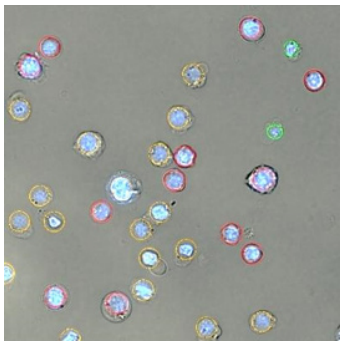
JC-1 Mito Potential

GENERAL PURPOSE



JC-1 Mito Potential is a three channel fluorescence application which uses a nuclei staining (e.g. Hoechst or Dapi) to locate an individual cell and two fluorescence channels to distinguish between the different JC-1 populations. In healthy cells JC-1 enters the negative charged mitochondrial matrix and enriches the mitochondria lumen where it builds J-aggregates (red fluorescent ~590 nm). The loss of mitochondrial membrane potential, like in apoptotic cells, disables an accumulation of the JC-1 molecules. In those cells JC-1 remains in a monomeric, green fluorescent form (~529 nm). Therefore it is possible to distinguish between viable and dead/apoptotic cells.

RESULT TABLE

Nuclei Count	Number of recognized cell nuclei
JC-green positive	Number of detected cells in the JC-green channel
JC-red positive	Number of detected cells in the JC-red channel
TC-nn	Number of cells without fluorescence in the JC-green and JC-red channel
TC-pn	Number of cells only positive in the JC-green channel
TC-np	Number of cells only positive in the JC-red channel
TC-pp	Number of cells positive in JC-green AND JC-red channel
Ratio red:green	Ratio of JC-red positive cells to JC-green positive cells

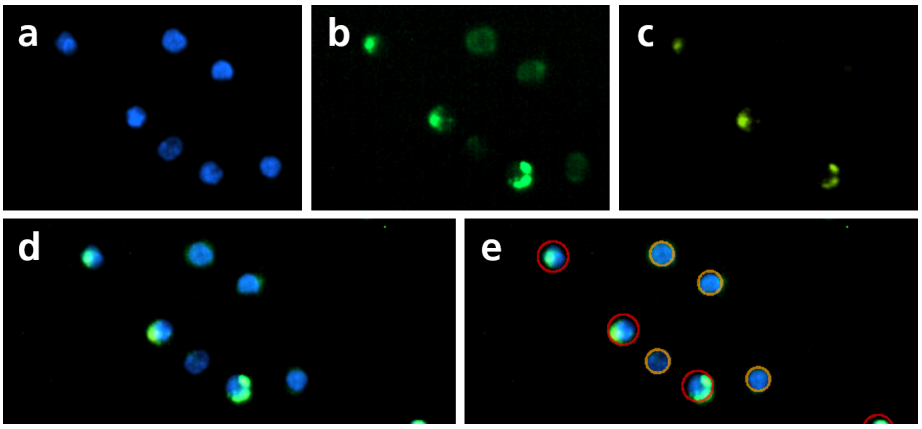
EXAMPLE

This example shows Nalm-6 cells, a B cell precursor leukemia cell line, treated with H_2O_2 and stained with Hoechst 33342 and JC-1.

Marked green: Nuclei staining only

Marked orange: Nuclei staining and JC-green = **apoptotic/ dead cells**

Marked red: Nuclei staining, JC-green AND JC-red = **viable cells**



a) Hoechst 33342, **b)** JC-green, **c)** JC-red, **d)** Overlay, **e)** Overlay with detection

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