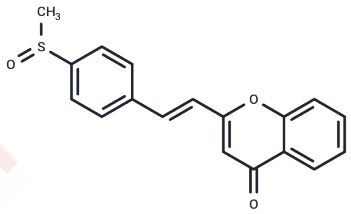
Data Sheet (Cat.No.T39817)

TargetMol

Msr-Ratio

Chemical Properties



CAS No. : 2290635-22-0

Formula: C18H14O3S

Molecular Weight: 310.37

Storage: Keep away from direct sunlight
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	Msr-Ratio (Msr-green) (Msr-green) is a ratiometric fluorescent probe specifically designed for the detection of methionine sulfoxide reductase (MSR) activity. It has an excitation wavelength of 375 nm and an emission wavelength of 550 nm. This probe offers the ability to monitor the enzyme activity both in vitro and in live cells, making it a valuable tool for studying MSR function.
Targets(IC50)	Others
In vitro	Methionine sulfoxide reductase converts Msr-Ratio into its sulfide variant, which exhibits advantageous characteristics, including an almost 400-fold increase in fluorescence, a rapid response (<30 min), a considerable Stokes shift (120 nm), and green emission (550 nm) [1]. In live HL60 cells, Msr-Ratio introduces a minimal background signal. Furthermore, as the incubation period of Msr-Ratio (10 μM) within the cells extends from 0 to 8 hours, there is a consistent enhancement in the fluorescence signal [1].
Cell Research	Instructions I. Solution preparation 1. Stock solution: Dissolve Msr-Ratio (Msr-green) in an appropriate solvent (usually DMSO or deionized water) according to the manufacturer's instructions or literature to prepare a stock solution of appropriate concentration, usually 1-10 mM. 2. Working solution: Dilute the stock solution to a working concentration according to experimental needs, usually 1-10 μM. It is recommended to use an appropriate buffer solution (such as PBS) for dilution. II. Operation steps 1. Cell staining: Add an appropriate amount of Msr-Ratio working solution to the cell culture medium and incubate for 0-8h, and the temperature is usually set at 37°C. During this process, the probe will enter the cell and interact with MSR. 2. Washing: After the incubation, wash the cells with PBS or other appropriate buffer to remove unbound probes. 3. Fluorescence detection: Excitation and emission wavelengths: Msr-Ratio (Msr-green) emits fluorescence under 375 nm excitation, and the emission wavelength is 550 nm. Observation and quantitative analysis can be performed using a fluorescence microscope, flow cytometer, or other fluorescence detection instrument with appropriate filters. 4. Ratio determination: Changes in the activity of MSR will cause changes in the ratio of

Cell Research	the fluorescence signal. By monitoring the ratio of the fluorescence signal, changes in MSR activity can be evaluated. 5. Application areas: 1) Enzyme activity monitoring: Msr-Ratio (Msr-green) can be used to study the activity of MSR in cells, especially in studies related to cellular redox state and sulfur-oxygen reduction reactions. 2) Redox studies: This probe has high sensitivity to changes in the redox state in cells and is suitable for studies of intracellular oxidative stress, aging, and disease states. 3) Cell signaling: As one of the key enzymes, MSR is related to various physiological processes of cells (such as antioxidant defense). Msr-Ratio can be used to monitor the participation of MSR. Precautions: 1. Photosensitivity: Msr-Ratio is sensitive to light and should be avoided from prolonged exposure to strong light when used. 2. Storage conditions: The probe should be stored at -20°C and avoid repeated freezing and thawing. 3. Solubility: Msr-Ratio (Msr-green) should be completely dissolved, and no precipitation should be present in the solution. The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.

Solubility Information

Solubility	DMSO: 3.11 mg/mL (10.02 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.222 mL	16.1098 mL	32.2196 mL
5 mM	0.6444 mL	3.222 mL	6.4439 mL
10 mM	0.3222 mL	1.611 mL	3.222 mL
50 mM	0.0644 mL	0.3222 mL	0.6444 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

Zhang L , et al. A ratiometric fluorescent probe of methionine sulfoxide reductase with an improved response rate and emission wavelength. Chem Commun (Camb). 2019 Jan 29;55(10):1502-1505.