Pseudothymidine

Cat. No.: HY-101969

CAS No.: 65358-15-8

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

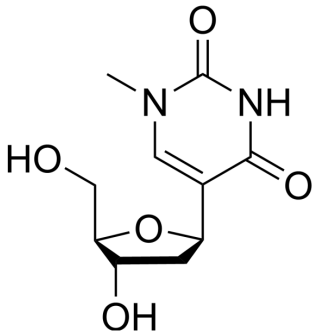
Molecular Weight: 242.23

Target: Nucleoside Antimetabolite/Analog; HIV

Pathway: Cell Cycle/DNA Damage; 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 : 61.17 mg/mL (252.53 mM; Need ultrasonic and warming)

Preparing Stock Solutions	Mass / Solvent / 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.

BIOLOGICAL ACTIVITY

Description

Pseudothymidine is a C-nucleoside analog of thymidine.

In Vitro

Pseudothymidine is a C-nucleoside analog of thymidine[1]. The calculated $\Delta\Delta G°_{50}$/mod is -0.5 kcal/mol, with a ΔT_m/mod of 0.82°C. For the duplexes containing nine dA-T/ψT pairs, the ΔT_m/mod is -0.9°C and a $\Delta\Delta G°_{50}$/mod is +1.1 kcal/mol. The modification of the duplex containing 12 consecutive dA-T/ψT base pairs produces a ΔT_m/mod of -0.9°C and a $\Delta\Delta G°_{50}$/mod of +1.2 kcal/mol[2].

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

PROTOCOL

Kinase Assay

Thermal DNA duplex denaturation studies are performed with templates containing up to twelve consecutive dA residues that are paired with its complement template containing consecutive T or Pseudothymidine (ψT) residues. Experiments are performed in a buffer (45 mM NaCl, 45 mM sodium citrate, pH 8.1, final vol. 1.5 mL) containing template and its complement

(1.5 μM of each). Absorbance (260 nm) is monitored over a range of 25.0 to 90.0°C with a change in temperature of 0.5°C/min for five heating cycles. The initial heating cycle is discarded and the T_m is determined by averaging the temperatures of the remaining four cycles. The ΔT_m between similar duplexes is calculated by subtracting the T_m of the duplex containing standard bases from the T_m of the duplex containing C-glycosides (including Pseudothymidine)[2].

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

REFERENCES

[1]. S Lutz, et al. An in vitro screening technique for DNA polymerases that can incorporate modified nucleotides. Pseudo-thymidine as a substrate for thermostable polymerases. Nucleic Acids Res. 1999 Jul 1; 27(13): 2792-2798.

[2]. Havemann SA, et al. Incorporation of multiple sequential pseudothymidines by DNA polymerases and their impact on DNA duplex structure. Nucleosides Nucleotides Nucleic Acids. 2008 Mar;27(3):261-78.

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