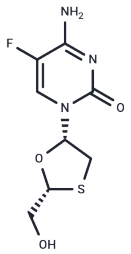
Data Sheet (Cat.No.T6214)

TargetMol

Emtricitabine

Chemical Properties



CAS No. : 143491-57-0

Formula: C8H10FN3O3S

Molecular Weight: 247.25

Storage: Store at low temperature,Keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Emtricitabine is a nucleoside reverse transcriptase inhibitor with anti-human immunodeficiency virus (HIV) and hepatitis B virus activity, with an EC50 value of 0.01 μM in PBMC cells, and can be used to study HIV infection.
Targets(IC50)	HIV Protease,Reverse Transcriptase,Endogenous Metabolite
In vitro	**METHODS**: Vero E6 cells were treated with Emtricitabine (25, 50, 100 μM), and the SARS-CoV-2 titers obtained before and after treatment were measured. The MTT assay was used to evaluate the cytotoxicity of Emtricitabine against Vero E6 cells. **RESULTS** Emtricitabine showed anti-SARS-CoV-2 activity at 100 μM (59.6%), 50 μM (43.4%), and 25 μM (33.3%). [5]
In vivo	Reproductive and developmental toxicology studies conducted on emtricitabine show a favorable pre-clinical safety profile. When administered orally at doses up to 1000 mg/kg/day, pregnant animals experienced emtricitabine exposure levels (AUC0→24) approximately 60-fold (in mice) to 120-fold (in rabbits) higher than the human exposure at the recommended 200 mg daily dosage. Findings from a mouse fertility study indicate that emtricitabine does not impact fertility, sperm count, or early embryonic development. Additionally, there was no observed increase in malformations in mouse and rabbit embryofetal toxicology studies, nor did emtricitabine affect the development and fertility of the F1 progeny in a mouse pre- and post-natal study. These results underscore emtricitabine's lack of adverse effects on reproductive and developmental outcomes[6].
Cell Research	EA.hy926 cells were plated in a 12-, 24- or 96-well plates and grown in DMEM media supplemented with 3% FCS. Endothelial cells from PARP+/+and PARP-/- mice were isolated and cultured. Cell viability was determined by the reduction of yellow MTT into a purple formazan product by mitochondrial dehydrogenases of metabolically active cells. Following the treatment period, the experimental medium was removed and 100 μL MTT (1 mg/mL) added. After 1 h incubation, the MTT solution was carefully removed and the purple crystals were solubilized in 100 μL of DMSO. The DMSO was transferred to an ELISA plate and absorbance measured at 550 nm with a 620 nm[3].

Solubility Information

Solubility	DMSO: 237 mg/mL (958.54 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (20.22 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.0445 mL	20.2224 mL	40.4449 mL
5 mM	0.8089 mL	4.0445 mL	8.089 mL
10 mM	0.4044 mL	2.0222 mL	4.0445 mL
50 mM	0.0809 mL	0.4044 mL	0.8089 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Venhoff N, Setzer B, Melkaoui K, Walker UA. Mitochondrial toxicity of tenofovir, emtricitabine and abacavir alone and in combination with additional nucleoside reverse transcriptase inhibitors. Antivir Ther. 2007;12(7):1075-85.
Bao H, Yan J, Huang J, et al.Activation of endogenous retrovirus triggers microglial immuno-inflammation and contributes to negative emotional behaviors in mice with chronic stress.Journal of Neuroinflammation.2023, 20(1): 1-16.
Borroto-Esoda K,et al. In vitro evaluation of the anti-HIV activity and metabolic interactions of tenofovir and emtricitabine. Antivir Ther. 2006;11(3):377-84.
Saag MS. Emtricitabine, a new antiretroviral agent with activity against HIV and hepatitis B virus. Clin Infect Dis. 2006 Jan 1;42(1):126-31.
Hazen R,et al. Relative anti-HIV-1 efficacy of lamivudine and emtricitabine in vitro is dependent on cell type. J Acquir Immune Defic Syndr. 2003 Mar 1;32(3):255-8.
Zapata-Cardona MI,et al. In vitro and in silico evaluation of antiretrovirals against SARS-CoV-2: A drug repurposing approach. AIMS Microbiol. 2023 Jan 16;9(1):20-40.
Xu P, et al. Combined Medication of Antiretroviral Drugs Tenofovir Disoproxil Fumarate, Emtricitabine, and Raltegravir Reduces Neural Progenitor Cell Proliferation In Vivo and In Vitro. J Neuroimmune Pharmacol. 2017 Dec; 12(4):682-692.
Faltz M, et al. Effect of the Anti-retroviral Drugs Efavirenz, Tenofovir and Emtricitabine on Endothelial Cell Function: Role of PARP. Cardiovasc Toxicol. 2017 Jan 3. [Epub ahead of print]