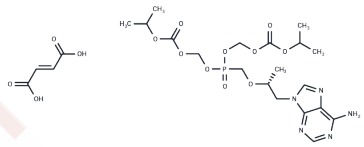
Data Sheet (Cat.No.T2409L)

TargetMol

Tenofovir Disoproxil Fumarate

Chemical Properties



CAS No. : 202138-50-9

Formula: C19H30N5O10P·C4H4O4

Molecular Weight: 635.51

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Tenofovir Disoproxil Fumarate (GS-1278 Disoproxil Fumarate) is a pro-drug, fumaric acid salt form of tenofovir, a nucleoside reverse transcriptase inhibitor analog of adenosine. Tenofovir disoproxil fumarate is prescribed to treat HIV and chronic hepatitis B virus (HBV) in adults.
Targets(IC50)	HIV Protease,Reverse Transcriptase,HBV
In vitro	Tenofovir demonstrates cytotoxic effects on HK-2 cell viability in the MTT assay (IC50: 9.21/2.77 μM at 48/72 hours), reduces ATP levels, induces protein carbonylation, oxidative stress (3.0-28.8 μM), and promotes apoptosis via mitochondrial damage. Tenofovir and M48U1 in 0.25% HEC each inhibit X4-tropic HIV-1IIIb and R5-tropic HIV-1BaL replication in activated PBMCs, patient-derived HIV-1 isolates, and lab strains. This combination shows synergistic antiretroviral activity against R5-tropic HIV-1BaL without PBMC toxicity.
In vivo	Tenofovir Disoproxil Fumarate (20/50/140/300?mg/kg) administered to BLT mice, shows dose-dependent activity during vaginal HIV challenge in BLT humanized mice. Tenofovir Disoproxil Fumarate (50/140/300?mg/kg) obviously lowers HIV transmission in BLT mice. Tenofovir Disoproxil Fumarate (0.5/1.5/5.0 mg/kg/day, p.o.) promotes a dose-dependent decline in serum viremia in woodchucks chronically infected with WHV. Tenofovir Disoproxil Fumarate administration is safe and effective in the woodchuck model of chronic HBV infection.
Kinase Assay	HAT and HDAC Activity Assays :After homogenization of cardiac tissues, nucleoproteins are extracted using a Nuclear Extract Kit according to the manufacturer's instructions. HAT and HDAC activities of the nuclear protein extracts are determined using a colorimetric assay included in the HAT and HDAC assay kits.
Cell Research	Cells are plated into 48-well tissue culture plates (39,000 cells/mL) and allowed to grow for 48 h followed by treatment with vehicle or Tenofovir. Following the treatment period, cell viability is assessed using the MTT assay. The MTT assay relies on the conversion of tetrazolium dye 3-(4,5-dimethlthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) to formazan by NAD(P)H-dependent oxidoreductases.
Animal Research	Tenofovir Disoproxil Fumarate is prepared in a placebo control. Twenty adult chronic WHV carrier woodchucks are stratified equally by age, sex, body weight, and serum GGT activity into five treatment groups consisting of four animals each: (i) Tenofovir Disoproxil Fumarate at 15.0 mg/kg once per day, (ii) Tenofovir Disoproxil Fumarate at 5.0 mg/kg/day, (iii) Tenofovir Disoproxil Fumarate at 1.5 mg/kg/day, (iv) Tenofovir

Disoproxil Fumarate at 0.5 mg/kg/day, and (v) a placebo control. The woodchucks are treated daily for 4 weeks and observed for an additional 12 weeks following cessation of drug treatment.

Solubility Information

Solubility	H2O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: 44 mg/mL (69.24 mM),Sonication is recommended. DMSO: 50 mg/mL (78.68 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.5735 mL	7.8677 mL	15.7354 mL
5 mM	0.3147 mL	1.5735 mL	3.1471 mL
10 mM	0.1574 mL	0.7868 mL	1.5735 mL
50 mM	0.0315 mL	0.1574 mL	0.3147 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Ray AS, et al. Antimicrob Agents Chemother, 2006, 50(10), 3297-3304.
Wu M, Li M, Liu W, et al.Nucleoporin Seh1 maintains Schwann cell homeostasis by regulating genome stability and necroptosis.Cell Reports.2023, 42(7): 112802.
Birkus G, et al. Antimicrob Agents Chemother, 2002, 46(3), 716-723.
Delaney WE 4th, et al. Antimicrob Agents Chemother, 2006, 50(7), 2471-2477.
Cihlar T, et al. Antiviral Res, 2002, 54(1), 37-45.
Wahl A, et al. Predicting HIV Pre-exposure Prophylaxis Efficacy for Women using a Preclinical Pharmacokinetic-Pharmacodynamic In Vivo Model. Sci Rep. 2017 Feb 1;7:41098.

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