

Cyanine5.5 maleimide

Chemical Properties

CAS No. :	1593644-50-8
Formula:	C ₄₆ H ₄₉ ClN ₄ O ₃
Molecular Weight:	741.36
Storage:	Keep away from direct sunlight Store at -20°C <i>Actual storage temperature shall be subject to the COA.</i>

Biological Description

Description	Cyanine5.5 Maleimide is a near-infrared fluorescent probe and the maleimide derivative of Cyanine5.5. Its maleimide group covalently reacts with thiol (-SH) groups on proteins, antibodies, and other biomolecules to form stable thioether bonds. Emitting in the near-infrared window, this dye reduces biological autofluorescence and improves tissue imaging performance. Cyanine5.5 maleimide is widely used for in vivo small-animal imaging probe construction, protein labeling, and flow cytometry studies.
Targets(IC50)	Others
In vitro	Cyanine5.5 maleimide chloride is a conjugated dye composed of the Cyanine5.5 fluorophore and a maleimide reactive group. Cyanine 5.5 is a near-infrared fluorescent cyanine dye widely used for in vivo small animal imaging. It can be employed to label proteins, antibodies, peptides, and nanoparticles. Maleimide is a commonly used group in bioconjugation reactions, capable of forming stable thioester linkages with sulfhydryl groups (-SH) through Michael addition, thereby achieving labeling. Although amino groups (such as the side chains of lysine and arginine) also exhibit reactivity, under neutral or slightly acidic buffer conditions, maleimide demonstrates significantly higher selectivity toward sulfhydryl groups (reacting over 1000 times faster than with amino groups), enabling rapid, highly selective, and high-yield labeling. Furthermore, sulfhydryl groups are widely present as functional groups in biomolecules, such as cysteine in proteins and disulfide bonds. Consequently, maleimide/thiol labeling has become the second most commonly used bioconjugation method after NHS/amine labeling.

Solubility Information

Solubility	DMSO: 40 mg/mL (53.95 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween-80+45% Saline: 1.5 mg/mL (2.02 mM),Sonication is recommended. <i>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.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.3489 mL	6.7444 mL	13.4887 mL
5 mM	0.2698 mL	1.3489 mL	2.6977 mL
10 mM	0.1349 mL	0.6744 mL	1.3489 mL
50 mM	0.027 mL	0.1349 mL	0.2698 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

Masarapu H, et al. Physalis Mottle Virus-Like Particles as Nanocarriers for Imaging Reagents and Drugs. *Biomacromolecules*. 2017 Dec 11;18(12):4141-4153.

Ptaszek M. Rational design of fluorophores for in vivo applications. *Prog Mol Biol Transl Sci*. 2013;113:59-108.

Shindy, H. A. (2017). Fundamentals in the chemistry of cyanine dyes: A review. *Dyes and Pigments*, 145, 505-513. doi:10.1016/j.dyepig.2017.06.029

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