PRODUCT SPECIFICATION SHEET

JC-1 [5',5',6',6'-Tetrachloro-1',3',3'-tetraethylbenzimidazolyl-carbocyanine iodide], Ultra Pure
Cat. No. ENZ-52304

Wavelength Maxima: Excitation 515 nm
                     Emission 529 nm
MW: 652.23
Quantity: 5 mg
Purity: >95% by HPLC

Description: JC-1 is widely used for determining mitochondrial membrane potential by flow cytometry, fluorescence microscopy and in microplate-based fluorescent assays. JC-1 accumulates in mitochondria, selectively generating an orange J-aggregate emission profile (590 nm) in healthy cells. However, upon cell injury, as mitochondrial potential decreases, JC-1 monomers are generated, resulting in a shift to green emission (529 nm). The principal advantage of JC-1 relative to other commonly employed fluorescent probes of mitochondrial membrane potential is that it allows for both qualitative visualization, considering the shift from orange to green fluorescence emission, and quantitative detection, considering the fluorescence intensity ratio.

Shipping Condition: Ambient

Storage: -20°C. Desiccation recommended. Protect material from long-term exposure to light; may be exposed to light for short periods of time.


Recommended Staining Procedure:
1. Prepare a 5mg/mL stock solution of JC-1 in DMSO (~7.7 mM). JC-1 is light sensitive. Do not expose to direct intense light. Perform all staining procedures in subdued light. Avoid repeated freeze/thawing of the JC-1 stock solution. Make small aliquots after the first thaw and store them at -20°C.
2. Grow cells on a glass cover slip in a petri dish or in a chamber slide. Induce the cells according to your specific protocol.
3. Warm fresh culture medium to 37°C. Thaw an aliquot of the JC-1 30°C stock solution at room temperature (RT). Make sure JC-1 is completely thawed and warmed to RT before diluting. Mix thawed JC-1 well before dilution. Prepare the JC-1 staining solution by diluting the reagent in prewarmed culture media. For the staining of adherent cells, JC-1 is diluted in medium to a final concentration of ~5 μg/mL (vortex during dilution to prevent the formation of precipitates). Mix well to dissolve all particulates. Do not centrifuge the reagent. Dilute JC-1 reagent immediately prior to use.
4. Remove the cell culture media and replace with enough diluted 1X JC-1 reagent sufficient to cover the cells.
5. Incubate the cells for 10 min at 37°C (or RT for 15 min). The duration of the staining depends upon the cell type, but in our hands all the cells used responded quite well to the treatment.
6. Remove the media and wash the monolayer twice with PBS or fresh media.
7. Add a drop of PBS and cover the cells with a cover slip.
8. Observe cells immediately with a fluorescence microscope using a dual-band pass filter designed to simultaneously detect fluorescein and rhodamine or fluorescein and Texas Red. In live non-apoptotic cells, the mitochondria will appear red following aggregation of the JC-1 reagent. The red aggregates emit at about 590 nm. In apoptotic and dead cells, the dye will remain in its monomeric form and will appear green with an emission at about 530 nm.

JC-1 is a member of the CelliFlair® product line. Reagents and assay kits comprising fluorescent molecular probes that have been extensively benchmarked for live cell analysis applications. CelliFlair® reagents and kits are optimal for use in demanding imaging applications, such as confocal microscopy, flow cytometry and HCS, where consistency and reproducibility are required.

WARNING: THIS PRODUCT IS NOT INTENDED OR APPROVED FOR HUMAN, DIAGNOSTICS OR VETERINARY USE. USE OF THIS PRODUCT FOR HUMAN OR ANIMAL TESTING IS EXTREMELY HAZARDOUS AND MAY RESULT IN DISEASE, SEVERE INJURY, OR DEATH.

Material Safety Data Sheet:
This product is hazardous when ingested, inhaled, or in contact with eyes. It is not recommended for use in diagnostic or therapeutic applications. Contact your local regulatory agency for any specific safety guidelines or regulations.

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