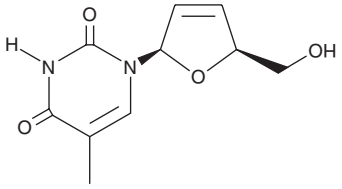
PRODUCT INFORMATION

Stavudine

Item No. 14975

CAS Registry No.:	3056-17-5
Formal Name:	2',3'-didehydro-3'-deoxy-thymidine
Synonyms:	BMY 27857, d4T, NSC 163661
MF:	$C_{10}H_{12}N_2O_4$
FW:	224.2
Purity:	≥98%
UV/Vis.:	λ_{max}: 265 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

Stavudine is supplied as a crystalline solid. A stock solution may be made by dissolving the stavudine in the solvent of choice, which should be purged with an inert gas. Stavudine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of stavudine in ethanol is approximately 10 mg/ml and approximately 30 mg/ml in DMSO and DMF.

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 stavudine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of stavudine in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Stavudine is an inhibitor of HIV reverse transcriptase and a derivative of the nucleoside thymidine (Item No. 20519).[1] It inhibits HIV-1 replication in human peripheral blood mononuclear cells (PBMCs; EC_{50} = 8.8 nM). Stavudine reduces the synthesis of HIV-specific antigen in MT-4 cells when used at concentrations ranging from 0.1 to 10 µg/ml and reduces HIV-induced plaque formation in MT-4 cells at 0.05 µg/ml.[2] It reduces plasma- and cell-associated viral load in macaques infected with a highly pathogenic isolate of HIV-2.[3] Stavudine induces sustained hind paw mechanical allodynia in a rat model of antiretroviral toxic neuropathy (ATN) when administered at a dose of 75 mg/kg twice weekly for five consecutive doses for a cumulative dose of 375 mg/kg.[4] Formulations containing stavudine, in combination with other antiretrovirals, have been used in the treatment of HIV-1 infection.

References

1. Lin, T.-S., Schinazi, R.F., and Prusoff, W.H. *Biochem. Pharmacol.* **36(17)**, 2713-2718 (1987).
2. Hamamoto, Y., Nakashima, H., Matsui, T., *et al. Antimicrob. Agents Chemother.* **31(6)**, 907-910 (1987).
3. Watson, A., McClure, J., Ranchalis, J., *et al. AIDS Res. Hum. Retroviruses* **13(16)**, 1375-1381 (1997).
4. Kuo, A., Nicholson, J.R., Corradini, L., *et al. Inflammopharmacology* **27(2)**, 387-396 (2019).

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