

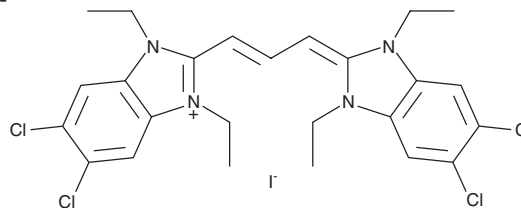
# PRODUCT INFORMATION



## JC-1

Item No. 15003

**CAS Registry No.:** 3520-43-2  
**Formal Name:** 5,6-dichloro-2-[3-(5,6-dichloro-1,3-diethyl-1,3-dihydro-2H-benzimidazol-2-ylidene)-1-propen-1-yl]-1,3-diethyl-1H-benzimidazolium, monoiodide  
**Synonyms:** CBIC<sub>2</sub>, NK 1420  
**MF:** C<sub>25</sub>H<sub>27</sub>Cl<sub>4</sub>N<sub>4</sub> • I  
**FW:** 652.2  
**Purity:** ≥90%  
**UV/Vis.:** λ<sub>max</sub>: 514 nm  
**Ex./Em. Max:** 485/535 (monomer),  
520-570/570-610 (aggregate)  
**Supplied as:** A crystalline 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

JC-1 is supplied as a crystalline solid. A stock solution may be made by dissolving the JC-1 in the solvent of choice, which should be purged with an inert gas. JC-1 is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of JC-1 in these solvents is approximately 1 and 3 mg/ml, respectively.

JC-1 is sparingly 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

JC-1 is a membrane-permeable cationic dye that is used to study mitochondrial integrity in the context of cellular apoptosis.<sup>1-3</sup> It selectively enters mitochondria and changes fluorescence characteristics with alteration in mitochondrial transmembrane potential ( $\Delta\Psi_m$ ). In healthy cells with a high mitochondrial  $\Delta\Psi_m$ , JC-1 forms complexes known as J-aggregates, which fluoresce red/orange and may be detected using FL2 settings by flow cytometry.<sup>3</sup> A drop in  $\Delta\Psi_m$ , a very early event in apoptosis, results in JC-1 monomers, which fluoresce green (FL1 settings on flow cytometers).<sup>2,3</sup> JC-1 may also be used with fluorescent microscopes or plate readers, using excitation at 520-570 nm and emission at 570-610 nm for J-aggregates and excitation at 485 nm and emission at 535 nm for monomers.

## References

1. Abdalah, R., Wei, L., Francis, K., *et al.* Valinomycin-induced apoptosis in Chinese hamster ovary cells. *Neurosci. Lett.* **405(1-2)**, 68-73 (2006).
2. Petit, P.X., Lecoq, H., Zorn, E., *et al.* Alterations in mitochondrial structure and function are early events of dexamethasone-induced thymocyte apoptosis. *J. Cell Biol.* **130(1)**, 157-167 (1995).
3. Salvioli, S., Ardizzone, A., Franceschi, C., *et al.* JC-1, but not DiOC<sub>6</sub>(3) or rhodamine 123, is a reliable fluorescent probe to assess  $\Delta\Psi$  changes in intact cells: Implications for studies on mitochondrial functionality during apoptosis. *FEBS Lett.* **411(1)**, 77-82 (1997).

### 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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