Cyanine5.5 amine

Cat. No.: HY-D1540

CAS No.: 2097714-45-7

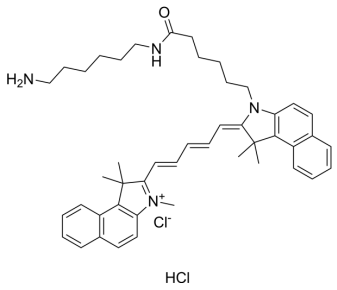
Molecular Formula: $C_{46}H_{58}Cl_2N_4O$

Molecular Weight: 753.88

Target: Fluorescent Dye

Pathway: Others

Storage: -20°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



HCl

SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (165.81 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3265 mL	6.6324 mL	13.2647 mL
	5 mM	0.2653 mL	1.3265 mL	2.6529 mL
	10 mM	0.1326 mL	0.6632 mL	1.3265 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 2.08 mg/mL (2.76 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.08 mg/mL (2.76 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Cyanine5.5 amine (Cy 5.5 amine), a Cy5.5 Analogue, is a near-infrared (NIR) fluorescent dye (Ex=648 nm, Em=710 nm). Cyanine5.5 amine can be used in the preparation of Cy5.5-labeled nanoparticles, which can be tracked and imaged with low fluorescence background using confocal microscopy[1][2].

In Vivo

Real-time monitoring Cy5.5-labeled nanoparticles (Cy5.5-PLGA) in retinal blood vessels.
Guidelines (Following is our recommended protocol. This protocol only provides a guideline, and should be modified according to your specific needs)[2].
1. Freshly prepared suspensions of Cy5.5-PLGA (resuspended in 0.5 ml 1% poloxamer 188, vortexed gently and left for 30 min at ambient temperature before use) is administrated intravenously (0.5 mL).
2. Anesthetize the rats, treat the eyes with Neosynephrine-POS 5% to relax the iris, and Vidisic eye gel is applied to protect the eye from drying out and used as immersion medium for the contact lens as well.

3. Fix the rats under a confocal scanning microscope with the eye positioned in working distance underneath the objective lens, and a cannula is inserted into the tail vein.
4. Observe the fluorescence in the retina, and capture the images at different time points (0, 1, 3, 5, 15, 30, 60, 90 min).
Note: The rats are kept on the heating plate during all the in vivo imaging process.
5. After in vivo real-time imaging, rats were euthanized with an overdose of aforementioned anesthetic and the eyeballs were enucleated and placed into cooled HEPES buffered solution (135 mM NaCl, 5 mM NaOH, 2.5 mM KCl, 7 mM $MgCl_2$, 10 mM HEPES, 10 mM glucose; pH7.4).
6. Remove the anterior segment of eye and vitreous body, separate whole retina carefully, flat on the modified culture plate.
7. Incubate the whole mounts with0.1 mg/mL Hoechst 33342 (HY-15559) in HEPES solution for 20 min for nuclei staining.
8. Fix flat mount retina with 4% paraformaldehyde solution for 20 min and wash with HEPES solution.
9. Capture the images immediately with microscope after preparation of retinal flat mount.
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Seungho Lim, et al. Intracellular Uptake Mechanism of Bioorthogonally Conjugated Nanoparticles on Metabolically Engineered Mesenchymal Stem Cells. Bioconjug Chem. 2021 Jan 20;32(1):199-214.

[2]. Enqi Zhang, et al. Release kinetics of fluorescent dyes from PLGA nanoparticles in retinal blood vessels: In vivo monitoring and ex vivo localization. Eur J Pharm Biopharm. 2020 May;150:131-142.

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