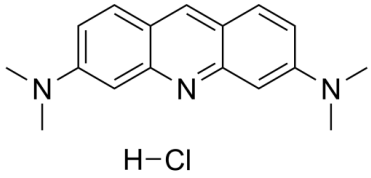
Data Sheet

Product Name:	Acridine Orange (hydrochloride)
Cat. No.:	CS-7513
CAS No.:	65-61-2
Molecular Formula:	$C_{17}H_{20}ClN_3$
Molecular Weight:	301.81
Target:	DNA Stain; Parasite
Pathway:	Anti-infection; Cell Cycle/DNA Damage
Solubility:	H2O : 50 mg/mL (165.67 mM; ultrasonic and heat to 60°C); DMSO : 25 mg/mL (82.83 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

Acridine Orange hydrochloride is a cell-permeable fluorescent dye that binds to nucleic acids, resulting in an altered spectral emission. **In Vitro:** Acridine Orange has been employed extensively as a cytochemical stain and has shown to stain differentially DNA and RNA, and double-restranded nucleic acids in situ. Acridine Orange can either intercalate into double helical nucleic acids (green fluorescence at 530 nm), or bind electrostatically to phosphate groups of single-stranded molecules (red fluorescence at 640 nm). This unique characteristic makes acridine orange useful for cell-cycle studies[1]. Acridine Orange staining of unfixed cells may be used as a simple, fast means of obtaining information on cell ploidy levels and cell cycle status from DNA measurements (green fluorescence), and cell transcriptional activity from RNA staining (red fluorescence), in human and murine cells lines, peripheral blood and bone marrow specimens from patients with leukemia and mitogenically (phytohemagglutinin) or antigenically (mixed lymphocyte culture) stimulated human peripheral blood cultures[2].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: Two-step, pH 3.0: Aliquots (0.2 mL, containing approximately 2-5x10^5 cells) are withdrawn from cultures and are added to 0.5 mL of a solution containing: 0.1% (v/v) Triton X-100, 0.2 M sucrose, 10^{-4} M EDTA and 2x10^{-2} M citrate-phosphate buffer, at pH 3.0. Triton X-100 is included in the various procedures at the indicated pH to increase cell permeability yet maintain cellular integrity. The chelating agent EDTA is used to facilitate RNA denaturation. The cells are stained one minute later by addition of 1 mL of a solution containing 0.002% (20 µg/mL) AO, 0.1 M NaCl and 10^{-2} M citrate-phosphate buffer, pH 3.8. Cations are included in the staining mixture to ensure staining specificity. The final AO concentration is approximately 4x10^{-5} M[2].

References:

[1]. McMaster GK, et al. Analysis of single- and double-stranded nucleic acids on polyacrylamide and agarosegels by using glyoxal and acridine orange. Proc Natl Acad Sci U S A. 1977 Nov;74(11):4835-8.

[2]. Traganos F, et al. Simultaneous staining of ribonucleic and deoxyribonucleic acids in unfixed cells using acridine orange in a flow cytofluorometric system. J Histochem Cytochem. 1977 Jan;25(1):46-56.

CAIndexNames:

3,6-Acridinediamine, N3,N3,N6,N6-tetramethyl-, hydrochloride (1:1)

SMILES:

CN(C)C1=CC=C2C(N=C3C=C(N(C)C)C=CC3=C2)=C1.[H]Cl

Caution: Product has not been fully validated for medical applications. For research use only.

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