Tubercidin

Cat. No.: HY-100126

CAS No.: 69-33-0

Molecular Formula: $C_{11}H_{14}N_4O_4$

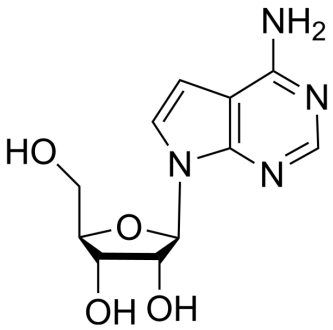
Molecular Weight: 266.25

Target: Bacterial; DNA/RNA Synthesis; Influenza Virus; Antibiotic

Pathway: Anti-infection; Cell Cycle/DNA Damage

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 30 mg/mL (112.68 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.7559 mL	18.7793 mL	37.5587 mL
5 mM	0.7512 mL	3.7559 mL	7.5117 mL
10 mM	0.3756 mL	1.8779 mL	3.7559 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: ≥ 2.5 mg/mL (9.39 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.39 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.39 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Tubercidin (7-Deazaadenosine) is an antibiotic obtained from Streptomyces tubercidicus. Tubercidin inhibits the growth of Streptococcus faecalis (8043) with an IC_{50} of 0.02 μM[1]. Tubercidin inhibits polymerases by incorporating DNA or RNA, thereby inhibiting DNA replication, RNA and protein synthesis[2]. Tubercidin is a weak inhibitor of adenosine phosphorylase, and interferes with the phosphorylation of adenosine and AMP[1]. Tubercidin has antiviral activity[2].

In Vitro

Tubercidin (7-Deazaadenosine) (0-10 nM; 14 days) has a dose-dependent inhibitory effect on myeloid and erythroid human

bone marrow progenitor cells, and the IC_{50}s of tubercidin are 3.4 nM and 3.7 nM for CFU-GM and BFU-E, respectively[3].

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

Cell Cytotoxicity Assay[2]

Cell Line:	Human bone marrow progenitor cells
Concentration:	0-10 nM
Incubation Time:	14 days
Result:	Had a dose-dependent inhibitory effect for CFU-GM and BFU-E.

In Vivo

Tubercidin (7-Deazaadenosine) (intraperitoneal injection; 5 mg/kg; 10 days) in cooperation with NBMPR-P protects the mice from the lethality of tubercidin and allowed the repetition of the regimen for a second time with 100% survival[3].

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

Animal Model:	Female CD1 mice[2]
Dosage:	5 mg/kg
Administration:	Intraperitoneal injection; 5 mg/kg; 10 days
Result:	Protected the mice from the lethality of tubercidin.

CUSTOMER VALIDATION

- Elife. 2022 Dec 7;11:e79116.
- Microb Cell Fact. 2018 Aug 28;17(1):131.
- J Chromatogr B. 2023 Dec 21, 123968.

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REFERENCES

[1]. Bloch A, et al. On the mode of action of 7-deaza-adenosine (Tubercidin). Biochim Biophys Acta. 1967 Mar 29;138(1):10-25.

[2]. Kouni MH, et al. Prevention of tubercidin host toxicity by nitrobenzylthioinosine 5'-monophosphate for the treatment of schistosomiasis. Antimicrob Agents Chemother. 1989 Jun;33(6):824-7.

[3]. Bergstrom DE, et al. Antiviral activity of C-5 substituted tubercidin analogues. J Med Chem. 1984 Mar;27(3):285-92.

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