BioTracker™ ATP-Red Live Cell Dye

Live Cell Dye

Cat. # SCT045

pack size: 1mg

Store at -20ºC

FOR RESEARCH USE ONLY.
NOT FOR USE IN DIAGNOSTIC PROCEDURES.
NOT FOR HUMAN OR ANIMAL CONSUMPTION.

Data Sheet

Background

Adenosine triphosphate (ATP) is the primary energy source for all cellular processes. ATP also functions as a signaling molecule for regulating cell movement, neurotransmission and ion channel functions. ATP is localized in mitochondria, where cellular respiration occurs. ATP levels can be used to measure cell proliferation and cell cycle dynamics.

The BioTracker™ ATP-Red dye is a live cell red fluorescent imaging probe for adenosine triphosphate (ATP). The probe targets ATP specifically in the mitochondria of living cells. The probe shows no cross reactivity to numerous analytes including: Zn2+, Mg2+, Ca2+, Na2+, K+, GSH, HOCL, H2O2, arabinose, galactose, glucose, fructose, ribose, sorbose, sucrose, xylose, heparin, AMP, ADP, CMP, CDP, CTP, UMP, UDP, UTP, GMP, GDP or GTP.

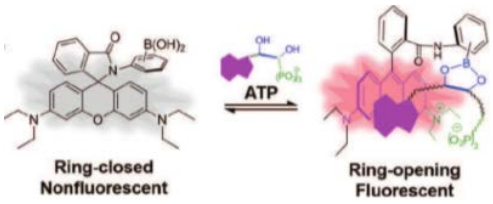

Figure 1. ATP-Red mechanism. The probe is non-fluorescent when forming a closed ring structure. In the presence of the negatively charged ATP, the covalent bonds between boron and ribose is broken and the ring opens producing fluorescence.

Storage

Store BioTracker™ ATP-Red Live Cell Dye at -20°C, desiccate and protect from light

Note: Centrifuge vial briefly to collect contents at bottom of vial before opening.

Spectral Properties

Absorbance: 510nm
Emission: 570nm

Quality Control

Purity: ≥ 98% confirmed by HNMR, LC-MS and HPLC and elemental analysis
Molar Mass: 561.48 g/mol

Protocol

Reagent Preparation

1. Before opening the vial, spin down the solid to the bottom by a microcentrifuge or by a desktop centrifuge.
2. Warm the vial to the room temperature and add DMSO to make a 1000X stock solution of 5-10 mM (freeze aliquots at -20°C).
3. Dilute in cell culture media at a final concentration of 5-10 µM and add to cells in culture. Incubate at 37°C for 15 minutes.
4. Wash cells with PBS buffer before imaging

Note: Optimal concertation must be determined by end user.

ATP-Red (10µM) Mito-Tracker Green (0.25µM)

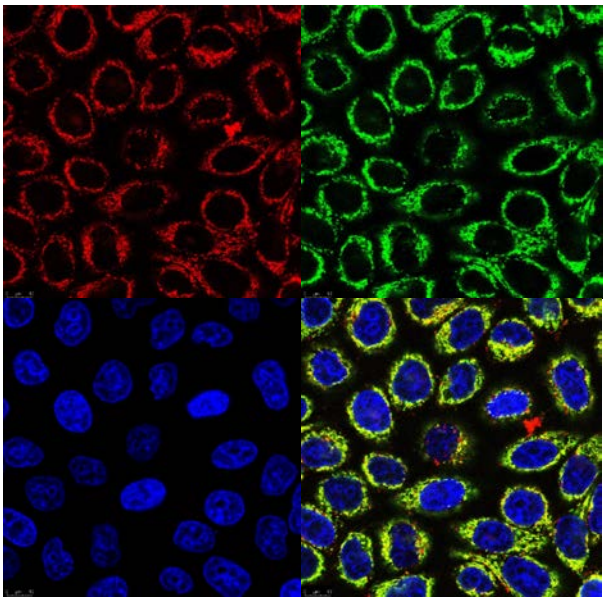

Figure 2. Intracellular localization of ATP-Red in HeLa cells.

References

Chang YT et al. *A Multisite-Binding Switchable Fluorescent Probe for Monitoring Mitochondrial ATP Level Fluctuation in Live Cells.* Angew Chem Int Ed Engl. 2016 Jan 26;55(5):1773-6.

Rev.1.0/2018-05-03/SCT0445NJA

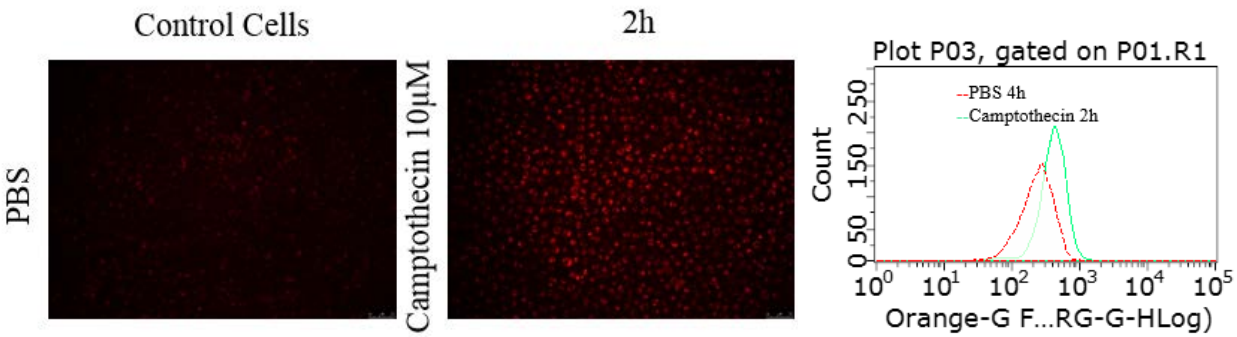

Figure 3. Camptothecin (10 µM) increase intracellular ATP level in Jurkat Cells analyzed in living cells with ATP-Red using microscopy and flow cytometry.