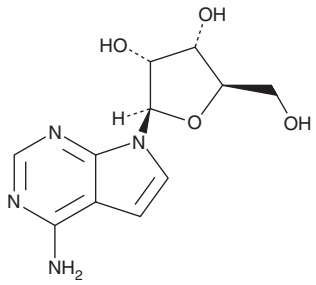
PRODUCT INFORMATION

Tubercidin

Item No. 35834

CAS Registry No.:	69-33-0
Formal Name:	7-β-D-ribofuranosyl-7H-pyrrolo[2,3-d] pyrimidin-4-amine
Synonyms:	7-Deazaadenosine, 7-DZA, NSC 56408
MF:	$C_{11}H_{14}N_4O_4$
FW:	266.3
Purity:	≥98%
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Synthetic



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Tubercidin is supplied as a solid. A stock solution may be made by dissolving the tubercidin in the solvent of choice, which should be purged with an inert gas. Tubercidin is soluble in the organic solvent DMSO at a concentration of approximately 2 mg/ml. Tubercidin is slightly soluble in dimethyl formamide.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of tubercidin can be prepared by directly dissolving the solid in aqueous buffers. The solubility of tubercidin in PBS (pH 7.2) is approximately 0.25 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Tubercidin is a nucleoside analog that has been found in *S. tubercidicus* and has diverse biological activities.[1-4] It is active against *S. faecalis* (IC_{50} = 0.02 µM) and cytotoxic to P388 murine leukemia and A549 human lung adenocarcinoma cells (IC_{50}s = 0.008 and 0.019 µg/ml, respectively).[1,2] Tubercidin reduces infection of Calu-3 cells by severe acute respiratory coronavirus 2 (SARS-CoV-2; EC_{50} = 0.05 µM) but is toxic to A549 cells expressing human ACE2 (A549-ACE2) and Vero cells.[3] Tubercidin (5 mg/kg per day), in combination with the nucleoside transport inhibitor prodrug NBMPR-P, increases survival in a mouse model of schistosomiasis but is hepato- and nephrotoxic and induces mortality when administered alone at the same dose for four days.[4]

References

1. Bloch, A., Leonard, R.J., and Nichol, C.A. On the mode of action of 7-deaza-adenosine (tubercidin). *Biochim. Biophys. Acta* **138(1)**, 10-25 (1967).
2. Biabani, M.F., Gunasekera, S.P., Longley, R.E., *et al.* Tubercidin, a cytotoxic agent from the marine sponge *Caulospongia biflabellata*. *Pharm. Biol.* **40(4)**, 302-303 (2002).
3. Schultz, D.C., Johnson, R.M., Ayyanathan, K., *et al.* Pyrimidine inhibitors synergize with nucleoside analogues to block SARS-CoV-2. *Nature* **604(7904)**, 134-140 (2022).
4. el Kouni, M.H., Diop, D., O'Shea, P., *et al.* Prevention of tubercidin host toxicity by nitrobenzylthioinosine 5'-monophosphate for the treatment of schistosomiasis. *Antimicrob. Agents Chemother.* **33(6)**, 824-827 (1989).

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