Datasheet

Lamivudine

Product Name	Lamivudine
Catalogue Number	BSV-S1706
Chemical Formula	$C_8H_{11}N_3O_3S$
Function	Reverse transcriptase Inhibitor
CAS No.:	134678-17-4

Description:

Lamivudine is a potent nucleoside analog **reverse transcriptase** inhibitor, used for treatment of chronic HBV and HIV/AIDS. It works by blocking the **HIV reverse transcriptase** and **hepatitis B virus polymerase**.

Product Details:

Target: Reverse transcriptase [1]

Chemical name: 4-amino-1-[(2R,5S)-2-(hydroxymethyl)-1,3-oxathiolan-5-yl]-2(1H)-pyrimidinone

Formula: $C_8H_{11}N_3O_3S$

Molecular weight: 229.26

Purity: 99.94 %

Solubility: 45 mg/mL (DMSO), 45 mg/mL (water)

Storage: 3 years -20°C powder, 2 years -80°C in solvent

Preparing stock solutions

Concentration/ Mass	1 mg	5 mg	10 mg
1 mM	4.3619 mL	21.8093 mL	43.6186 mL
5 mM	0.8724 mL	4.3619 mL	8.7237 mL

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10 mM	0.4362 mL	2.1809 mL	4.3619 mL
50 mM	0.0872 mL	0.4362 mL	0.8724 mL

Biological Activity:

In vitro:

Lamivudine's anti- HBV activity, like its anti-HIV activity, has been shown to depend on the ability of LMV-TP to serve as both substrate and inhibitor of the DNA- and RNA-dependent polymerase activities of the HBV P gene product. Lamivudine owes its activity to the remarkably broad substrate specificity of deoxycytidine kinase and the unusual substrate preference of the HBV polymerases for dNTPs with the unnatural L-conformation, whereas the anti-HBV activity of PCV appears to depend on several factors including optimal phosphorylation (sufficient for antiviral activity but not cytotoxicity) by key cellular enzymes, the long intracellular half-life of PCV-TP and the ability of PCV-TP to inhibit the HBV RT priming reaction as well as RT and DNA polymerase activity. [1] Lamivudine and Penciclovir inhibits duck hepatitis B virus (DHBV) replication to a comparable extent when used alone, and in combination, the two nucleoside analogs acts synergistically over a wide range of clinically relevant concentrations. Lamivudine combined with Penciclovir is more effective in reducing the normally recalcitrant viral covalently closed circular (CCC) DNA form of DHBV than either drug alone. [2] Lamivudine inhibits p24 antigen production by HIV-I in PBMC, with ED50s ranging from 0.07 µM to 0.2 µM. [3]

[1] Shaw T, et al. J Viral Hepat, 1999, 6(2), 89-106.
[2] Colledge D, et al. Hepatology, 1997, 26(1), 216-225.
[3] Merrill DP, et al. J Infect Dis, 1996, 173(2), 355-364.

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