Thymidine

Cat. No.: HY-N1150

CAS No.: 50-89-5

Molecular Formula: $C_{10}H_{14}N_2O_5$

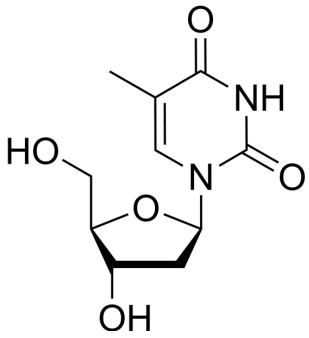
Molecular Weight: 242.23

Target: DNA/RNA Synthesis; Endogenous Metabolite; Orthopoxvirus

Pathway: Cell Cycle/DNA Damage; Metabolic Enzyme/Protease; Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (206.42 mM; Need ultrasonic)

H_2O : 33.33 mg/mL (137.60 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.1283 mL	20.6415 mL	41.2831 mL
5 mM	0.8257 mL	4.1283 mL	8.2566 mL
10 mM	0.4128 mL	2.0642 mL	4.1283 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 20 mg/mL (82.57 mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description

Thymidine, a specific precursor of deoxyribonucleic acid, is used as a cell synchronizing agent. Thymidine is a DNA synthesis inhibitor that can arrest cell at G1/S boundary, prior to DNA replication[1][2][3].

IC_{50} & Target			
	Microbial Metabolite	DNA Synthesis	Human Endogenous Metabolite

In Vivo

Thymidine (500 mg/kg; i.p.; twice a day) completely reverses both Methotrexate- and Tomudex-induced deletion of both $CD4^+V\beta8^+$ and $CD8^+V\beta8^+$ T cells [3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	8-12 weeks BALB/c mice[3]

Dosage:	500 mg/kg
Administration:	i.p.; twice a day
Result:	Completely abrogates Methotrexate- and Tomudex-induced deletion of $V\beta8^+$ T cells after SEB injection.

CUSTOMER VALIDATION

- Nat Struct Mol Biol. 2024 May 20.
- Adv Sci (Weinh). 2022 Jun 2;e2104823.
- J Hazard Mater. 2021, 126815.
- Cancer Lett. 2022 Jul 10;538:215692.
- Free Radic Biol Med. 2023 Jan 12;196:53-64.

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REFERENCES

[1]. Chen G, et al. Cell Synchronization by Double Thymidine Block. Bio Protoc. 2018 Sep 5;8(17).

[2]. FIRKET H, et al. Autoradiographic visualization of synthesis of deoxyribonucleic acid in tissue culture with tritium-labelled thymidine. Nature. 1958 Jan 24;181(4604):274-5.FIRKET H, et al. Autoradiographic visualization of synthesis of deoxyribonucleic acid in tissue culture with tritium-labelled thymidine. Nature. 1958 Jan 24;181(4604):274-5.

[3]. Izeradjene K, et al. Inhibition of thymidine synthesis by folate analogues induces a Fas-Fas ligand-independentdeletion of superantigen-reactive peripheral T cells. Int Immunol. 2001 Jan;13(1):85-93.

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