



Versatile:

Cell can be analyzed by flow cytometry, fluorescence plate reading or fluorescence microscopy.

Quick:

Incubate for 15 minutes, wash and measure.

No Special Buffers to Make:

Add this reagent directly to live cells in your media of choice.

Cell Permeable:

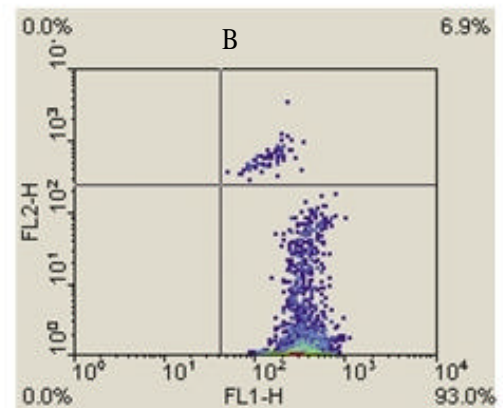
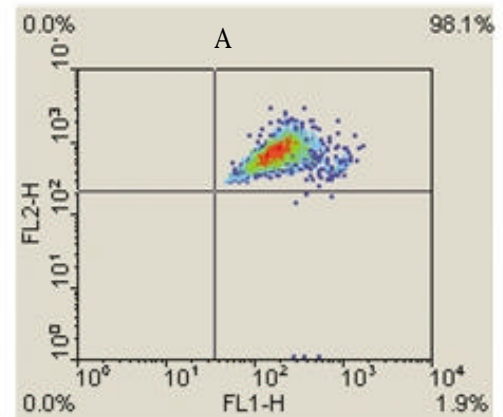
This allows you to directly measure apoptosis and mitochondrial potential in live cells.

APO LOGIX JC-1

Mitochondrial Membrane Potential detection kit provides an early indication of the initiation of cellular apoptosis. This process is typically defined as the collapse in the electrochemical gradient across the mitochondrial membrane, as measured by the change in the membrane potential. The insertion and oligomerization of proapoptotic proteins BID, BAK, BAX or BAD create pores which could dissipate the trans-membrane potential and release cytochrome c into the cytoplasm.

Assay Principle:

This loss in membrane potential can be detected by the unique fluorescent dye, 5,5',6,6'-tetrachloro-1,1',3,3'-tetraethylbenzimidazolylcarbocyanine iodide, commonly known as JC-1. In healthy cells JC-1 enters the negatively charged mitochondria where it aggregates and fluoresces red. In apoptotic cells, where the mitochondrial potential has collapsed, JC-1 exists as monomers throughout the cell. When dispersed in this manner JC-1 fluoresces green. Cells are analyzed by flow cytometry, fluorescence plate reading or fluorescence microscopy.



Jurkat cells were cultured with DMSO (A) or staurosporine (B) for 2 hours. Cells were then stained with JC-1 Mitochondrial Membrane Potential detection kit for 15 minutes and analyzed by flow cytometry.

For research purposes only. Not for diagnostic or therapeutic use.



References:

1. Desagher, S., Osen-Sand, A., Nichols, A., Eskes, R., Montessuit, S., Lauper, S., Maundrell, K., Antonsson, B., and Martinou, J.C. Bid-induced conformational change of Bax is responsible for mitochondrial cytochrome c release during apoptosis. *J. Cell Biol.* 144 (5): 891-901 (1999).
2. Narita, M., Shimizu, S., Ito, T., Chittenden, T., Lutz, R. J., Matsuda, H., and Tsujimoto, Y. Bax interacts with the permeability transition pore to induce permeability transition and cytochrome c release in isolated mitochondria. *Proc. Natl. Acad. Sci. USA* 95: 14681-14686 (1998).
3. Basanez, G., Nechushtan, A., Drozhinin, O., Chanturiya, A., Choe, E., Tutt, S., Wood, K. A., Hsu, Y. T., Zimmerberg, J., and Youle, R. J. Bax, but not Bcl-XL decreases the lifetime of planar phospholipid bilayer membranes at subnanomolar concentrations. *Proc. Natl. Acad. Sci. USA* 96: 5492-5497 (1999).
4. Luo, X., Budihardjo, I., Zou, H., Slaughter, C., and Wang, X. Bid, a Bcl-2 interacting protein, mediates cytochrome c release from mitochondria in response to activation of cell surface death receptors. *Cell* 94: 481-490 (1998).
5. Smiley, S. T., Reers, M., Mottola-Hartshorn, C., Lin, M., Chen, A., Smith, T. W., Steele, G.D., and Chen, L. B. Intracellular heterogeneity in mitochondrial membrane potentials revealed by a J-aggregate forming lipophilic cation JC-1. *Proc. Natl. Acad. Sci. USA* 88: 3671-3675 (1991).
6. Cossarizza, A., Baccarani-Contri, M., Kalashnikova, G., and Franceschi, C. A new method for the cytofluorimetric analysis of mitochondrial membrane potential using the J-aggregate forming lipophilic cation 5,5',6,6'-tetrachloro-1,1',3,3'-tetraethylbenzimidazolylcarbocyanine iodide (JC-1). *Biochem. Biophys. Res. Commun.* 197 (1): 40-45 (1993).
7. Reers, M., Smith, T. W., and Chen, L. B. J-aggregate formation of a carbocyanine as a quantitative fluorescent indicator of membrane potential. *Biochemistry* 30: 4480-4486 (1991).
8. White, R. J., and Reynolds, I. J. Mitochondrial depolarization in glutamate-stimulated neurons: an early signal specific to excitotoxic exposure. *Journal of Neuroscience* 16: 5688-5697 (1996).

Order Information

Product Description	Catalog #	Size	Price
JC-1 Kit	JC100	100 Tests	\$245

Contact Information

Headquarters
Cell Technology Inc
950 Rengstorff Ave, Suite D
Mountain View, CA 94043
Tel: 650-960-2170
Fax: 650-960-0367
E mail: info@celltechnology.com

E mail: sales@celltechnology.com
www.celltechnology.com



CELL TECHNOLOGY
www.celltechnology.com