Product Information

JC-1

Catalog Number: J4001

Product Size: 5 mg

Parameters

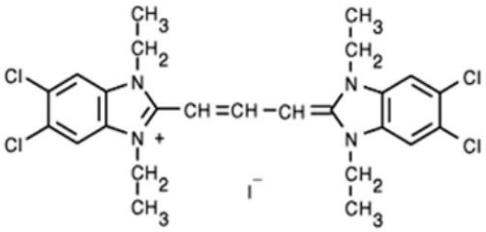
Appearance: Red solid soluble in DMSO

CAS No.: 47729-63-5

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

Molecular Weight: 652

Molecular Structure:



Storage

Store at 4°C and protect from light. When stored as directed, product is stable for at least 12 months.

Description

JC-1 is a membrane permeable dye widely used for determining mitochondrial membrance potential with flow cytometry or fluorescent microscopy. This dye can selectively enter the mitochondria where it reversibly changes color as membrane potentials increase. This property is due to the reversible formation of JC-1 aggregates upon membrane polarization that causes shifts in emitted light from 530 nm to 590 nm when excited at 488 nm. Both colors can be detected using FITC and PE filter, respectively. JC-1 is qualitative in regards to the shift from green to red fluorescence emission, and and can be quantitatived as measured by fluorescence intensity in both filter sets. JC-1 can be used to indicate the initiation of apoptosis.

Protocol

1. Dissolve JC-1 in anhydrous DMSO to prepare a certain concentration of stock solution and dilute it to a working solution（1-20 μg / mL）；

Note：When prepare working solution，precipitation is esay to occur. The recommended method is as follows: stock solution is diluted with diH_2O, then add appropriate volume of 10 × PBS. For example, 5 mg/mL stock solution is diluted into 10 μg/mL working solution, add 1 μL stock solution to 450 μL diH_2O, then add 50 μL 10 × PBS.

2. Collect cells: Discard the medium in the well plate and wash the cells twice with PBS;

3. Add a certain volume of the staining working solution to the well plate; Table 1 summarizes several different cell staining schemes;

4. Detection by fluorescence microscope.

Notes

1. In order to prevent precipitation, please don't dilute the stock solution with 1 × PBS directly.

2. If the usage amount of JC-1 is small at one time, each tube should be properly divided to avoid repeated freeze-thaw.

3. There are quenching problems with fluorescent dyes. Please avoid light to slow down the fluorescence quenching.

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4. For your safety and health, please wear lab coats and disposable gloves.

Table 1. JC-1 cell staining conditions

Method	Cell Type	Adherent /Dissociated	Incubation Conditions		
			Dye Concentration	Temperature	Time
microscope	Neurons (rat)	Adherent	2.0 μg/mL	37°C	20–30 min
	Neurons (rat)	Adherent	1.0 μg/mL	37°C	20 min
	O-2A oligodendrocytes (rat)	Adherent	10 μg/mL	37°C	10 min
	PC12	Adherent	10 μg/mL	37°C	10 min
	Cardiac myocytes (rat)	Dissociated	10 μg/mL	37°C	10 min
Flow cytometer	Human fibroblasts	Dissociated	0.3 μg/mL	37°C	1 hour
	Colo-205	Dissociated	10 μg/mL	37°C	10 min
	U937	Dissociated	10 μg/mL	22°C	10 min

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