ER-Tracker Green Staining Solution

Description

ER-Tracker Green is a membrane-permeable fluorescent probe for endoplasmic reticulum (ER) labeling with high ER selectivity. ER-Tracker Green consists of a green fluorescent dye (BODIPY FL) conjugated to glibenclamide (glyburide). Glibenclamide binds to sulfonylurea receptors associated with ATP-sensitive K^+ channels on the endoplasmic reticulum, allowing the conjugated fluorescent dye to specifically label the ER.

ER-Tracker Green exhibits a maximum excitation wavelength of 504 nm and a maximum emission wavelength of 511 nm. The dye provides highly specific staining of the endoplasmic reticulum with minimal mitochondrial staining.

ER-Tracker Green exhibits low cytotoxicity and is suitable for fluorescent labeling of the endoplasmic reticulum in live cells. It is not recommended for staining fixed cells.

Product Information

ER-Tracker Green Staining Solution	
Ingredient	ER-Tracker Green
CAS	730931-46-1
Conc.	1 mM
Solvent	DMSO

Features

1. Compatible with multicolor fluorescence staining.
2. Low cytotoxicity, suitable for live-cell labeling studies.
3. Simple staining procedure and rapid labeling.

Applications

- Endoplasmic reticulum imaging
- Endoplasmic reticulum stress studies
- Organelle colocalization experiments
- Drug screening (evaluation of drug effects on ER structure)
- Disease-related research

Preparation of Working Solution

Dilute the ER-Tracker Green stock solution with an appropriate diluent (serum-free culture medium or PBS) to prepare a staining working solution at a final concentration of 1 μM. The optimal working concentration should be adjusted according to specific experimental requirements.

Instructions

1. Seed adherent cells onto sterile coverslips and culture under appropriate conditions.
2. Remove the culture medium while keeping the cell surface moist. Wash the cells once with HBSS buffer (containing Ca^{2+} and Mg^{2+}) for 5 min.
3. Remove the HBSS buffer and add an appropriate volume of ER-Tracker Green working solution prewarmed to 37°C, ensuring that all cells are fully covered. Incubate at 37°C for 15–30 min protected from light.
4. Remove the ER-Tracker Green working solution and wash the cells twice with prewarmed (37°C) culture medium, 5 min each time.
5. Add sufficient prewarmed (37°C) culture medium to cover the cells and observe under a fluorescence microscope.

   Ex = 504 nm; Em ≈ 511 nm
6. (Optional) Following staining, cells may be fixed with 4% formaldehyde to partially preserve the fluorescence signal. Add an appropriate volume of 4% formaldehyde and incubate at 37°C for 2 min protected from light. After fixation, wash twice with an appropriate buffer, 5 min each time. Add mounting medium containing an anti-fade reagent onto a microscope slide and place the coverslip (cell side facing down) onto the mounting medium. Observe under a fluorescence microscope.

Storage Conditions

Store at -20°C protected from light. Valid for 6 months.

Precautions

1. Cells should be cultured at an appropriate density prior to staining. For adherent cells, a confluency of 50%–80% is recommended. Excessively low density may result in apoptosis, while excessively high density may cause cell overlap and interfere with observation.
2. The staining working solution should be prepared immediately before use. Prewarming to 37°C can reduce cellular stress.
3. ER-Tracker Green is photosensitive; avoid exposure to light during storage and use.
4. Cell permeabilization is not required during staining. Treatment with Triton X-100 will completely eliminate ER-Tracker Green fluorescence.
5. To minimize potential false-positive fluorescence staining, it is recommended to use the lowest effective working concentration.
6. The biological activity of glibenclamide may affect endoplasmic reticulum function in certain cell types.
7. Variable expression of sulfonylurea receptors in some cell types may result in non-ER labeling.
8. This product is intended for scientific research use only. It must not be used for clinical diagnosis or treatment, food or drug applications, and must not be stored in residential or other non-professional environments.
9. For your safety and health, please wear a lab coat and disposable gloves during operation.

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