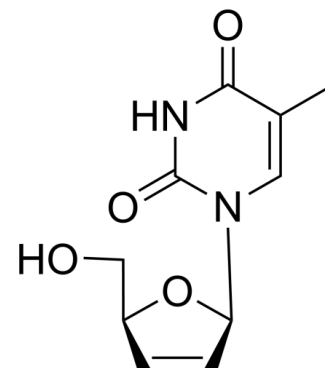


Data Sheet

Product Name:	Stavudine
Cat. No.:	CS-1872
CAS No.:	3056-17-5
Molecular Formula:	C ₁₀ H ₁₂ N ₂ O ₄
Molecular Weight:	224.216
Target:	Apoptosis; Autophagy; HIV; NOD-like Receptor (NLR); Nucleoside Antimetabolite/Analog; Reverse Transcriptase
Pathway:	Anti-infection; Apoptosis; Autophagy; Cell Cycle/DNA Damage; Immunology/Inflammation
Solubility:	DMSO : 125 mg/mL (ultrasonic); H ₂ O : 16.67 mg/mL (ultrasonic)



BIOLOGICAL ACTIVITY:

Stavudine (d4T) is an orally active **nucleoside reverse transcriptase inhibitor (NRTI)**. Stavudine has activity against **HIV-1** and **HIV-2**. Stavudine also inhibits the replication of mitochondrial DNA (mtDNA). Stavudine reduces NLRP3 inflammasome activation and modulates Amyloid-β autophagy. Stavudine induces apoptosis^{[1][2][3][4]}. *In Vitro*: Stavudine (d4T) (50 μM) significantly reduces the expression of the NLRP3 inflammasome gene, IL-18 production and Aβ 42-stimulated cellular production of IL-1β in THP-1 derived macrophages^[3].

Stavudine (d4T) (50 μM) inhibits the assembly of the NLRP3 inflammasome complex and down-regulates the phagocytosis of Aβ 42 by macrophages^[3].

Stavudine (d4T) (10 μM, 7 or 14 days) significantly induced CEM cells apoptosis, especially after 14 days, and increases hydrogen peroxide levels^[4].

In Vivo: Stavudine (d4T) (500 mg/kg, daily liquid, 2 weeks) can rapidly induce fat depletion and mild liver damage at high dose in male RjOrl Swiss mice^[5].

References:

- [1]. Moyle GJ, et al. The role of stavudine in the management of adults with HIV infection. *Antivir Ther.* 1997;2(4):207-218.
- [2]. Riddler SA, et al. Antiretroviral activity of stavudine (2',3'-didehydro-3'-deoxythymidine, D4T). *Antiviral Res.* 1995;27(3):189-203.
- [3]. La Rosa F, et al. Stavudine Reduces NLRP3 Inflammasome Activation and Modulates Amyloid-β Autophagy. *J Alzheimers Dis.* 2019;72(2):401-412.
- [4]. Ferraresi R, et al. Protective effect of acetyl-L-carnitine against oxidative stress induced by antiretroviral drugs. *FEBS Lett.* 2006;580(28-29):6612-6616.
- [5]. Anissa Igoudjil, et al. High doses of stavudine induce fat wasting and mild liver damage without impairing mitochondrial respiration in mice. *Antivir Ther.* 2007;12(3):389-400.

CAIndexNames:

Thymidine, 2',3'-didehydro-3'-deoxy-

SMILES:

OC[C@H]1O[C@@H](N2C=C(C)C(NC2=O)=O)C=C1

Caution: Product has not been fully validated for medical applications. For research use only.

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