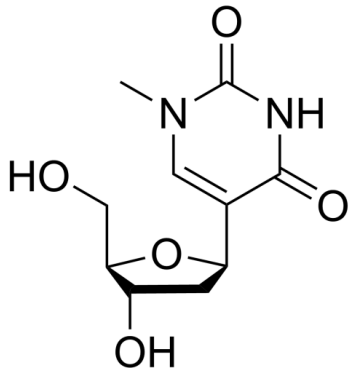
Data Sheet

Product Name:	Pseudothymidine
Cat. No.:	CS-7718
CAS No.:	65358-15-8
Molecular Formula:	$C_{10}H_{14}N_2O_5$
Molecular Weight:	242.23
Target:	HIV; Nucleoside Antimetabolite/Analog
Pathway:	Anti-infection; Cell Cycle/DNA Damage
Solubility:	DMSO : ≥ 61.17 mg/mL (252.53 mM)



BIOLOGICAL ACTIVITY:

Pseudothymidine is a C-nucleoside analog of thymidine. **In Vitro:** Pseudothymidine is a C-nucleoside analog of thymidine[1]. The calculated $\Delta\Delta G^\circ_{50}$/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 $\Delta\Delta G^\circ_{50}$/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 $\Delta\Delta G^\circ_{50}$/mod of +1.2 kcal/mol[2].

PROTOCOL (Extracted from published papers and Only for reference)

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].

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.

CAIndexNames:

2,4(1H,3H)-Pyrimidinedione, 5-(2-deoxy-β-D-erythro-pentofuranosyl)-1-methyl-

SMILES:

O=C(NC1=O)N(C)C=C1[C@H]2C[C@H](O)[C@@H](CO)O2

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

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