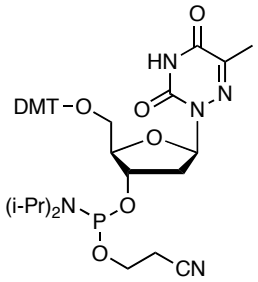
6-Azathymidine CEP
Product No. BA 0306
Product Information



$C_{39}H_{48}N_5O_8P$
Mol. Wt.: 745.80

6-Azathymidine[1] has a nitrogen atom in place of the methine group at position 6 of the thymine ring. This results in a significant lowering of the pK_a of the N^3 hydrogen (7.0)[2] vs. that of thymidine (10.0). Hence, 6-azathymidine will be significantly deprotonated at neutral pH.

The phosphoramidite of this nucleoside, 6-Azathymidine CEP (BA 0306) has been incorporated into oligonucleotides,[1] where it imparts nuclease resistance when installed at the 5'-position. Duplexes with DNA or RNA are only slightly destabilized, and heteroduplexes with RNA support RNase-H cleavage.

Coupling, deprotection, and purification: Sanghvi, *et al.*,[1] recommend a six-minute coupling followed by standard concentrated ammonium hydroxide cleavage/deprotection and RP-HPLC purification to prepare 6-azathymidine-bearing oligonucleotides. In our hands, extended coupling was not necessary; 6-Azathymidine CEP couples with greater than ≥95% efficiency using the standard protocols recommended for popular synthesizers.

References:

1. Sanghvi, Y.; Hoke, G. D.; Freier, S. M.; Zounes, M. C.; Gonzalez, C.; Cummins, L.; Sasmor, H.; Cook, P. D. *Nucleic Acids Res.* **1993**, *21*, 3197-3203.

2. Seela, F.; Chittepu, P. *J. Org. Chem.* **2007**, *72*, 4358-4366.