

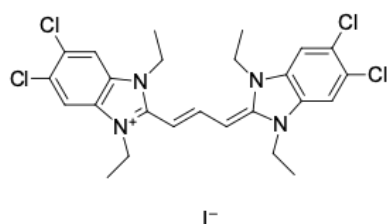
## LumiTracker® Mito JC-1

<http://www.lumiprobe.com/p/jc-1-mitochondrial-membrane-potential-probe>

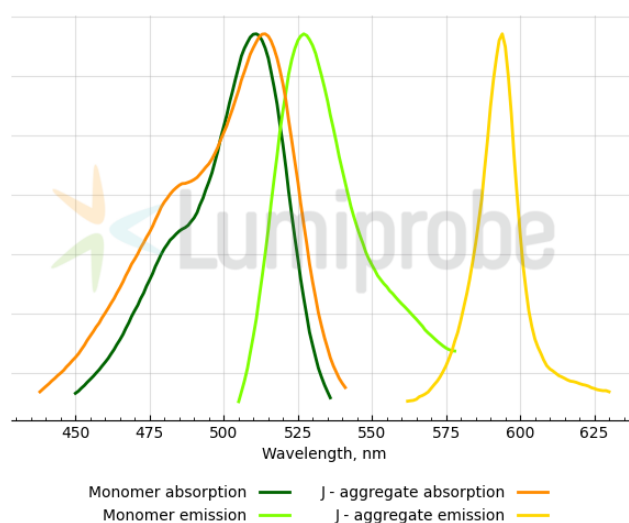
JC-1 is a cationic carbocyanine dye that accumulates in the mitochondria of live cells in a potential-dependent manner.

The dye exists as a green-fluorescent monomer at depolarized membranes and low concentrations. At higher concentrations (aqueous solutions above 0.1  $\mu\text{M}$ ) and hyperpolarized membranes, the dye forms J-aggregates that exhibit an emission at the orange channel.

Healthy cells have high mitochondrial membrane potential, and the decrease of mitochondrial membrane potential is a marker of the early stage of apoptosis. All this allows the use of changes in the orange/green fluorescence ratio of JC-1 to determine healthy vs. depolarized mitochondria. The orange/green fluorescence ratio of JC-1 depends only on the mitochondrial membrane potential and not on other factors such as the size, shape, and density of mitochondria.



**Structure of JC-1**



**Absorption and emission spectra of JC-1**

### General properties

Appearance: red-purple solid

Molecular weight: 652.24

CAS number: 47729-63-5; 3520-43-2

Molecular formula:  $\text{C}_{25}\text{H}_{27}\text{Cl}_4\text{IN}_4$

IUPAC name: 1H-Benzimidazolium, 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-, iodide

Solubility: good in DMSO

Quality control: NMR  $^1\text{H}$  and HPLC-MS (95+%)

Storage conditions: 24 months after receipt at  $-20^\circ\text{C}$  in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate.

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