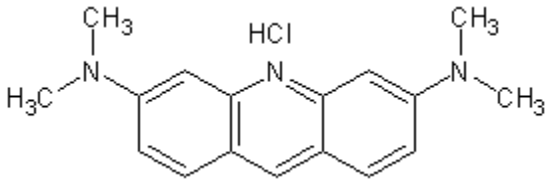
Acridine orange

Ordering Information	*Storage Conditions*
Product Numbers: 17502 (100 mg), 17503 (10 mL)	Avoid exposure to light Keep at -20 °C and desiccated Expiration date is 12 months from the date of receipt

Chemical and Physical Properties



Molecular Weight: 301.82
Appearance: Light yellow
Solvents: Water or dimethylsulfoxide (DMSO)
Spectral Properties: Excitation = 500 nm; Emission = 526 nm.

Biological Applications

Acridine orange is a nucleic acid selective fluorescent cationic dye useful for cell cycle determination. It is cell-permeable, and interacts with DNA and RNA by intercalation or electrostatic attractions. When bound to DNA, it is very similar spectrally to fluorescein, with an excitation maximum at 502 nm and an emission maximum at 525 nm (green). When it associates with RNA, the excitation maximum shifts to 460 nm (blue) and the emission maximum shifts to 650 nm (red). The dye is often used in epifluorescence microscopy.

Sample Protocol for Staining Cells

The following procedure can be adapted for most cell types. Growth medium, cell density, the presence of other cell types and other factors may influence staining. Residual detergent on glassware may also affect real or apparent staining of many organisms, causing brightly stained material to appear in solutions with or without cells present.

1). Make 1-10 mM DMSO stock solution. The DMSO stock solution is good for 6 months if stored at -20 °C.
2). Use the fixation protocol appropriate for your sample.
3). Pellet cells by centrifugation and resuspend the cells in buffered salt solutions or media, with optimal dye staining at pH 7.4. Adherent cells in culture may be stained *in situ* on cover slips or in the cell culture wells.
4). Add AO stain using the concentrations between 1and 10 µM and incubate it for 15 to 60 minutes as a guide.
Note: In initial experiments, it may be best to try several dye concentrations over the entire suggested range to determine the concentration that yields optimal staining.

References

1. Shi Y, Zheng WW, Wu XX, Zhou DH. (2006) [The interaction of acridine orange with anionic surfactant and its application to the determination of protein]. Guang Pu Xue Yu Guang Pu Fen Xi, 26, 1653.

2. Hiruma H, Katakura T, Takenami T, Igawa S, Kanoh M, Fujimura T, Kawakami T. (2006) Vesicle disruption, plasma membrane bleb formation, and acute cell death caused by illumination with blue light in acridine orange-loaded malignant melanoma cells. J Photochem Photobiol B.

3. Krolenko SA, Adamyan SY, Belyaeva TN, Mozhenok TP. (2006) Acridine orange accumulation in acid organelles of normal and vacuolated frog skeletal muscle fibres. Cell Biol Int, 30, 933.

Disclaimer: *This product is for research use only and is not intended for therapeutic or diagnostic applications. Please contact our technical service representative for more information.*