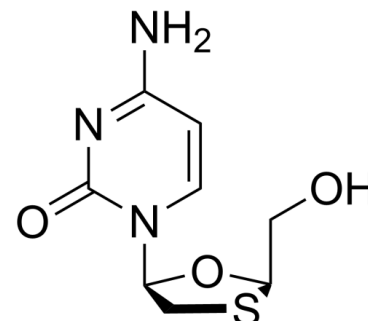


Data Sheet

Product Name:	Lamivudine
Cat. No.:	CS-2230
CAS No.:	134678-17-4
Molecular Formula:	C ₈ H ₁₁ N ₃ O ₃ S
Molecular Weight:	229.26
Target:	HBV; HIV; Reverse Transcriptase
Pathway:	Anti-infection
Solubility:	H ₂ O : ≥ 50 mg/mL (218.09 mM); DMSO : 50 mg/mL (218.09 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

Lamivudine (BCH-189) is an orally active **nucleoside reverse transcriptase** inhibitor (NRTI). Lamivudine can inhibit **HIV reverse transcriptase 1/2** and also the reverse transcriptase of **hepatitis B virus**. Lamivudine salicylate can penetrate the CNS^{[1][2]}. **In Vitro:** Lamivudine (1 μM) is potent inhibitor of hepatitis B virus (HBV) replication, shows antiviral activity in primary duck hepatocyte (PDH) cultures derived from ducklings congenitally infected with the duck hepatitis B virus (DHBV)^[1]. Lamivudine (0-20 μM; 2, 4, 9 d) inhibits DHBV replication with 50% inhibitory concentration of 0.55 μM^[1]. Lamivudine, combined with penciclovir (9-[2-hydroxy-1-(hydroxymethyl)ethoxymethyl]guanine [PCV]), (1 μM; 2, 4, 9 d) shows synergistic effect, acts potent function in reducing the normally recalcitrant viral covalently closed circular (CCC) DNA form of DHBV^[1].

In Vivo: Lamivudine (20-500 mg/kg/d; p.o.; 15 or 45 d) causes oxidative stress and is toxic to rat liver^[2]. Lamivudine (50 mg/kg; i.p.; single dose) penetrates well in CNS and localizes in brain regions susceptible to HIV neurodegeneration in rat^[3].

Pharmacokinetic Parameters of Lamivudine in HIV-infected Rats^[3]

Parameter	C _{max} (μg/mL)	T _{max} (h)	T _{1/2} (h)	AUC (h·ng/mL)
Plasma	25,846	0.25	0.68	22,172
Brain	272	0.5	1.2	967

Pharmacokinetic data measured over a 24-h period, sampling was done at 0.25, 0.5, 1.0, 2.0, 4.0, 6.0, 8.0, and 24.0 h postdose.

References:

- [1]. Colledge D, et al. Synergistic inhibition of hepadnaviral replication by lamivudine in combination with penciclovir in vitro. *Hepatology*. 1997 Jul;26(1):216-25.
- [2]. Olaniyan LW, et al. Lamivudine-Induced Liver Injury. *Open Access Maced J Med Sci*. 2015 Dec 15;3(4):545-50.
- [3]. Mdanda S, et al. Zidovudine and Lamivudine as Potential Agents to Combat HIV-Associated Neurocognitive Disorder. *Assay Drug Dev Technol*. 2019 Oct;17(7):322-329.

CAIndexNames:

2(1H)-Pyrimidinone, 4-amino-1-[(2R,5S)-2-(hydroxymethyl)-1,3-oxathiolan-5-yl]-

SMILES:

OC[C@H]1SC[C@@H](N2C(N=C(N)C=C2)=O)O1

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

Tel: 610-426-3128

Fax: 888-484-5008

E-mail: sales@ChemScene.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA