

## DAPI, blue fluorescent nucleic acid stain

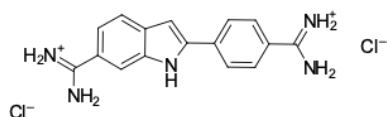
<http://www.lumiprobe.com/p/dapi-nucleic-acid-stain>

DAPI (4',6-diamidino-2-phenylindole) is a blue-emitting fluorescent dye that binds strongly to adenine-thymine-rich regions in DNA. It is used extensively in fluorescence microscopy, flow cytometry for chromosome staining and as a nuclear counterstain. DAPI is generally used to stain fixed cells since the dye is membrane impermeant, although the dye can enter live cells when used at high concentrations.

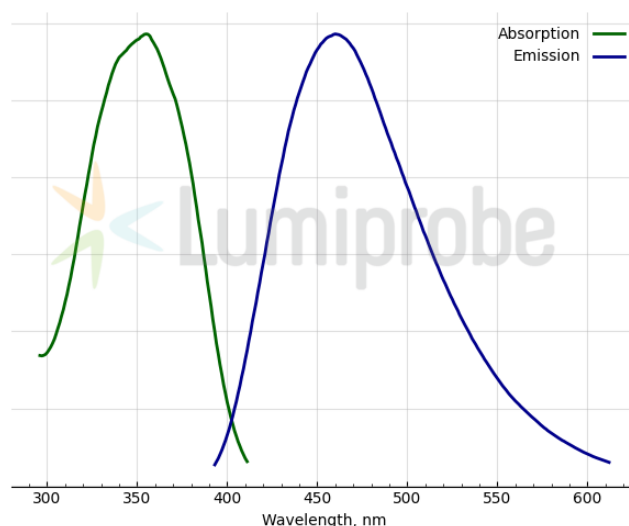
When bound to double-stranded DNA, DAPI exhibits ~20-fold enhancement of fluorescence with an absorption maximum at 358 nm and emission maximum at 461 nm. DAPI also binds to RNA, though it is not as strongly fluorescent. When bound to RNA, its emission spectrum shifts to around 500 nm.

There is a slight fluorescence overlap between DAPI and green-fluorescent molecules like fluorescein and GFP. Use spectral unmixing if extremely precise image analysis is required.

DAPI is several times more sensitive than ethidium bromide for staining DNA in agarose gels. It may be used for photofootprinting DNA and detecting annealed probes in blotting applications by specifically visualizing the double-stranded complex. Also, DAPI staining is a sensitive and specific detection method for mycoplasma.



**Structure of DAPI**



**Absorption and emission spectra of DAPI**

### General properties

Appearance:	yellow solid / solution
Molecular weight:	350.25
CAS number:	28718-90-3
Molecular formula:	C <sub>16</sub> H <sub>17</sub> Cl <sub>2</sub> N <sub>5</sub>
Solubility:	good in DMF, DMSO
Quality control:	NMR <sup>1</sup> H and HPLC-MS (95+%)
Storage conditions:	24 months after receipt at -20°C in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate.

### Spectral properties

Excitation/absorption maximum, nm:	355
ε, L·mol <sup>-1</sup> ·cm <sup>-1</sup> :	28800
Emission maximum, nm:	460