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Product datasheet

JC-10 Mitochondrial Membrane Potential Assay Kit (Microplate) ab112134

★★★★★ 2 Abreviews 35 References 画像数 2

製品の概要

製品名	JC-10 Mitochondrial Membrane Potential Assay Kit (Microplate)
検出方法	Fluorescent
サンプルの種類	Adherent cells, Suspension cells
全工程の試験時間	1h 00m
製品の概要	JC-10 Mitochondrial Membrane Potential Assay Kit (Microplate) ab112134 enables researchers to analyze a JC-10 assay with a microplate reader. The JC-10 assay provides the most robust assay method for monitoring mitochondria membrane potential changes. This mitochondrial membrane potential assay protocol is based on the detection of the mitochondrial membrane potential changes in cells by the cationic, lipophilic JC-10 dye. In normal cells, JC-10 concentrates in the mitochondrial matrix where it forms red fluorescent aggregates. However, in apoptotic and necrotic cells, JC-10 diffuses out of mitochondria. It changes to monomeric form and stains cells in green fluorescence. Although JC-1 is widely used in many labs, its poor water solubility causes great inconvenience. Even at 1 µM concentration, JC-1 tends to precipitate in aqueous buffer. JC-10 is developed to be a superior alternative to JC-1 when high dye concentration is desired. Compared to JC-1, JC-10 has much better water solubility. JC-10 is capable of selectively entering mitochondria, and reversibly changes its color from green to orange as membrane potentials increase. This property is due to the reversible formation of JC-10 aggregates upon membrane polarization that causes shifts in emitted light from 520 nm (i.e. emission of JC-10 monomeric form) to 570 nm (i.e. emission of J-aggregate form). When excited at 490 nm, the color of JC-10 changes reversibly from green to greenish orange as the mitochondrial membrane becomes more polarized. In normal cells, JC-10 concentrates in the mitochondrial matrix where it forms red fluorescent aggregates. However, in apoptotic and necrotic cells, JC-10 exists in monomeric form and stains cells green. The green emission can be analyzed in fluorescence channel 1 (FL1) and greenish orange emission in channel 2 (FL2). Besides its use in fluorescence microplate platform, it can also be used in fluorescence imaging and flow cytometry.
特記事項	A microplate reader with bottom-reading mode is essential to perform this assay. If you would like to use JC-10 on a flow cytometer, we recommend **JC-10 Mitochondrial Membrane Potential Assay Kit (Flow Cytometry) (ab112133)**.

Related assays

Review the **cell health assay guide** to learn about kits to perform a **cell viability assay**, **cytotoxicity assay** and **cell proliferation assay**.

Review the **metabolism assay guide** to learn about assays for metabolites, metabolic enzymes, mitochondrial function, and oxidative stress, and also about how to assay metabolic function in live cells using your plate reader.

試験プラットフォーム Microplate reader

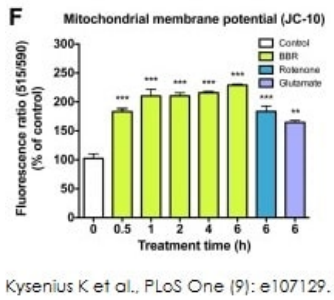
製品の特性

保存方法 Store at -20°C. Please refer to protocols.

内容	5 x 96 tests
100X JC-10 in DMSO	1 x 250µl
Assay Buffer A	1 x 25ml
Assay Buffer B	1 x 25ml

関連性 Mitochondrial Membrane Potential is an important parameter of mitochondrial function used as an indicator of cell death. The collapse of the mitochondrial Membrane potential coincides with the opening of the mitochondrial permeability transition pores, leading to the release of cytochrome c into the cytosol, which in turn triggers other downstream events in the apoptotic cascade.

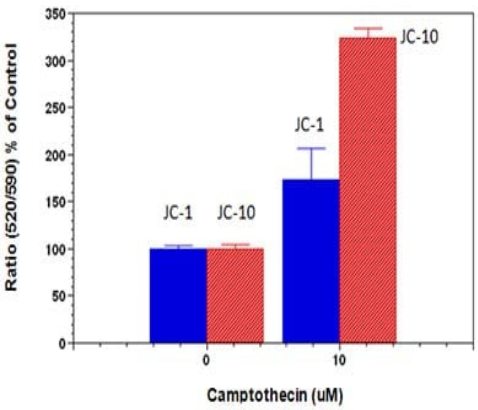
画像



Kysenius K et al., PLoS One (9): e107129. 2014

Mitochondrial membrane potential was measured using ab112134

CGN were cultured on 96-well white-walled clear-bottom plates in phenol-red free Neurobasal until 7 DIV. Thirty minutes before the end of the treatment, 50 µl of JC-10 dye-loading solution was added to each well and incubated for 30 minutes before measuring fluorescence intensities (Ex/Em =485/515 nm and Ex/Em = 540/590 nm). The change of mitochondrial membrane potential was measured as the ratio between aggregate (Em=590nm) and monomeric forms (Em=515nm) of JC-10. Increasing ratios indicate mitochondrial membrane depolarization.



Functional Studies - JC-10 Mitochondrial Membrane Potential Assay Kit (Microplate) (ab112134)

JC-10 Mitochondrial Membrane Potential Assay Kit (Microplate) (ab112134). Camptothecin-induced mitochondria membrane potential changes were measured with JC-10 and JC-1 in Jurkat cells. After Jurkat cells were treated with camptothecin (10 µM) for 4 hours, JC-1 and JC-10 dye loading solutions were added to the wells and incubated for 30 minutes. The fluorescent intensities for both J-aggregates and monomeric forms of JC-1 and JC-10 were measured at Ex/Em = 540/590 nm and 490/525 nm with a microplate reader.

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