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# JC-1 (chloride salt)

A fluorescent mitochondrial dye that can be used for ratiometric detection of mitochondrial potential changes.

## Product attributes

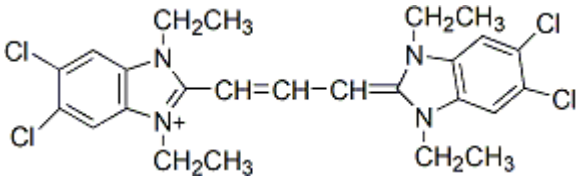
| | |
|---|---|
| **Probe cellular localization** | Mitochondria |
| **For live or fixed cells** | For live/intact cells |
| **Assay type/options** | No-wash staining, Real-time imaging |
| **Cell permeability** | Membrane permeant |
| **Apoptosis/viability marker** | Mitochondrial potential |
| **Potential dependence** | Mitochondrial potential-dependent |
| **Indicator type** | Ratiometric |
| **Colors** | Green/Red |
| **Excitation/Emission** | 510/527 nm (monomer); 585/590 nm (aggregate) |

## Product Description

JC-1 (5,5′,6,6′-Tetrachloro-1,1′,3,3′-tetraethylbenzimidazolylcarbocyanine chloride) is a mitochondrial dye that stains mitochondria in living cells in a membrane potential-dependent fashion.JC-1 monomer is in equilibrium with so-called J-aggregates, which are favored at higher dye concentration or higher mitochondrial membrane potential. The monomer JC-1 has green fluorescence ($\lambda_{Em}$ = 527 nm),while the J-aggregates have red fluorescence ($\lambda_{Em}$ = 590nm). Therefore, it is possible to use the fluorescence ratio technique to study mitochondrial membrane potentials. JC-1 is particularly useful for apoptosis studies. In apoptotic cells, the dye stays in the cytoplasm and fluoresces green. It has also been used in high throughput drug screening applications.

While the original salt form of the dye is JC-1 iodide salt (70011), Biotium developed JC-1 chloride salt for applications where iodide ions are not desired. Biotium also offers Aquaphile™ JC-1, an improved and more soluble formulation of the JC-1 dye which minimizes false positive J-aggregate signal outside of cells.

- $\lambda_{Ex}/\lambda_{Em}$ 510/527 nm (monomer); 585/590 nm (aggregate)
- ε (MeOH) = 190,000
- Red solid soluble in DMSO
- Store at 4 °C and protect from light, especially in solution
- $C_{25}H_{27}Cl_5N_4$
- MW: 561.5




## References

1. PNAS 88, 3671 (1991).

2. Biochemistry 30, 4480 (1991).