynucleotides.
(Kapusinski, J. & Szer, W. (1979) Nucleic Acids Res. **6**, 3519-3534)
- 3) Binding of DAPI to GC and Mixed Sequences in DNA. Interaction of a Classical Groov-Binding Molecule.
(Wilson, W.D. et al. (1989) J. Am. Chem. Soc. **111**, 5008-5010)
- 4) Quantitative Fluorescent Analysis of Different Conformational Forms of DNA Bound to the Dye DAPI, and Separated by Gel Electrophoresis.
(Naimski, P. et al. (1980) Anal. Biochem. **106**, 471-475)