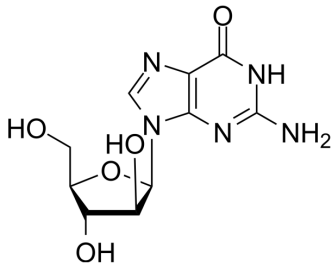
9-β-D-Arabinofuranosylguanine

Cat. No.:	HY-N0097A
CAS No.:	38819-10-2
Molecular Formula:	$C_{10}H_{13}N_5O_5$
Molecular Weight:	283.24
Target:	Others
Pathway:	Others
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (441.32 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.5306 mL	17.6529 mL	35.3057 mL
	5 mM	0.7061 mL	3.5306 mL	7.0612 mL
	10 mM	0.3531 mL	1.7653 mL	3.5306 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (7.34 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (7.34 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (7.34 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

9-β-D-Arabinofuranosylguanine is a Guanosine (HY-N0097) analog and shows high affinity for deoxyguanosine kinase (dGK) with a K_m of 8.0 μM. 9-β-D-Arabinofuranosylguanine can be used for the research of T-cell lymphoblastic disease[1][2].

IC_{50} & Target

Km: 8.0 μM (dGK)[2]

In Vitro

9-β-D-Arabinofuranosylguanine elicits cytotoxicity through the intracellular accumulation of its 5′-triphosphate, Ara-GTP, which inhibits DNA polymerase and ribonucleotide reductase and is incorporated into DNA, terminating DNA chain elongation, resulting in cell death[1][2].
9-β-D-Arabinofuranosylguanine is selectively toxic to cultured T-lymphoblasts due to their ability to accumulate higher

levels of the cytotoxic metabolite, Ara-GTP, relative to B- and null lymphoblastoid cells[1].
9-β-D-Arabinofuranosylguanine (0-1000 μM; 72 h) shows cytotoxicity with IC_{50}s of 4.2, 452 and 777 μM against MOLT-4, MOLT-4/Ara-G500 and MOLT-4/Ara-G900 cells, respectively[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	MOLT-4 and Ara-G-resistant sublines: MOLT-4/Ara-G500 and MOLT-4/Ara-G900
Concentration:	0-1000 μM
Incubation Time:	72 h
Result:	Showed cytotoxicity with IC_{50}s of 4.2, 452 and 777 μM against MOLT-4, MOLT-4/Ara-G500 and MOLT-4/Ara-G900 cells, respectively.

REFERENCES

[1]. Shewach DS, et al. Differential metabolism of 9-beta-D-arabinofuranosylguanine in human leukemic cells. Cancer Res. 1989 Dec 1;49(23):6498-502.

[2]. Lotfi K, et al. Low level of mitochondrial deoxyguanosine kinase is the dominant factor in acquired resistance to 9-beta-D-arabinofuranosylguanine cytotoxicity. Biochem Biophys Res Commun. 2002 May 24;293(5):1489-96.

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