Data Sheet (Cat.No.T36957)

TargetMol

BODIPY 493/503

Chemical Properties

CAS No. :	121207-31-6
Formula:	C14H17BF2N2
Molecular Weight:	262.106
Storage:	Keep away from direct sunlight,Store at low temperature Powder: -20°C for 3 years | In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.

Biological Description

Description	BODIPY 493/503 (Pyrromethene 546) is a lipophilic fluorescent probe with Ex/Em of 493/503 nm. BODIPY 493/503 localizes to polar lipids and can be used to label cellular neutral lipid contents and for live and fixed cell applications.
Targets(IC50)	Others
In vitro	**METHODS**: Flow cytometry was used to detect cellular lipid droplets: 1. BODIPY 493/503 is dissolved in 5 mM DMSO stock solution and diluted 1:2500 in PBS to a 2 μM working solution prior to use. 2. Cultivate cells under culture conditions relevant to the study, e.g. 50,000 A498 cells in 35 mm wells. Overnight incubation of cells with 30 μM oleic acid serves as a positive control for increased neutral lipid content. 3. At the time point of interest, prepare a 2 μM BODIPY staining solution in PBS. The volume of staining solution required for each sample corresponds to the volume of medium used to incubate the cells. 4. Rapidly rinse the cells with 3 mL of PBS to remove the medium/serum. Incubate in BODIPY Staining Solution for 15 min at 37°C in the dark. 5. Rapidly rinse the cells with 3 mL of PBS to remove the staining solution. Trypsinize the cells to produce a single-cell suspension. Add 5 mL of PBS and transfer the cell suspension to a 15 mL conical tube. 6. Centrifuge cells at 250×g for 5 min at 4°C. Remove the supernatant, quickly rinse the cell sediment with 3 mL of PBS, and centrifuge again, 250 × g, 5 min, 4°C. 7. Remove the supernatant and resuspend the cells in 300 μL of 1× flow cytometry buffer for flow cytometry assay. [1] **METHODS**: Fluorescent microscopy to detect cellular lipid droplets: 1. Dissolve BODIPY 493/503 into 1 mg/mL DMSO stock solution, and add 10 μL of 1 mg/ml BODIPY 492/503 stock solution to 10 mL of 150 mM NaCl to prepare a working solution before use. 2. One or two days before staining, culture the cells on sterile glass coverslips. Plate the cells at 50%-70% fusion to keep them semi-fused during staining. 3. To enhance lipid droplet formation and facilitate detection, supplement cell growth medium with 400 μM sodium oleate for 6-24 h prior to fixation and lipid droplet staining. 4. Rinse cells twice with 2 mL of PBS. Fix cells by incubating with 2 mL of 3% (w/v) paraformaldehyde for 30 min at room temperature.

In vitro	5. Rinse the cells three times with 2 mL PBS. Cells were covered with 1 mL of BODIPY 493/503 working solution and incubated for 10 min at room temperature, protected from ambient light. 6. Wash cells three times with 2 mL PBS. Mount coverslips onto slides using 20-40 μL of anti-fade mounting medium. 7. Detect BODIPY 493/503 staining of lipid droplets using fluorescence microscopy. The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.
Cell Research	I. Flow cytometry detection of cell lipid droplets: 1. Dissolve BODIPY 493/503 into a 5 mM DMSO stock solution and dilute it to a 2 μM working solution at 1:2500 with PBS before use. 2. Culture cells under culture conditions relevant to the study, such as 50,000 A498 cells in a 35 mm well. Overnight incubation of cells with 30 μM oleic acid can serve as a positive control for increased neutral lipid content. 3. At the time point of interest, prepare a 2 μM BODIPY staining solution in PBS. The volume of staining solution required for each sample corresponds to the volume of culture medium used to culture cells. 4. Quickly rinse cells with 3 mL PBS to remove culture medium/serum. Incubate with BODIPY staining solution for 15 min in the dark at 37°C. 5. Quickly rinse cells with 3 mL PBS to remove staining solution. Trypsinize cells to produce a single cell suspension. Add 5 mL PBS and transfer the cell suspension to a 15 mL conical tube. 6. Centrifuge the cells at 250×g for 5 min at 4°C. Remove the supernatant, quickly rinse the cell pellet with 3 mL PBS, and centrifuge again at 250×g for 5 min at 4°C. 7. Remove the supernatant and resuspend the cells in 300 μL 1× flow cytometry buffer for flow cytometry detection. [1] II. Fluorescent microscopy to detect cell lipid droplets: 1. Dissolve BODIPY 493/503 into a 1 mg/mL DMSO stock solution. Before use, add 10 μL of 1 mg/ml BODIPY 492/503 stock solution to 10 mL of 150mM NaCl to prepare a working solution. 2. One or two days before staining, culture the cells on sterile glass coverslips. Plate cells at a confluency of 100 μL and keep them semi-confluent during staining. 3. To enhance lipid droplet formation and facilitate detection, supplement cell growth medium with 400 μM sodium oleate for 6-24 h before fixation and lipid droplet staining. 4. Rinse cells twice with 2 mL PBS. Fix cells by incubating with 2 mL 3% (w/v) paraformaldehyde for 30 min at room temperature. 5. Rinse cells three times with 2 mL PBS. Cover cells with 1 mL BODIPY 493/503 working solution and incubate at room temperature for 10 min, protected from ambient light. 6. Wash cells three times with 2 mL PBS. Mount coverslips onto slides using 20-40 μL antifade mounting medium. 7. Detect BODIPY 493/503 staining of lipid droplets using fluorescence microscopy. The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.

Solubility Information

Solubility	DMF: Soluble Chloroform: Soluble Methanol: Soluble

Solubility	Ethanol: 0.24 mg/mL (0.92 mM),Sonication is recommended. DMSO: 2.00 mg/mL (7.63 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.8152 mL	19.076 mL	38.1519 mL
5 mM	0.763 mL	3.8152 mL	7.6304 mL
10 mM	0.3815 mL	1.9076 mL	3.8152 mL
50 mM	0.0763 mL	0.3815 mL	0.763 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

Qiu B, et al. BODIPY 493/503 Staining of Neutral Lipid Droplets for Microscopy and Quantification by Flow Cytometry. Bio Protoc. 2016 Sep 5;6(17):e1912.
Xiong Q, Sun H, Wang Y, et al.Lipid droplet accumulation in Wdr45-deficient cells caused by impairment of chaperone-mediated autophagic degradation of Fasn.Lipids in Health and Disease.2024, 23(1): 91.
Listenberger LL, et al. Fluorescent detection of lipid droplets and associated proteins. Curr Protoc Cell Biol. 2007 Jun;Chapter 24:Unit 24.2.
Liszewski J, Klingelhutz A, Sander E A, et al.Development and analysis of scaffold-free adipose spheroids. Adipocyte.2024, 13(1): 2347215.
Miao S, Sun J, Li Y, et al.Engineered DR/NIR dual-emission carbonized polymer dots for simultaneous tracking of lipid droplets and lysosomes.Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy.2024: 125598.