

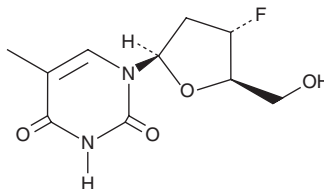
PRODUCT INFORMATION



3'-Deoxy-3'-fluorothymidine

Item No. 36519

CAS Registry No.: 25526-93-6
Formal Name: 3'-deoxy-3'-fluoro-thymidine
Synonyms: Alovudine, CL 184,824, FLT, MIV-310, NSC 140025
MF: C₁₀H₁₃FN₂O₄
FW: 244.2
Purity: ≥98%
UV/Vis.: λ_{max}: 265 nm
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

3'-Deoxy-3'-fluorothymidine is supplied as a solid. A stock solution may be made by dissolving the 3'-deoxy-3'-fluorothymidine in the solvent of choice, which should be purged with an inert gas. 3'-Deoxy-3'-fluorothymidine is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of 3'-deoxy-3'-fluorothymidine in DMSO and DMF is approximately 12 and 11 mg/ml, respectively. 3'-Deoxy-3'-fluorothymidine is also slightly soluble in ethanol.

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 3'-deoxy-3'-fluorothymidine can be prepared by directly dissolving the solid in aqueous buffers. The solubility of 3'-deoxy-3'-fluorothymidine in PBS (pH 7.2) is approximately 0.33 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

3'-Deoxy-3'-fluorothymidine is a nucleoside analog.¹ It is phosphorylated by thymidine kinase 1 (TK1) but not TK2 and also inhibits TK1 and TK2 (K_is = 6 and 10 μM, respectively). 3'-Deoxy-3'-fluorothymidine inhibits HIV-1 reverse transcriptase (EC₅₀ = 5 nM) and the replication of HIV-1 in MT-4 human T cell leukemia cells (EC₅₀ = 5 nM).² It decreases mitochondrial DNA (mtDNA) levels and the oxygen consumption rate (OCR) and induces upregulation of the cell differentiation marker CD11b in OCI-AML-2 and MV4-11 acute myeloid leukemia (AML) cells in a concentration-dependent manner.³ 3'-Deoxy-3'-fluorothymidine (50 mg/kg) reduces tumor growth in an OCI-AML-2 AML mouse xenograft model. A radiolabeled form of 3'-deoxy-3'-fluorothymidine, [¹⁸F]FLT, is commonly used as a PET tracer for *in vivo* imaging of tumors.⁴

References

1. Munch-Petersen, B., Cloos, L., Tyrsted, G., *et al. J. Biol. Chem.* **266**(14), 9032-9038 (1991).
2. Kong, X.-B., Zhu, Q.-Y., Vidal, P.M., *et al. Antimicrob. Agents Chemother.* **36**(4), 808-818 (1992).
3. Yehudai, D., Liyanage, S.U., Hurren, R., *et al. Haematologica* **104**(5), 963-972 (2019).
4. Salskov, A., Tammisetti, V.S., Grierson, J., *et al. Semin. Nucl. Med.* **37**(6), 429-439 (2007).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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