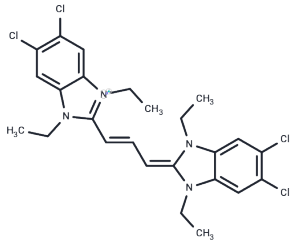
Data Sheet (Cat.No.T15609)

JC-1

Chemical Properties



CAS No. : 3520-43-2

Formula: C25H27Cl4IN4

Molecular Weight: 652.23

Appearance: no data available

Storage: keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	JC-1 (CBIC2) is a fluorescent lipophilic carbocyanine dye. It has been used to measure mitochondrial membrane potential. JC 1 can be used in a probe for measuring mitochondrial membrane potential by flow cytometry.
Targets(IC50)	Others
In vitro	JC-1 fluorescence is usually excited by the 488nm laser wavelength common in flow cytometers[1]. JC-1 (2.5μM) exposed to murine L1210 lymphoblasts, can be detected the presence of both cytoplasmic JC-1 monomer and mitochondrial J-aggregates in these cells. Fluorescent labeling of mitochondria with either JC-1 (1 μg/mL, 15 min), reveals that are distributed irregularly, resulting in regions of high and low mitochondrial content within astrocytes[2]. JC-1 is avidly accumulated in sensitive K562 cells where it displays both a green cytoplasmic and red mitochondrial fluorescence. JC-1 is poorly accumulated in resistant K562 cells, which displays only a slight green fluorescence[4]. JC-1 has been shown to interact with α-synuclein at the acidic C-terminal region with a Kd of 2.6 μM. JC-1 itself does not accelerate the protein aggregation of α-synuclein in the absence of iron, insted, it decelerates the aggregation process by extending the lag phase approx[3].

Solubility Information

Solubility	DMSO: 14 mg/mL (21.46 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.5332 mL	7.666 mL	15.332 mL
5 mM	0.3066 mL	1.5332 mL	3.0664 mL
10 mM	0.1533 mL	0.7666 mL	1.5332 mL
50 mM	0.0307 mL	0.1533 mL	0.3066 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

A Perelman, et al. JC-1: alternative excitation wavelengths facilitate mitochondrial membrane potential cytometry. Cell Death Dis. 2012 Nov 22;3:e430.
Wang X, Shi W, Wang K, et al.Rationally Designed Nonapeptides with Great Skin Photoprotective Effect through Producing Type 1 Collagen and Blocking the mTOR Pathway.Journal of Medicinal Chemistry.2023
Vera C. Keil, et al. Ratiometric high-resolution imaging of JC-1 fluorescence reveals the subcellular heterogeneity of astrocytic mitochondria. Pflügers Archiv - European Journal of Physiology. 2011,462(5): 693-708.
Jung-Ho LEE, In-Hwan LEE, Young-Jun CHOE, et al. Real-time analysis of amyloid fibril formation of α-synuclein using a fibrillation-state-specific fluorescent probe of JC-1. Biochem. J. 2009, 418:311-323.
Salvioli S, et al. JC-1, but not DiOC6(3) or rhodamine 123, is a reliable fluorescent probe to assess delta psi changes in intact cells: implications for studies on mitochondrial functionality during apoptosis. FEBS Lett. 1997 Jul 7;411 (1):77-82.