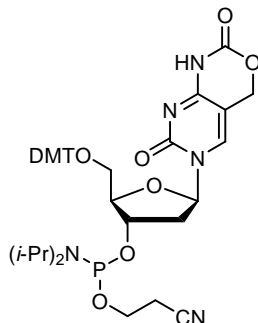


5-Hydroxymethyl-dC cyclic carbamate CEP Product No. BA 0371

Product Information



C₄₁H₄₈N₅O₉P
Mol. Wt.: 785.82

2'-Deoxycytidine methylation is an important and well studied modification of DNA. The cytosine methylation alters DNA structure without impacting base pairing. This modification affects binding of transcription factors and subsequent gene expression and is, therefore, an important epigenetic marker. It has now also been shown that hydroxymethylcytosine is a widespread DNA modification in brain tissue.¹ The exact function of this new "sixth base" is the subject of much current research.

To facilitate this research, we offer the cyclic carbamate phosphoramidite described by Carell and co-workers² as BA 0371. This phosphoramidite can be efficiently incorporated into oligonucleotides and the carbamate can be removed with base during the cleavage process. This enables a straight-forward, gentle method for incorporation of 5-hydroxymethyl cytosine into oligonucleotides.

Use: For oligonucleotide synthesis, employ acetonitrile diluent at the concentration recommended by the synthesizer manufacturer. Extended coupling times should be employed to give coupling efficiencies > 98%. See reference 2 for 1 step deprotection and carbamate removal conditions.

- (1) a) Kriaucionis, S.; Heintz, N. *Science*, **2009**, *324*, 929-930. b) Tahiliani, M.; Koh, K.P.; Shen, Y.H.; Pastor, W.A.; Bandukwala, H.; Brundo, Y.; Agrawal, S.; Iyer, I.M.; Liu, D.R.; Aravind, L.; Rao, A. *Science*, **2009**, *324*, 930-935. c) Munzel, M.; Globisch, D.; Bruckl, T.; Wagner, M.; Welzmler, V.; Michalakis, S.; Muller, M.; Biel, M.; Carell, T. *Angew. Chem. Int. Ed.* **2010**, *49*, 5375-5377. d) Szwagierczak, A.; Bultmann, S.; Schmidt, C.S.; Spada, F.; Leonhardt, H. *Nucleic Acids Res.* **2010**, *38*, e181.
- (2) Munzel, M.; Globisch, D.; Trindler, C.; Carell, T. *Org. Lett.* **2010**, *12* (24), 5671-5673.