Product Datasheet

Technical Data

Formula	$C_{19}H_{30}N_5O_{10}P.C_4H_4O_4$					
Molecular Weight	635.51	**CAS No.**	202138-50-9			
Solubility (25°C)*	In vitro	DMSO	100 mg/mL (157.35 mM)			
		Ethanol	4 mg/mL (6.29 mM)			
		Water	Insoluble			
	In vivo (Add solvents to the product individually and in order)	Oral Administration	Homogeneous suspension	CMC-NA	≥5mg/ml	Taking the 1 mL working solution as an example, add 5 mg of this product to 1 ml of CMC-Na solution, mix evenly to obtain a homogeneous suspension with a final concentration of 5 mg/ml.
		Injection	Clear solution	5%DMSO [1] → 40%PEG300 [2] → 5%Tween80 [3] → 50%ddH2O Validated by Capsid Bio labs. Should you need adjustments to this formulation, contact our sales team for custom testing.	5.000mg/ml (7.87mM)	Taking the 1 mL working solution as an example, add 50 μL of 100 mg/ml clarified DMSO stock solution to 400 μL of PEG300, mix evenly to clarify it; add 50 μL of Tween80 to the above system, mix evenly to clarify; then continue to add 500 μL of ddH2O to adjust the volume to 1 mL. The mixed solution should be used immediately for optimal results.
			Clear solution	5% DMSO [1] → 95% Corn oil Validated by Capsid Bio labs. Should you need adjustments to this formulation, contact our sales team for custom testing.	2.500mg/ml (3.93mM)	Taking the 1 mL working solution as an example, add 50 μL of 50 mg/ml clear DMSO stock solution to 950 μL of corn oil and mix evenly. The mixed solution should be used immediately for optimal results.

* <1 mg/ml means slightly soluble or insoluble.
* Please note that Capsid Bio tests the solubility of all compounds in-house, and the actual solubility may differ slightly from published values. This is normal and is due to slight batch-to-batch variations.
* Room temperature shipping (Stability testing shows this product can be shipped at 2-8°C for storage purposes.)

Preparing Stock Solutions

Concentration \ Volume / Mass	1 mg	5 mg	10 mg
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

Biological Activity

Description	Tenofovir Disoproxil Fumarate belongs to a class of antiretroviral drugs, it inhibits the activity of **HIV reverse transcriptase** by competing with the natural substrate deoxyadenosine 5'-triphosphate and, after incorporation into DNA, by DNA chain termination.
Targets	HIV reverse transcriptase [1] (Cell-free assay)
In vitro	Tenofovir is eliminated from systemic circulation renally through a combination of glomerular filtration and active tubular secretion. Tenofovir is not a substrate for human organic cation transporter type 1 (hOCT1) or hOCT2. Tenofovir accumulates to fivefold lower levels in MRP4-overexpressing cells, and its accumulation could be increased by an MRP inhibitor. [1] Tenofovir produces no significant changes in mitochondrial DNA (mtDNA) levels in human hepatoblastoma (HepG2) cells, skeletal muscle cells (SkMCs), or renal proximal tubule epithelial cells. Tenofovir elevates lactate production by less than 20% in HepG2 cells or SkMCs. [2] Tenofovir is efficiently phosphorylated to tenofovir diphosphate (TFV-DP) in both HepG2 cells and primary human hepatocytes. Tenofovir has a 50% effective concentration of 1.1 mM against HBV in cell-based assays, and potency is improved > 50-fold by the addition of bis-isoproxil progroups. Tenofovir has previously demonstrated full activity against lamivudine-resistant HBV in vitro and clinically. [3] Tenofovir inhibits the proliferation of liver-derived HepG2 cells and normal skeletal muscle cells with CC(50) values of 398 μM and 870 μM, respectively. Tenofovir shows substantially weaker effects on proliferation and viability of renal proximal tubule epithelial cells than cidofovir, a related nucleotide analog with the potential to induce renal tubular dysfunction. [4]

Protocol (from reference)

Cell Assay:[5]

- **Cell lines**
  VK2 cells
- **Concentrations**
  450 μM or 1,350 μM
- **Incubation Time**
  15 min to 12 h
- **Method**
  VK2 cells were exposed to TDF (90 μM or 450 μM) and TFV (450 μM or 1,350 μM) in serum-free RPMI 1640 at 37°C for 15 min to 12 h. At different times postexposure, cells were washed with ice-cold PBS and metabolites were extracted overnight in 70% (vol/vol) methanol, followed by centrifugation at 18,000 × g for 10 min at 4°C.

Animal Study:[6]

- **Animal Models**
  BALB/c mice
- **Dosages**
  50, 500, or 1000 mg/kg

- **Administration**
  oral administration

References

https://pubmed.ncbi.nlm.nih.gov/17005808/ https://pubmed.ncbi.nlm.nih.gov/11850253/ https://pubmed.ncbi.nlm.nih.gov/16801428/

+ Expand

RETURN POLICY

Capsid Bio's Unconditional Return Policy ensures a smooth online shopping experience for our customers. If you are in any way unsatisfied with your purchase, you may return any item(s) within 7 days of receiving it. In the event of product quality issues, either protocol related or product related problems, you may return any item(s) within 365 days from the original purchase date. Please follow the instructions below when returning products.

SHIPPING & STORAGE

Capsid Bio products are transported at room temperature. If you receive the product at room temperature, please rest assured, the Capsid Bio Quality Inspection Department has conducted experiments to verify that the normal temperature placement of one month will not affect the biological activity of powder products. After collecting, please store the product according to the requirements described in the datasheet. Most Capsid Bio products are stable under the recommended conditions.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

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