

BioTracker™ 543 Yellow β -Gal Dye

Live Cell Dye

Cat. # SCT024

pack size: 10x50 μ g

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

Store at -20°C



Data Sheet

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Background

β -galactosidase, also called beta-gal or β -gal, is a glycoside hydrolase enzyme that catalyzes the hydrolysis of β -galactosides into monosaccharides through the breaking of a glycosidic bond. β -gal is commonly used in molecular biology as a reporter marker to monitor gene expression using the chromogenic X-Gal. β -gal has also been used to measure cellular senescence (SA- β -gal).

The BioTracker™ 543 Yellow β -Gal Dye is a fluorescent probe for the detection of β -galactosidase in living cells. It can be applied to fluorescent imaging and selection of cell and tissue transfected with lacZ along as a measurement of cellular senescence. Other applications include gene analysis by fluorescent imaging, monitoring transfection efficiency, and the study of gene promoter or enhancer elements. Because the dye is almost non-fluorescent in the absence of β -galactosidase, this probe exhibits good S/N ratio.

Storage

Store BioTracker 543 Yellow β -Gal 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: 525nm (488nm compatible)

Emission: 543nm

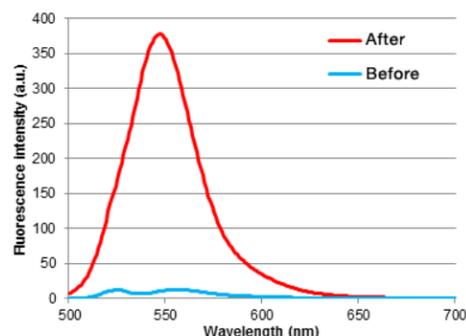


Figure 2. Fluorescent spectra of BioTracker 543 Yellow β -Gal Dye before or after β -galactosidase (3 unit) incubation for 30 min at 37°C. Fluorescence intensity at 547nm was increased 37 fold after reaction.

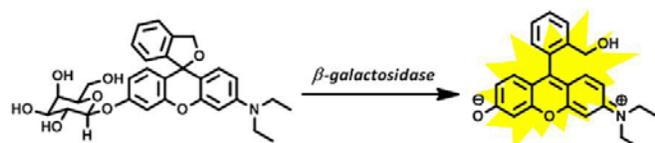


Figure 1. BioTracker 543 Yellow β -Gal Dye mechanism

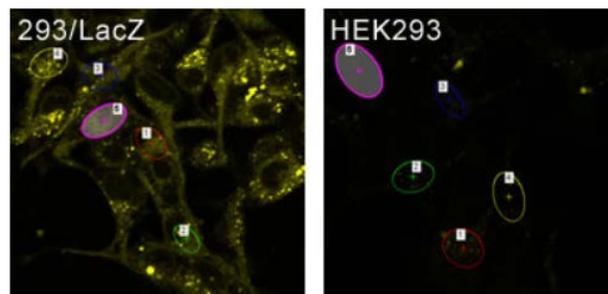


Figure 3. Live cell imaging of 293/LacZ (β -galactosidase expressing cell line) and HEK293 cell by using BioTracker 543 Yellow β -Gal Dye. Strong fluorescence derived from BioTracker™ 543 Yellow β -Gal Dye was observed inside 293/LacZ cells.

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Protocol

Reagent Preparation

1. Before opening the vial, spin down the solid to the bottom by a microcentrifuge or by a desktop centrifuge.
2. Dissolve 50 µg in 93.3 µL of DMSO to achieve a 1 mM concentration.

Staining Protocol of Cultured Cells

1. Dilute an aliquot of stock solution with HBSS to a final concentration of 5 µM (staining solution).
2. Remove the culture medium from cell culture dish and wash with loading medium.
3. Add stain solution to the dish and incubate for 30 minutes at 37°C, 5% CO₂.
4. After staining, remove the stain solution from the dish and wash 2 or 3 times with HBSS. Replace to HBSS buffer and observe the fluorescence using a fluorescence microscopy.