

Data Sheet

BioTracker™ MB1 Tyrosinase Live Cell Dye

Live Cell Probe

SCT058**Pack Size 1 mg****Store at -20 °C****FOR RESEARCH USE ONLY****Not for use in diagnostic procedures. Not for human or animal consumption.**

Background

Melanoma is a form of skin cancer arising in melanocytes. Melanoma is an aggressive malignancy with rapid growth and early metastasis. Tyrosinase (TYR) is a potential biomarker for the detection of melanoma because its expression level is closely correlated with the level of malignancy.

BioTracker™ MB1 Tyrosinase live cell dye is a near-infrared dye that selectively reacts with TYR but not with various potential interfering agents, including inorganic salts (Na^+ , K^+ , Ca^{2+} , and Mg^{2+}), amino acids (Cys, Glu, and Arg), and other biological molecules including reduced GSH, BSA, glucose, hydrogen peroxide, vitamin C, lysozyme, glucose oxidase (GOD), and TYR.

Source

The BioTracker™ MB1 Tyrosinase Live Cell Dye (SCT058) does not contain genetically modified organisms.

Spectral Properties

Excitation max: 670 nm

Emission max: 690 nm

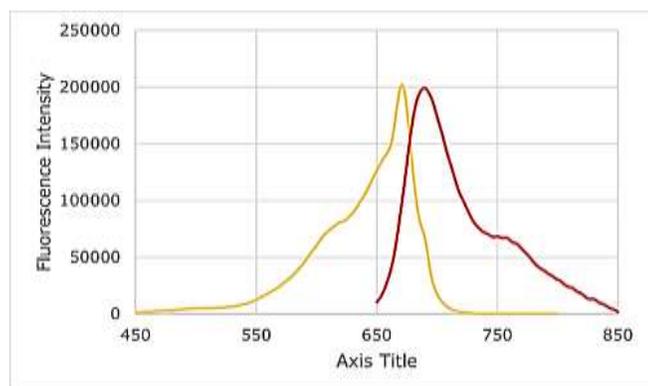


Figure 1: Probe excitation and emission data. 1 μL of probe at stock concentration (10 mM) was diluted in 1 mL of PBS buffer (20 mM, pH 6.5). Mushroom Tyrosinase (T3824) was added (10 U/mL) and incubated at 37 °C for 30 minutes to induce probe activation before undergoing excitation and emission scans. Spectral scans were conducted using a PerkinElmer FL8500 Fluorescence Spectrophotometer.

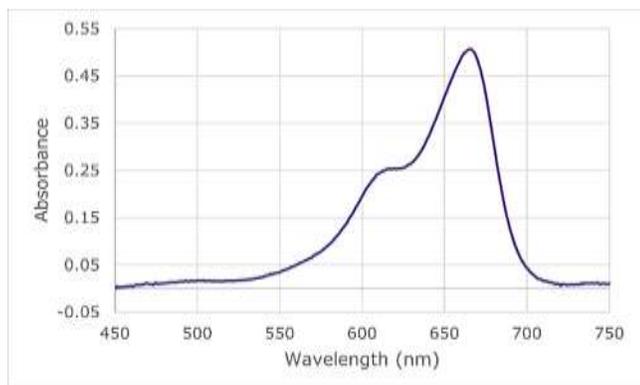


Figure 2: Probe absorbance data. 1 μL of probe at stock concentration (10 mM) was diluted in 1 mL of PBS buffer (20 mM, pH 6.5). Mushroom Tyrosinase (T3824) was added (10 U/mL) and incubated at 37 $^{\circ}\text{C}$ for 30 minutes to induce probe activation before undergoing absorbance scan. Spectral scans were conducted using a PerkinElmer FL8500 Fluorescence Spectrophotometer.

Quality Control Testing

Purity: $\geq 98\%$ confirmed by HPLC. Structure confirmed by HNMR, LC-MS and elemental analysis.

Storage and Handling

Store BioTracker™ MB1 Tyrosinase Live Cell Dye at $-20\text{ }^{\circ}\text{C}$, desiccated and protected from light.

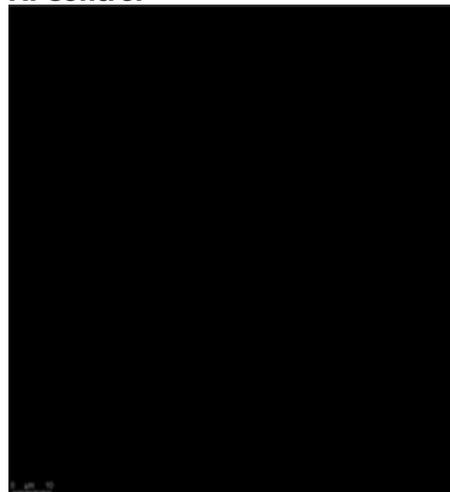
Note: Centrifuge vial briefly to collect contents at bottom of vial before opening.

Presentation

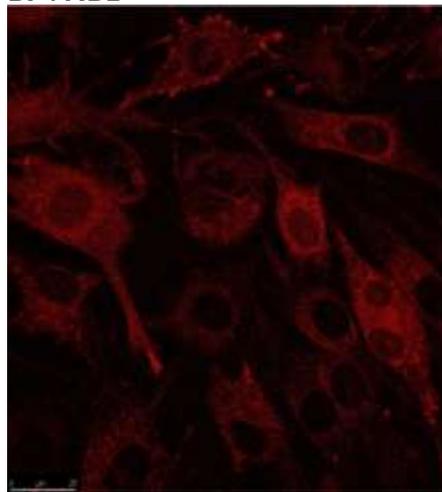
Lyophilized

Representative Data

A. Control



B. +MB1



C. +MB1/+Kojic

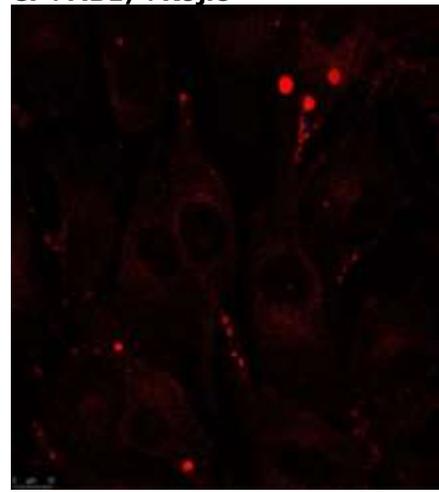


Figure 3: (B.) Imaging of MB1 Tyrosinase live cell probe in SK-MEL-28 cells. Cells were treated with 20 μM MB1 for 4 hours at 37 $^{\circ}\text{C}$. (C.) SK-MEL-28 cells were pre-treated with 1 mM Kojic acid (TYR inhibitor, K3125) for 1 hour before being treated with 20 μM MB1. (A.) Control cells were left unstained.

Protocols

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 room temperature and prepare the MB1 probe (MW 448.58 g/mol) stock solution by dissolving the contents of one vial (1 mg) in 223 μ L DMSO to create a 10 mM solution (freeze aliquots at -20 °C).
3. Dilute in cell culture media to a final concentration of 10-20 μ M and add to cells in culture. Incubate at 37 °C for 4 hours.
4. Wash cells with PBS buffer before imaging.

Note: Optimal concentration must be determined by end user.

References

1. Li Z, Wang Y, Zeng C-C, Hu L, Liang X-J. 2018. Ultrasensitive Tyrosinase-Activated Turn-On Near-Infrared Fluorescent Probe with a Rationally Designed Urea Bond for Selective Imaging and Photodamage to Melanoma Cells. 90(6):3666–3669.

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