

Product Information

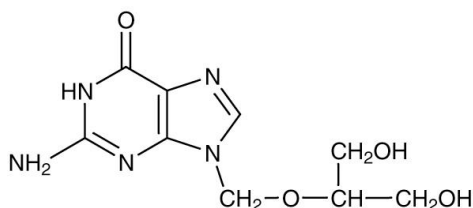
Ganciclovir

Product Number **G 2536**
Storage Temperature 2-8 °C

CAS RN: 82410-32-0

Synonyms: 9-(1,3-Dihydroxy-2-propoxymethyl)guanine;
2'-Nor-2'-deoxyguanosine; 2'-NDG; BIOLF-62; DHPG;
BW-759U

Product Description



Molecular formula: C₉H₁₃N₅O₄
Molecular weight: 255.23

Ganciclovir, a nucleoside analog, can be enzymatically phosphorylated to an active triphosphate analog by herpes simplex virus thymidine kinase (HSV-TK). The phosphorylated product causes inhibition of viral DNA polymerase. Ganciclovir has also been used to study sensitivity of different viruses to antiviral treatment.^{1,2}

This enzyme-prodrug reaction is being used to study gene therapy in cancer research.^{3,4} Expression of a suicide gene encoding a viral enzyme such as TK results in the phosphorylation of the non-toxic prodrug, ganciclovir. The active, phosphorylated analog is incorporated into the DNA of replicating bystander eukaryotic cells causing death of the malignant dividing cells.⁵

Ganciclovir was found to be more cytotoxic than other HSV-TK substrates, acyclovir and araT (1-β-D- arabinofuranosylthymine).⁶ The mechanism presumably proceeds via irreversible cell cycle arrest at the G2-M checkpoint.⁷ The involvement of gap junctions with the bystander effect observed with the HSV-TK gene and ganciclovir was reported.⁸

The HSV-TK gene and ganciclovir are used in molecular biology for negative selection against random recombination events when homologous recombination of a gene of interest is required.⁹ Negative selection with the HSV-TK gene and ganciclovir was recently used for measuring loss of telomeres in the study of chromosome healing.¹⁰ Recently it has been widely used as a potent treatment against Cytomegalovirus infection following tissue transplantation.^{11,12}

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Soluble at 10 mg/ml in 0.1 N HCl.

Storage/Stability

Store desiccated at 2-8 °C. Under these conditions the product is stable for 3 years.

References

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