

Store at
-20°C**JC-1**

#92891

1 mg



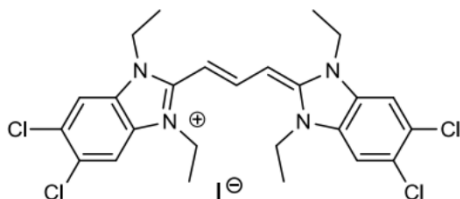
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For Research Use Only. Not For Use In Diagnostic Procedures.

Background: JC-1 is a membrane-permeable cyanine dye used to measure mitochondrial membrane potential. JC-1 is a dual-emission, green-fluorescent dye (emission maximum at approximately 520 nm) at low membrane potential and forms red-fluorescence (emission maximum at 596 nm) at higher membrane potentials (1). Monomeric JC-1 is the predominant form in cells exhibiting lower mitochondrial membrane potential, while aggregates of JC-1 ("J-aggregates") are found in cells with higher mitochondrial membrane potential (2). JC-1 can be used to detect cells undergoing apoptosis, with healthy cells exhibiting red-fluorescence and cytoplasmic JC-1 exhibiting green-fluorescence in apoptotic cells (3). JC-1 is also a substrate of the multidrug transporter P-glycoprotein (P-gp, MDR1), an ATP-binding cassette transporter protein associated with development of multidrug resistance. Transport of JC-1 by P-gp from cells can reduce cellular JC-1 levels, creating a false indication of decreased mitochondrial membrane potential (4).

Molecular Formula: C₂₅H₂₇Cl₄N₄



Molecular Weight: 652.2 g/mol

Purity: >98%

CAS: 3520-43-2

Solubility: Soluble in DMSO at 15 mg/mL or water at 50 mg/mL.

Storage: Store lyophilized at -20°C, desiccated. In lyophilized form, the chemical is stable for 24 months. Once in solution, store at 4°C and use within 24 months to prevent loss of potency. *Do not freeze/thaw solutions.*

Directions for Use: JC-1 is supplied as a lyophilized powder. For a 5 mM stock, reconstitute 1 mg of powder in 0.31 mL of DMSO. Working concentrations and length of treatment can vary depending on the desired effect.

Background References:

- (1) Reers, M. et al. (1991) *Biochemistry* 30, 4480-6.
- (2) Chazotte, B. (2011) *Cold Spring Harb Protoc* 2011, pdb.prot065490. doi: 10.1101/pdb.prot065490.
- (3) Perelman, A. et al. (2012) *Cell Death Dis* 3, e430.
- (4) Elefantova, K. et al. (2018) *Int J Mol Sci* 19, 1985. doi: 10.3390/ijms19071985.

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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide **Species Cross-Reactivity:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.