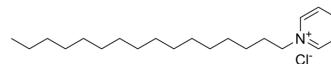


Cetylpyridinium chloride

Cat. No.:	HY-B1464
CAS No.:	123-03-5
Molecular Formula:	C ₂₁ H ₃₈ ClN
Molecular Weight:	339.99
Target:	Bacterial; HBV
Pathway:	Anti-infection
Storage:	4°C, stored under nitrogen, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

Ethanol : 100 mg/mL (294.13 mM; Need ultrasonic)
 DMSO : 100 mg/mL (294.13 mM; Need ultrasonic)
 H₂O : 50 mg/mL (147.06 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.9413 mL	14.7063 mL	29.4126 mL
	5 mM	0.5883 mL	2.9413 mL	5.8825 mL
	10 mM	0.2941 mL	1.4706 mL	2.9413 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 100 mg/mL (294.13 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (7.35 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (7.35 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (7.35 mM); Clear solution
- Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (7.35 mM); Clear solution
- Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (7.35 mM); Clear solution
- Add each solvent one by one: 10% EtOH >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (7.35 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Cetylpyridinium chloride, a cationic quaternary ammonium compound, is an anti-bacterial agent with broad-spectrum activity. Cetylpyridinium chloride is an effective anti-HBV capsid assembly inhibitor with an IC ₅₀ of 2.5 μM. Cetylpyridinium chloride is used in pesticides and various types of mouthwashes, and other personal care products ^{[1][2]} .								
IC₅₀ & Target	IC50: 2.5 μM (HBV capsid assembly) ^[1]								
In Vitro	<p>Cetylpyridinium chloride interacts with dimeric viral nucleocapsid protein (known as core protein or HBcAg) specifically. Compared with other HBV inhibitors, Cetylpyridinium chloride achieves significantly better reduction of HBV particle number in HepG2.2.15 cell line. Cetylpyridinium chloride inhibits capsid assembly and leads to reduced HBV biogenesis^[1]. Cetylpyridinium chloride is a safe antimicrobial agent with broad-spectrum activity for preventing biofilm formation and gingivitis^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								
In Vivo	<p>Cetylpyridinium chloride (30 μg/kg; intramuscular injection; daily; for 3 days; male C57BL/6 mice) treatment inhibits HBV replication in mouse hydrodynamic model system^[1].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table><tr><td>Animal Model:</td><td>Male C57BL/6 mice (6-week old) injected with the plasmid ^[1]</td></tr><tr><td>Dosage:</td><td>272 μg/kg/day</td></tr><tr><td>Administration:</td><td>Intramuscular injection; daily; for 3 days</td></tr><tr><td>Result:</td><td>Suppressed serum HBV DNA levels, decreased by 60% in day2 and 45% in day3 compared to the control.</td></tr></table>	Animal Model:	Male C57BL/6 mice (6-week old) injected with the plasmid ^[1]	Dosage:	272 μg/kg/day	Administration:	Intramuscular injection; daily; for 3 days	Result:	Suppressed serum HBV DNA levels, decreased by 60% in day2 and 45% in day3 compared to the control.
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CUSTOMER VALIDATION

- Cell Death Dis. 2022 Mar 11;13(3):229.
- ACS Omega. 2023 Jun 14.

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REFERENCES

- [1]. Hyun Wook Seo, et al. Cetylpyridinium chloride interaction with the hepatitis B virus core protein inhibits capsid assembly. Virus Res. 2019 Apr 2;263:102-111.
- [2]. Hiroto Imai, et al. Cetylpyridinium chloride at sublethal levels increases the susceptibility of rat thymic lymphocytes to oxidative stress. Chemosphere. 2017 Mar;170:118-123.

Caution: Product has not been fully validated for medical applications. For research use only.

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