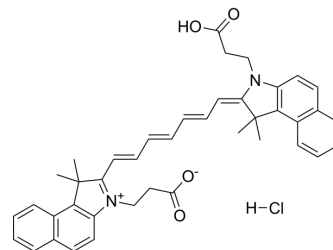


Cypate hydrochloride

Cat. No.:	HY-D1719A
Molecular Formula:	C ₄₁ H ₄₁ ClN ₂ O ₄
Molecular Weight:	661.23
Target:	Fluorescent Dye
Pathway:	Others
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 12.5 mg/mL (18.90 mM); ultrasonic and warming and heat to 60°C
 H₂O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	1.5123 mL	7.5617 mL	15.1233 mL
	5 mM	0.3025 mL	1.5123 mL	3.0247 mL
	10 mM	0.1512 mL	0.7562 mL	1.5123 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
 Solubility: ≥ 1.25 mg/mL (1.89 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
 Solubility: 1.25 mg/mL (1.89 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Cypate is a near-infrared fluorescent dye that belongs to the family of photosensitizers. Cypate has high photostability and optical properties, and is often used in near-infrared optical imaging, as well as optical imaging, tumor marking, and drug delivery. In addition, Cypate is also used as a molecular probe and combined with targeting molecules (such as CBT or small interfering RNA) to achieve efficient detection and imaging of specific cells or tissues^{[1][2]}.

In Vitro

In the study, Cypate coupled upconversion nanoparticles (UCNP-cy) loaded with small interfering RNA gene with anti-heat shock protein 70 (UCNP-cy-siRNA) resulted in targeted cell damage and anti-tumor effects^[1]. Cypate can also be coupled to CBT (Cysteine-containing Peptide Backbone Tag), which can be used to track, label and image specific biomolecules or cells. For example, Cypate-CBT, as a near-infrared photoacoustic (PA) probe, can be used to specifically image and track cathepsin B (CTSB) activity in CTSB-overexpressing cells and tumors in real time. After Cypate-

CBT entered CTSB overexpressing cells, it underwent glutathione reduction and CTSB cleavage to generate cypate nanoparticles Cypate-CBT-NPs, which enhanced the intensity and retention time of PA signal at tumor sites. Cypate-CBT has the potential to be used as an effective PA imaging agent for clinical diagnosis of early cancer^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

- [1]. Wang L, et al. Cypate-conjugated porous upconversion nanocomposites for programmed delivery of heat shock protein 70 small interfering RNA for gene silencing and photothermal ablation[J]. *Advanced Functional Materials*, 2016, 26(20): 3480-3489.
- [2]. Wang C, et al. Cathepsin B-Initiated Cypate Nanoparticle Formation for Tumor Photoacoustic Imaging. *Angew Chem Int Ed Engl*. 2022 Jan 26;61(5):e202114766.
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Caution: Product has not been fully validated for medical applications. For research use only.

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