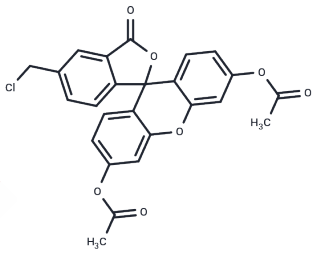
Data Sheet (Cat.No.T30990)

TargetMol

CMFDA

Chemical Properties



CAS No. : 136832-63-8

Formula: C25H17ClO7

Molecular Weight: 464.85

Storage: Keep away from direct sunlight
Store at -20°C
Actual storage temperature shall be subject to the COA.

Biological Description

Description	CMFDA is a cell-permeant fluorescent dye widely employed as a whole-cell-tracking reagent. Upon intracellular enzymatic conversion, it forms a stable, fluorescent adduct that allows long-term monitoring of cell proliferation, migration, and viability. CMFDA is particularly valuable in studies requiring sustained, non-toxic labeling of living cells for imaging and flow cytometry.
Targets(IC50)	Others
In vitro	Usage Method (This protocol is for reference only): 1. Preparation of CMFDA Stock Solution Remove the product from the refrigerator and allow it to equilibrate to room temperature in a dry environment before briefly centrifuging and opening the lid (the product is highly hygroscopic). Dissolve the CMFDA powder in anhydrous DMSO (DMSO must be of high quality, freshly anhydrous, to avoid affecting experimental results) to prepare a 10 mM stock solution. The stock solution concentration may be adjusted according to experimental needs. The stock solution is highly prone to decomposition upon exposure to water; it is recommended to aliquot, seal with parafilm, and store at -20°C in a dry environment, avoiding repeated freeze-thaw cycles. 2. Preparation of CMFDA Working Solution Before use, dilute the stock solution with serum-free medium to a working concentration of 0.5–25 μM, and pre-warm the working solution to 37°C. The working solution should be freshly prepared and used immediately; it should not be frozen for storage. Note: The working concentration may be adjusted according to different experimental purposes. Typically, for long-term staining (at least 3 days) or staining rapidly dividing cells, 5–25 μM dye is required. For short-term staining (e.g., cell viability assays), 0.5–5 μM is sufficient. Use the lowest effective concentration to avoid cytotoxicity. 3. Staining Methods 3.1 Suspension Cell Staining 1) Centrifuge to collect cells and remove the supernatant, then gently resuspend the cells in pre-warmed CMFDA working solution. 2) Incubate under normal cell growth conditions for 15–45 min. 3) Centrifuge and remove the CMFDA working solution. 4) Continue culturing the cells in fresh culture medium for 30 min. 5) Wash the cells. If fixation is required, refer to Step 4. 3.2 Adherent Cell Staining

In vitro	1) Remove the culture medium. 2) Gently add pre-warmed CMFDA working solution. 3) Incubate under normal cell growth conditions for 15-45 min. 4) Replace with fresh culture medium and continue culturing for 30 min. 5) Wash the cells. If fixation is required, refer to Step 4. 4. Fixation and Permeabilization (Optional) 4.1 Before fixation, wash the cells thoroughly with PBS. 4.2 Fix the cells with 3.7% paraformaldehyde at room temperature for 15 min. 4.3 After fixation, rinse the cells with PBS. 4.4 If subsequent staining with other antibodies is required, the cells should be permeabilized. The fixed cells may be incubated in pre-chilled acetone for 10 min (optional). 5. Fluorescence Microscopy Detection After washing the treated cells with PBS, observe under a fluorescence microscope. CMFDA exhibits green fluorescence, with Ex = 492 nm and Em = 517 nm. The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.

Solubility Information

Solubility	DMSO: 25 mg/mL (53.78 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1512 mL	10.7562 mL	21.5123 mL
5 mM	0.4302 mL	2.1512 mL	4.3025 mL
10 mM	0.2151 mL	1.0756 mL	2.1512 mL
50 mM	0.043 mL	0.2151 mL	0.4302 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Osman WHW, et al. Characterization of the glutathione S-transferases that belong to the GSTFuA class in Ceriporiopsis subvermispora: Implications in intracellular detoxification and metabolism of wood-derived compounds. Int J Biol Macromol. 2018 Jul 1;113:1158-1166.
Wada H, et al. Zinc-dependent and independent actions of hydroxyhydroquinone on rat thymic lymphocytes. Drug Chem Toxicol. 2018 Feb 9:1-6.
Jiang D, et al. Smartphone integrated optoelectrowetting (SiOEW) for on-chip sample processing and microscopic detection of water quality. Lab Chip. 2018 Jan 30;18(3):532-539.
Karim A, et al. The clustering and morphology of chondrocytes in normal and mildly degenerate human femoral head cartilage studied by confocal laser scanning microscopy. J Anat. 2018 Apr;232(4):686-698.

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