Ganciclovir (BW 759)

Catalog No.C08110 Batch:C0811003

Product Datasheet

Technical Data

Formula	$C_9H_{13}N_5O_4$					
Molecular Weight	255.23	**CAS No.**	82410-32-0			
Solubility (25°C)*	In vitro	DMSO	51 mg/mL (199.81 mM)			
		Water	Insoluble			
		Ethanol	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	4%DMSO $\xrightarrow{1}$ 30%PEG300 $\xrightarrow{2}$ 66%ddH2O Validated by Capsid Bio labs. Should you need adjustments to this formulation, contact our sales team for custom testing.	2.000mg/ml (7.84mM)	Taking the 1 mL working solution as an example, add 40 μL of 50 mg/ml clarified DMSO stock solution to 300 μL of PEG 300, mix evenly to clarify it; then continue to add 660 μL of ddH2O to adjust the volume to 1 mL. 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	3.9180 mL	19.5902 mL	39.1803 mL
5 mM	0.7836 mL	3.9180 mL	7.8361 mL
10 mM	0.3918 mL	1.9590 mL	3.9180 mL
50 mM	0.0784 mL	0.3918 mL	0.7836 mL

Biological Activity

Description	Ganciclovir is an antiviral drug for feline herpesvirus type-1 with IC50 of 5.2 μM in a cell-free assay.
In vitro	Ganciclovir is metabolized to the triphosphate form by primarily three cellular enzymes: (1) a deoxyguanosine kinase induced by CMV-infected cells; (2) guanylate kinase; and (3) phosphoglycerate kinase. [1] This compound is sufficient to induce cell death in most bystander cells cocultured with HSV-tk-expressing cells. [2] It significantly reduces DNA synthesis in the transformed cells, whereas it has little effect on DNA synthesis in the nontransformed cells. This chemical exhibits a concentration-dependent reduction in the rate of elongation into mature DNA. [3] It induces cell cycle arrests rather than direct chemical effect on HSVtk-transduced B16F10 melanoma cells. [4] It produces only weak inhibition of DNA synthesis. Ganciclovir-treated cells accumulate in early S-phase and remained there until cell death, suggesting that ganciclovir incorporation in the DNA template is important for cytotoxicity. [5] Its induced apoptosis is due to incorporation of the drug into DNA resulting in replication-dependent formation of DNA double-strand breaks and, at later stages, S and G2/M arrest. The provoked DNA instability is likely to be responsible for the observed initial decline in Bcl-2 level and caspase-9/-3 activation. [6]
In vivo	Antiviral drug ganciclovir (GCV) inhibits the proliferation of microglia in experimental autoimmune encephalomyelitis (EAE). This compound attenuates neuroinflammation and does not significantly restrain the peripheral immune response[7].

Protocol (from reference)

Cell Assay:[7]

- **Cell lines**
  BV-2 cells
- **Concentrations**
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- **Incubation Time**
  24 h
- **Method**
  To assess cell proliferation by thymidine incorporation, a total of 2 × 10^4 BV-2 cells were seeded in a 96-well plate for a maximum of 12 h in 10% FBS containing DMEM and then serum starved for an additional 12 h before the addition of varying concentrations of this compound for a total of 24 h. Cultures were pulsed for the final 8 h with 1 μCi/well [3H]thymidine before incorporated radioactivity was measured using a β plate scintillation counter.

Animal Study:[7]

- **Animal Models**
  C57BL/6 mice
- **Dosages**
  100 mg/kg
- **Administration**
  i.p.

References

https://pubmed.ncbi.nlm.nih.gov/2847285/ https://pubmed.ncbi.nlm.nih.gov/8665496/ https://pubmed.ncbi.nlm.nih.gov/3039910/

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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.

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