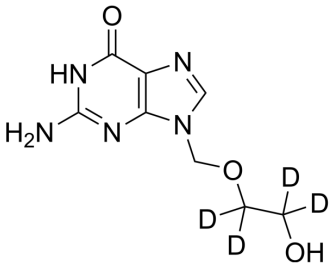
Acyclovir-d_4

Cat. No.:	HY-17422S1
CAS No.:	1185179-33-2
Molecular Formula:	$C_8H_7D_4N_5O_3$
Molecular Weight:	229.23
Target:	Apoptosis; HSV; Bacterial; Antibiotic; Isotope-Labeled Compounds
Pathway:	Apoptosis; Anti-infection; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Acyclovir-d_4 is the deuterium labeled Acyclovir. Acyclovir (Aciclovir) is a guanosine analogue and an orally active antiviral agent. Acyclovir inhibits HSV-1 (IC50 of 0.85 μM), HSV-2 (IC50 of 0.86 μM) and varicella-zoster virus. Acyclovir can be phosphorylated by viral thymidine kinase (TK), and Acyclovir triphosphate interferes with viral DNA polymerization through competitive inhibition with guanosine triphosphate and obligatory chain termination[1][2][3]. Acyclovir prevents bacterial infections during induction therapy for acute leukaemia[4].
In Vitro	Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019;53(2):211-216.

[2]. Li Z, et al. Acyclovir treatment of skin lesions results in immune deviation in mice infected cutaneously with herpes simplex virus. Antivir Chem Chemother. 1999 Sep;10(5):251-7.

[3]. Lönnqvist B, et al. Oral acyclovir as prophylaxis for bacterial infections during induction therapy for acute leukaemia in adults. The Leukemia Group of Middle Sweden. Support Care Cancer. 1993 May;1(3):139-44.

[4]. Suzuki M, et al. Synergistic antiviral activity of acyclovir and vidarabine against herpes simplex virus types 1 and 2 and varicella-zoster virus. Antiviral Res. 2006 Nov;72(2):157-61.

[5]. Benedetti S, et al. Acyclovir induces cell cycle perturbation and apoptosis in Jurkat leukemia cells, and enhances chemotherapeutic drug cytotoxicity. Life Sci. 2018 Dec 15;215:80-85.

[6]. Hayashi K, et al. The role of a HSV thymidine kinase stimulating substance, scopadulciol, in improving the efficacy of cancer gene therapy. J Gene Med. 2006 Aug;8(8):1056-67.

Caution: Product has not been fully validated for medical applications. For research use only.

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