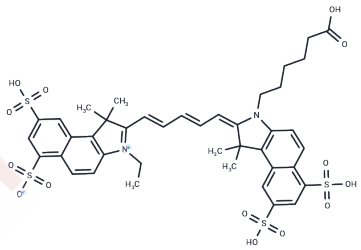
Data Sheet (Cat.No.TD0091)

TargetMol

Cy5.5

Chemical Properties



CAS No. : 210892-23-2

Formula: C41H44N2O14S4

Molecular Weight: 917.06

Storage: Keep away from direct sunlight,Store at low temperature,The compound is unstable in solution. Please use soon
Powder: -20°C for 3 years
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Cy5.5 is a near-infrared fluorescent dye for labeling biomolecules such as peptides, proteins and oligonucleotides (Ex=673 nm, Em=707 nm)[2].
Targets(IC50)	Others
In vitro	I. Preparation of stock solution steps 1. Protein preparation 1) To achieve the best labeling effect, the protein (antibody) concentration needs to be adjusted to 2 mg/mL. 2) Ensure that the pH of the protein solution is within the range of 8.5±0.5. If the pH value is lower than 8.0, 1 M sodium bicarbonate can be used to adjust. 3) When the protein concentration is lower than 2 mg/mL, the labeling efficiency will be significantly reduced. To optimize the labeling effect, it is recommended that the protein concentration be maintained between 2-10 mg/mL. 4) The protein needs to be dissolved in a buffer that does not contain primary amines (such as Tris or glycine) and ammonium ions, otherwise it will interfere with the labeling reaction. 2. Dye preparation Use anhydrous DMSO to prepare a 10 mM stock solution of Cy5.5 dye. Mix well with a glass rod or vortex. Note: It is recommended that the Cy5.5 dye stock solution be stored at -20 ℃ or -80 ℃ in the dark after aliquoting. Before subsequent labeling experiments, 500 μg/mL Activate with condensation solution (EDC hydrochloride T19947). 3. Calculation of dye working solution dosage The amount of Cy5.5 dye used depends on the amount of labeled protein. The optimal molar ratio of Cy5.5 dye to protein is about 10. Example: 500 μL, 2 mg/mL IgG (MW = 150,000) needs to be labeled. Assuming that 100 μL DMSO is used to dissolve 1 mg of CY dye, the calculation is as follows: 1) IgG (mmol) = IgG (mg/mL) ×IgG (mL) / IgG (MW) =2 mg/mL×0.5 mL / 150000 mg/mmol= 6.7×10^6 mmol 2) Cy5.5 (mmol) = IgG (mmol) ×10 =6.7×10^6 mmol×10 = 6.7×10^5 mmol 3) Cy5.5 (μL) = Cy5.5 (mmol)×Cy5.5 (MW)/mg/Cy5.5 (μL) = 6.7×10^5 mmol× 917.06 g/mol

In vitro	/ 0.01 mg/μL II. Labeling reaction 1) Take the calculated amount of freshly prepared 10 mM Cy5.5 dye master solution (about 10 μL) and add 50 μL of 500 μg/mL condensation solution for activation. Slowly add this mixture to 0.5 mL of protein sample solution, gently mix and briefly centrifuge to allow the sample to sink to the bottom of the reaction tube. Avoid violent shaking to prevent protein denaturation or inactivation. 2) Place the reaction tube in a light-proof environment and gently shake and incubate at room temperature for 60 minutes. Every 10-15 minutes, gently flip the reaction tube several times to ensure adequate mixing and improve labeling efficiency. The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.
In vivo	**METHODS**: Cy5.5-FFRck-fVIIa and Cy5.5 dye alone were injected intravenously (i.v.) into right flank athymic nude mice (nu/nu) bearing TF-expressing ASPC-1 and TF-non-expressing MiaPaCa pancreatic tumor xenografts and tested for duration and stability of binding to enable follow-up of treatment response. **RESULTS** Specific localization of Cy5.5-FFRck-fVIIa to TF in VECs of pancreatic tumor xenografts was observed from day 1 to day 26 in both ASPC-1 and MiaPaCa tumors, whereas no specific localization was observed with unconjugated Cy5.5 alone.[1]

Solubility Information

Solubility	H2O: 6.7 mg/mL (7.31 mM),The compound is unstable in solution. Please use soon. DMSO: 85 mg/mL (92.69 mM),The compound is unstable in solution. Please use soon. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween-80+45% Saline: 5 mg/mL (5.45 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.0904 mL	5.4522 mL	10.9044 mL
5 mM	0.2181 mL	1.0904 mL	2.1809 mL
10 mM	0.109 mL	0.5452 mL	1.0904 mL
50 mM	0.0218 mL	0.109 mL	0.2181 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

Zhu S, et al. Visualizing cancer and response to therapy in vivo using Cy5.5-labeled factor VIIa and anti-tissue factor antibody. J Drug Target. 2015 Apr;23(3):257-65.
Zhou Z, Li Y, Wu S, et al.Host-microbiota interactions in collagen-induced arthritis rats treated with human umbilical cord mesenchymal stem cell exosome and ginsenoside Rh2.Biomedicine & Pharmacotherapy.2024, 174: 116515.
Li Y, Wang X, Gao Y, et al.Hyaluronic acid-coated polypeptide nanogel enhances specific distribution and therapy of tacrolimus in rheumatoid arthritis.Journal of Nanobiotechnology.2024, 22(1): 547.
Lim B, et al. A Unique Recombinant Fluoroprobe Targeting Activated Platelets Allows In Vivo Detection of Arterial Thrombosis and Pulmonary Embolism Using a Novel Three-Dimensional Fluorescence Emission Computed Tomography (FLECT) Technology. Theranostics. 2017 Feb 26;7(5):1047-1061.
Zhu S, et al. Visualizing cancer and response to therapy in vivo using Cy5.5-labeled factor VIIa and anti-tissue factor antibody. J Drug Target. 2015 Apr;23(3):257-65.
Li Y, Lv J, Liu S, et al.Macrophage corpses for immunoregulation and targeted drug delivery in treatment of collagen-induced arthritis mice.Biomaterials.2025, 314: 122867.
Zhou Z, Wu S, Li Y, et al.Inhibition of macrophage polarization and pyroptosis in collagen-induced arthritis through MSC-exo and ginsenoside Rh2.Arthritis Research & Therapy.2025, 27: 6.