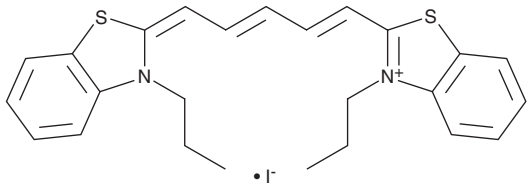
PRODUCT INFORMATION

3,3′-Dipropylthiadicarbocyanine (iodide)

Item No. 36308

CAS Registry No.:	53213-94-8
Formal Name:	3-propyl-2-[5-(3-propyl-2(3H)-benzothiazolylidene)-1,3-pentadien-1-yl]-benzothiazolium, monoiodide
Synonyms:	DiS-C_3-(5), DiSC_3(5)
MF:	$C_{25}H_{27}N_2S_2 \bullet I$
FW:	546.5
Purity:	≥98%
Ex./Em. Max:	622/670 nm
UV/Vis.:	λ_{max}: 358 nm
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′-Dipropylthiadicarbocyanine (iodide) (diSC_3(5) (iodide)) is supplied as a solid. A stock solution may be made by dissolving the diSC_3(5) (iodide) in the solvent of choice, which should be purged with an inert gas. diSC_3(5) (iodide) is soluble in the organic solvent DMSO at a concentration of approximately 2 mg/ml.

Description

diSC_3(5) is a fluorescent dye that has been used to monitor cell membrane potential.[1-3] It displays excitation/emission maxima of 622/670 nm, respectively, and, upon cell hyperpolarization, it enters cells, and exhibits a shift in emission maxima to 688 nm and a decrease in fluorescence intensity.[1] When the cell membrane is depolarized, the fluorescence intensity of diSC_3(5) increases as it exits the cells. However, diSC_3(5) (3 µM) also induces membrane hyperpolarization, increases intracellular sodium levels, and decreases intracellular potassium levels in Ehrlich ascites tumor cells, as well as increases potassium membrane permeability by 64.6% in Ehrlich ascites tumor cells in the presence of the Na^+/K^+-ATPase inhibitor ouabain.[2] It also reduces cellular ATP levels in the absence of glucose and induces acid production and inhibits oxygen consumption in the presence of glucose in Ehrlich ascites tumor cells when used at a concentration of 3 µM.[3]

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. Smith, T.C. and Robinson, S.C. The effect of the fluorescent probe, 3,3'-dipropylthiodicarbocyanine iodide, on the membrane potential of Ehrlich ascites tumor cells. *Biochem. Biophys. Res. Commun.* **95(2)**, 722-727 (1980).
3. Smith, T.C., Herlihy, J.T., and Robinson, S.C. The effect of the fluorescent probe, 3,3'-dipropylthiadicarbocyanine iodide, on the energy metabolism of Ehrlich ascites tumor cells. *J. Biol. Chem.* **256(3)**, 1108-1110 (1981).

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