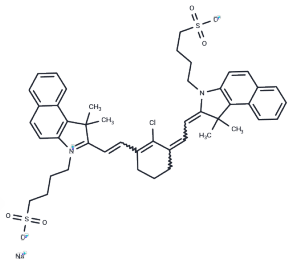
Data Sheet (Cat.No.T20870)

TargetMol

IR-820

Chemical Properties



CAS No. : 172616-80-7

Formula: C46H50ClN2NaO6S2

Molecular Weight: 849.47

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	IR-820 (New Indocyanine Green) is a near-infrared dye with improved stability, good color rendering, and excellent fluorescence penetration. It serves as an infrared blood pool contrast agent for detecting and quantifying diseased tissue in live animals, with maximal excitation (Ex) and emission (Em) of 710 and 820 nm, respectively.
Targets(IC50)	Others
In vitro	Instructions: I. Solution preparation 1. Stock solution: Prepare 1-10 mM stock solution, dissolve in sterile water or DMSO, and adjust the concentration according to experimental needs. 2. Working concentration: Dilute the stock solution to 10-50 μM (in vitro) or 0.5-1 mg/kg (in vivo) according to the experimental objectives. Notes: Powder: It is recommended to store in a dry environment away from light, and the temperature is controlled at -20°C or lower. Solution: It can be stored at 4°C for short-term storage, and it needs to be aliquoted and kept away from light for long-term storage, and stored at -20°C to avoid repeated freezing and thawing. II. Bioimaging experiment IR820 is commonly used in near-infrared fluorescence imaging (NIRF) and is suitable for in vivo or in vitro imaging studies. Experimental steps: In vitro experiment: Directly add IR820 working solution to the cell culture system and incubate for 30-60 minutes. In vivo experiment: Dilute IR820 and inject it into the experimental animal through the tail vein. The signal is detected by near-infrared imaging equipment during imaging. III. Photothermal/photodynamic therapy IR820 has photothermal and photosensitivity properties and can be used for photothermal therapy or photodynamic therapy of tumors. Illumination conditions: Use 808 nm laser irradiation, and the light intensity and time are optimized according to the experiment (such as 1-2 W/cm², 5-10 minutes). Concentration reference: Dilute IR820 to 5-20 μM (in vitro) or 0.5-2 mg/kg (in vivo) according to the treatment goal.

In vitro	IV. Fluorescence detection parameters Excitation wavelength: about 700-800 nm Emission wavelength: about 820-850 nm Precautions Light-avoiding operation: IR820 is sensitive to light, and strong light should be avoided during the operation. Fresh preparation: It is recommended to prepare it before use to prevent degradation of the dissolving solution. Control: A blank group and a control group should be set up in the experiment to ensure reliable data. The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.

Solubility Information

Solubility	DMSO: 4.5 mg/mL (5.3 mM),Sonication and heating to 60℃ are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.1772 mL	5.886 mL	11.772 mL
5 mM	0.2354 mL	1.1772 mL	2.3544 mL
10 mM	0.1177 mL	0.5886 mL	1.1772 mL
50 mM	0.0235 mL	0.1177 mL	0.2354 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

Wang X, Wet al. IR-820@NBs Combined with MG-132 Enhances the Anti-Hepatocellular Carcinoma Effect of Sonodynamic Therapy. Int J Nanomedicine. 2023 Nov 1;18:6199-6212.
Yan T, et al. PpIX/IR-820 Dual-Modal Therapeutic Agents for Enhanced PDT/PTT Synergistic Therapy in Cervical Cancer. ACS Omega. 2022 Sep 15;7(49):44643-44656.
Feng Z, et al. Excretable IR-820 for in vivo NIR-II fluorescence cerebrovascular imaging and photothermal therapy of subcutaneous tumor. Theranostics. 2019 Aug 9;9(19):5706-5719. doi: 10.7150/thno.31332. Erratum in: Theranostics. 2022 Nov 2;12(17):7640.
Kumar P, et al. IR 820 dye encapsulated in polycaprolactone glycol chitosan: Poloxamer blend nanoparticles for photo immunotherapy for breast cancer. Mater Sci Eng C Mater Biol Appl. 2015;57:321-327.
Prajapati SI, et al. Near-infrared imaging of injured tissue in living subjects using IR-820. Mol Imaging. 2009;8(1): 45-54.

Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481