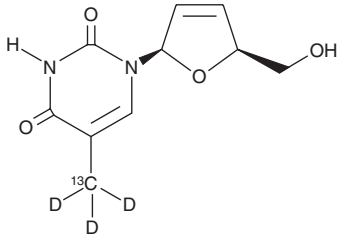
PRODUCT INFORMATION

Stavudine-^{13}C-d$_3$

Item No. 28887

CAS Registry No.: 2750534-86-0
Formal Name: 1-((2R,5S)-5-(hydroxymethyl)-2,5-dihydrofuran-2-yl)-5-(methyl-^{13}C-d$_3$)pyrimidine-2,4(1H,3H)-dione
MF: $C_9[^{13}C]H_9D_3N_2O_4$
FW: 228.2
Chemical Purity: ≥98% (Stavudine-^{13}C)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_3); ≤1% d_0
Supplied as: A 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-^{13}C-d$_3$ is intended for use as an internal standard for the quantification of stavudine (Item No. 14975) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Stavudine-^{13}C-d$_3$ is supplied as a solid. A stock solution may be made by dissolving the stavudine-^{13}C-d$_3$ in the solvent of choice. Stavudine-^{13}C-d$_3$ is soluble in organic solvents such as methanol, DMSO, and acetonitrile, which should be purged with an inert gas.

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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