6-Thio-2'-Deoxyguanosine

Cat. No.: HY-18762

CAS No.: 789-61-7

Molecular Formula: $C_{10}H_{13}N_5O_3S$

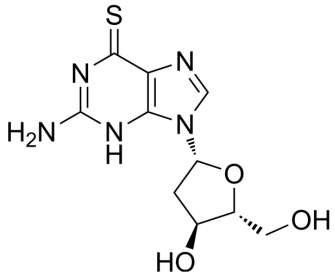
Molecular Weight: 283.31

Target: DNA/RNA Synthesis

Pathway: Cell Cycle/DNA Damage

Storage: 4°C, protect from light

* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (176.49 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.5297 mL	17.6485 mL	35.2970 mL
	5 mM	0.7059 mL	3.5297 mL	7.0594 mL
	10 mM	0.3530 mL	1.7649 mL	3.5297 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: ≥ 0.83 mg/mL (2.93 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.83 mg/mL (2.93 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.83 mg/mL (2.93 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

6-Thio-2'-Deoxyguanosine is a nucleoside analogue that can be incorporated into de novo-synthesized telomeres by telomerase.

IC_{50} & Target

DNA/RNA Synthesis[1]

In Vitro

Treatment with 6-Thio-2'-Deoxyguanosine results in rapid cell death for the vast majority of the cancer cell lines tested with IC_{50}s of between 0.7-2.9 μM[1].

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

In Vivo	In A549 lung cancer cell-based mouse xenograft studies, 6-Thio-2'-Deoxyguanosine causes a decrease of the tumor growth rate, superior to that observed with 6-thioguanine treatment. Additionally, 6-Thio-2'-Deoxyguanosine increases telomere dysfunction in tumor cells in vivo[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	HCT116, A549, and H2882, HCC2429, HCC827, HCC15, H2087, HCC4017, HCC515, H2009, BJ and HCEC1 cells are plated in growth media in 96 well plates. Cells are incubated for 1 week and treated with varying concentrations of 6-Thio-2'-Deoxyguanosine and 6-thioguanine or DMSO every three days. The 96 well plates are analyzed for the CellTiterGlo luminescent cell viability assay[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration	Athymic NCR nu/nu female mice (6 weeks old) are used. A549 cells are inoculated subcutaneously into the left and right dorsal flanks of the nude mice in 100 µL phosphate buffered saline (PBS). When tumors reach 40 mm^3 average volume, mice are randomly divided into control, 6-thio-dG and 6-thioguanine treatment groups (3 animals in each group). Animals are injected intraperitoneally every two days for 17 days at a dose of 2mg/kg in 100 µL DMSO/PBS mixture per mouse. In addition, different animals are injected intratumorally every day for 16 days at a dose of Athymic NCR nu/nu female mice 2.5mg/kg in 50 µL DMSO/PBS mixture per mouse. Tumor size is measured by calipers and recorded either every day or every two days[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Mender I, et al. Induction of telomere dysfunction mediated by the telomerase substrate precursor 6-thio-2'-deoxyguanosine. Cancer Discov. 2015 Jan;5(1):82-95.

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