

**PRODUCT:** **JC-1** (5,5',6,6'-tetrachloro-1,1',3,3'-tetraethyl-benzimidazolylcarbocyanine Chloride)

**CATALOG #:** 1130-5

**AMOUNT:** 5 mg

**LOT #:** \_\_\_\_\_

**STORAGE CONDITION:** Store at -20°C, protected from light.

**SHELF LIFE:** 1 year under proper storage conditions

**PHYSICAL APPEARANCE:** Red solid

**MOLECULAR FORMULA:** C<sub>25</sub>H<sub>27</sub>Cl<sub>3</sub>N<sub>4</sub>

**MOLECULAR WEIGHT:** 561.5

**PURITY:** >98% by HPLC

**SOLUBILITY:** Soluble in DMSO

**EXTINCTION COEFFICIENT:**  $\epsilon = 190,000 \text{ M}^{-1}\text{cm}^{-1}$  (505 nm; in MeOH)

#### APPLICATION:

JC-1 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 mitochondrial membrane potential. The monomer JC-1 has green fluorescence ( $\lambda_{em} = 527 \text{ nm}$ ), while the J-aggregates have red fluorescence ( $\lambda_{em} = 590 \text{ nm}$ ). Therefore, it has been possible to use fluorescence ratioing technique to study mitochondrial membrane potential. JC-1 is particularly useful for apoptosis studies. In apoptotic cells, the dye stays in the cytoplasm and fluoresces green, while in healthy cells, the dye aggregates in the mitochondria and fluoresces red.

#### REFERENCES:

1. Smiley, S.T., *et al.* (1991) *PNAS* **88**:3671.
2. Reers, M., *et al.* (1991) *Biochemistry* **30**:4480.

**FOR RESEARCH USE ONLY! Not to be used in human.**

#### RELATED PRODUCTS:

##### Apoptosis Detection Kits & Reagents

- Annexin V Kits & Bulk Reagents
- Caspase Assay Kits & Reagents
- Mitochondrial Apoptosis Kits & Reagents
- Nuclear Apoptosis Kits & Reagents
- Apoptosis Inducers and Set
- Apoptosis siRNA Vectors

##### Cell Fractionation System

- Mitochondria/Cytosol Fractionation Kit
- Nuclear/Cytosol Fractionation Kit
- Membrane Protein Extraction Kit
- Cytosol/Particulate Rapid Separation Kit
- Mammalian Cell Extraction Kit
- FractionPREP Fractionation System

##### Cell Proliferation & Senescence

- Quick Cell Proliferation Assay Kit
- Senescence Detection Kit
- High Throughput Apoptosis/Cell Viability Assay Kits
- LDH-Cytotoxicity Assay Kit
- Bioluminescence Cytotoxicity Assay Kit
- Live/Dead Cell Staining Kit

##### Cell Damage & Repair

- HDAC Fluorometric & Colorimetric Assays & Drug Discovery Kits
- HAT Colorimetric Assay Kit & Reagents
- DNA Damage Quantification Kit
- Glutathione & Nitric Oxide Fluorometric & Colorimetric Assay Kits

##### Signal Transduction

- cAMP & cGMP Assay Kits
- Akt & JNK Activity Assay Kits
- Beta-Secretase Activity Assay Kit

##### Adipocyte & Lipid Transfer

- Recombinant Adiponectin, Survivin, & Leptin
- CETP Activity Assay & Drug Discovery Kits
- PLTP Activity Assay & Drug Discovery Kits
- Total Cholesterol Quantification Kit

##### Molecular Biology & Reporter Assays

- siRNA Vectors
- Cloning Insert Quick Screening Kit
- Mitochondrial & Genomic DNA Isolation Kits
- 5 Minutes DNA Ligation Kit
- 20 Minutes Gel Staining/Destaining Kit
- $\beta$ -Galactosidase Staining Kit & Luciferase Reporter Assay Kit

##### Growth Factors and Cytokines

##### Monoclonal and Polyclonal Antibodies