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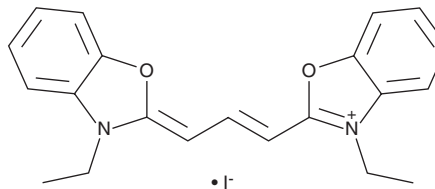
PRODUCT INFORMATION



3,3'-Diethyloxycarbocyanine (iodide)

Item No. 39456

CAS Registry No.: 905-96-4
Formal Name: 3-ethyl-2-[3-(3-ethyl-2(3H)-benzoxazolylidene)-1-propen-1-yl]-benzoxazolium, monoiodide
Synonyms: DiOC₂(3), DOC, NK 85
MF: C₂₁H₂₁N₂O₂ • I
FW: 460.3
Purity: ≥95%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

3,3'-Diethyloxycarbocyanine (DiOC₂(3)) (iodide) is supplied as a solid. A stock solution may be made by dissolving the DiOC₂(3) in the solvent of choice, which should be purged with an inert gas. DiOC₂(3) is soluble in DMSO and slightly soluble in acetonitrile.

DiOC₂(3) is slightly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

DiOC₂(3) is a cationic fluorescent dye that has been used to monitor mammalian and bacterial membrane potential.¹⁻⁴ Upon cell hyperpolarization, it enters cells, and exhibits a decrease in fluorescence intensity and shift in emission from 530 nm to 670 nm upon excitation at 488 nm.⁴ DiOC₂(3) selectively inhibits bovine heart mitochondrial complex I, also known as NADH dehydrogenase (IC₅₀ = 9 μM), over bovine heart mitochondrial complex IV, also known as cytochrome c oxidase, and *P. denitrificans* mitochondrial complex I but activates bovine heart mitochondrial complex II, also known as succinate dehydrogenase, at 10 μM.⁵

References

1. Sims, P.J., Waggoner, A.S., Wang, C.H., *et al.* Studies on the mechanism by which cyanine dyes measure membrane potential in red blood cells and phosphatidylcholine vesicles. *Biochemistry* **13(16)**, 3315-3330 (1974).
2. Gentry, D.R., Wilding, I., Johnson, J.M., *et al.* A rapid microtiter plate assay for measuring the effect of compounds on *Staphylococcus aureus* membrane potential. *J. Microbiol. Methods* **83(2)**, 254-256 (2010).
3. Novo, D., Perlmutter, N.G., Hunt, R.H., *et al.* Accurate flow cytometric membrane potential measurement in bacteria using diethyloxycarbocyanine and a ratiometric technique. *Cytometry* **35(1)**, 55-63 (1999).
4. Boi, P., Manti, A., Pianetti, A., *et al.* Evaluation of *Escherichia coli* viability by flow cytometry: A method for determining bacterial responses to antibiotic exposure. *Cytometry B Clin. Cytom.* **88(3)**, 149-153 (2015).
5. Anderson, W.M., Wood, J.M., and Anderson, A.C. Inhibition of mitochondrial and *Paracoccus denitrificans* NADH-ubiquinone reductase by oxycarbocyanine dyes. A structure-activity study. *Biochem. Pharmacol.* **45(10)**, 2115-2122 (1993).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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