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JC-1 (iodide salt)

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

Product attributes

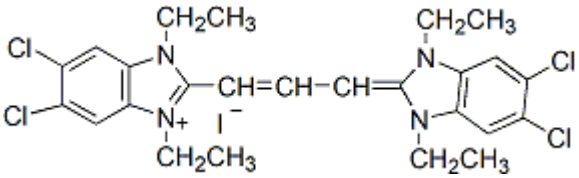
CAS number	47729-63-5
Probe cellular localization	Mitochondria
For live or fixed cells	For live/intact cells
Assay type/options	Real-time imaging
Cell permeability	Membrane permeant
Apoptosis/viability marker	Mitochondrial potential
Potential dependence	Mitochondrial potential-dependent
Indicator type	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, iodide) is a mitochondrial dye that stains mitochondria in living cells in a membrane potential-dependent fashion. JC-1monomer 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 (λ_{Em} = 527 nm), while the J-aggregates have red fluorescence (λ_{Em} = 590 nm). Therefore, it is possible to use fluorescence ratioing 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.

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. Biotium also sells JC-1 chloride salt (70011) which some researchers may prefer over the iodide salt because chloride is the most prevalent anion in biological systems.

- ε (MeOH) = 190,000
- Red solid soluble in DMSO
- Store at 4 °C and protect from light, especially in solution
- $C_{25}H_{27}Cl_4IN_4$
- MW: 652
- [47729-63-5]



References

1. PNAS 88, 3671 (1991).

2. Biochemistry 30, 4480 (1991).