

BioTracker™ Cystine-FITC Live Cell Dye

Live Cell Dye

Cat. # SCT047

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

pack size: 1mg

Store at -20°C



Data Sheet

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Background

Uptake of cystine allows accumulation of cysteine that is necessary for glutathione synthesis and reactive oxygen species (ROS) detoxification. After the uptake of cystine into the cytoplasm, the reducing intracellular environment leads to a separation of one cystine molecule into two cysteine molecules. A key function of cysteine is to maintain the cellular pools of glutathione (GSH). Cystine uptake is also required for T-cell activation and B-cell development.

The BioTracker™ Cystine-FITC dye is a live cell green fluorescent imaging probe that measures cystine uptake at the single cell level. The probe has been used to measure T-cell activation using traditional and imaging flow cytometry methods.

Storage

Store BioTracker™ Cystine-FITC 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: 450nm

Emission: 525nm

Quality Control

Purity: ≥ 98% confirmed by HNMR, LC-MS and HPLC and elemental analysis

Molar Mass: 625.65 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 1-5 mM (freeze aliquots at -20°C).
3. Dilute in cell culture media at a final concentration of 1-5 µM and add to cells in culture. Incubate at 37°C for 20-45 minutes.
4. Wash cells with PBS buffer before imaging

Note: Optimal concentration must be determined by end user.

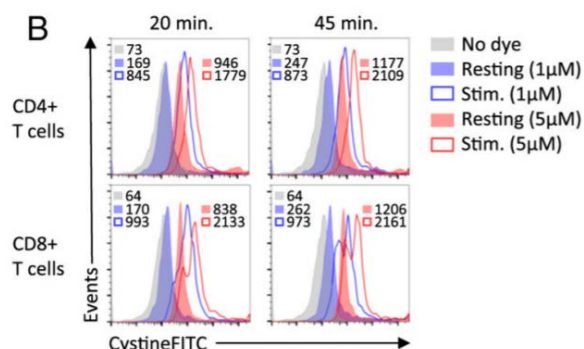


Figure 1. Flow cytometry measurements of cystine uptake using CystineFITC in stimulated human T cells.

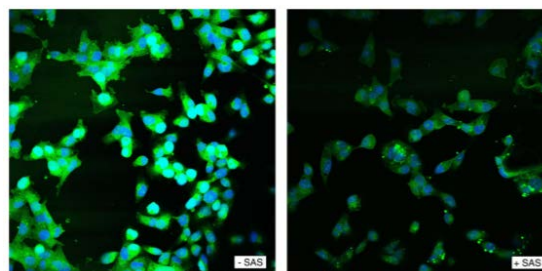


Figure 2. Intracellular localization of Cystine-FITC in MDA-MB-231 breast cancer cells (+/- xCT Inhibitor).

References

Rathmell JC et al. Fluorescence-based measurement of cystine uptake through xCT shows requirement for ROS detoxification in activated lymphocytes. J Immunol Methods. 2016 Nov;438:51-58.

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