JC-1

Cat. No.: HY-15534

CAS No.: 3520-43-2

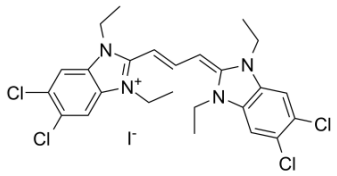
Molecular Formula: $C_{25}H_{27}Cl_4IN_4$

Molecular Weight: 652.23

Target: Others

Pathway: Others

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 15 mg/mL (23.00 mM)
H_2O : < 0.1 mg/mL (insoluble)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.5332 mL	7.6660 mL	15.3320 mL
	5 mM	0.3066 mL	1.5332 mL	3.0664 mL
	10 mM	0.1533 mL	0.7666 mL	1.5332 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 1.25 mg/mL (1.92 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 1.25 mg/mL (1.92 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

JC-1 (CBIC2) is a fluorescent lipophilic carbocyanine dye used to measure mitochondrial membrane potential. JC-1 forms complexes known as J-aggregates at high ΔΨm. Aggregates of JC-1 emit an orange-red fluorescence (Ex/Em=585/590 nm). While in cells with low ΔΨm, JC-1 remains in the monomeric form. JC-1 monomers emit a green fluorescence (Ex/Em=510/527 nm).

In Vitro

Guidelines (Following is our recommended protocol. This protocol only provides a guideline, and should be modified according to your specific needs).
Labeling of Cells:
1. Culture cells in 6-, 12- , 24-, or 96-well plates at a density of 5× 10^5 cells/mL. Incubate the cells according to your normal

protocol.
2. Ensure that the JC-1 and DMSO has equilibrated to room temperature, and then prepare a 200 μM stock solution by dissolving the contents of one vial in 230 μL of the DMSO provided.
3. For the control tube, allow the vial of CCCP has come to room temperature, add 1 μL of CCCP (50 mM). Incubate cells at 37°C for 5 minutes.
4. Add 10 μL JC-1 (200 μM) per well to make the final concentration at 2 μM. Incubate cells at 37°C, 5% CO_2, for 15-20 minutes. If additional labeling followed, for example with an annexin V, begin with step 2.a. If not, proceed with step 1.e.
5. After incubation, centrifuge cells for 3-4 minutes at 400× g at 4°C, carefully aspirate the supernant.
6. Wash cells twice with PBS (1×): add 2 mL PBS (1×) to suspend cells and vortex to mix thoroughly. Centrifuge cells for 3-4 minutes at 400× g at 4°C, carefully aspirate the supernant.
7. Add 500 μL PBS (1×) to suspend cells. Analyze sample on a flow cytometer, fluorescence microscopy, or fluorescence microplate reader.
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Mol Cancer. 2019 Apr 10;18(1):85.
- Small. 2019 Sep;15(36):e1902642.
- Cell Death Differ. 2020 Oct 27.
- Environ Pollut. 2020 Aug.
- Nanotoxicology. 2020 Sep 11;1-19.

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REFERENCES

[1]. A Perelman, et al. JC-1: alternative excitation wavelengths facilitate mitochondrial membrane potential cytometry. Cell Death Dis. 2012 Nov 22;3:e430.

[2]. 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.

[3]. 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.

[4]. 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.

India Contact:
Life Technologies (India) Pvt. Ltd.
306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444
Email: customerservice@lifetechindia.com Website: www.lifetechindia.com