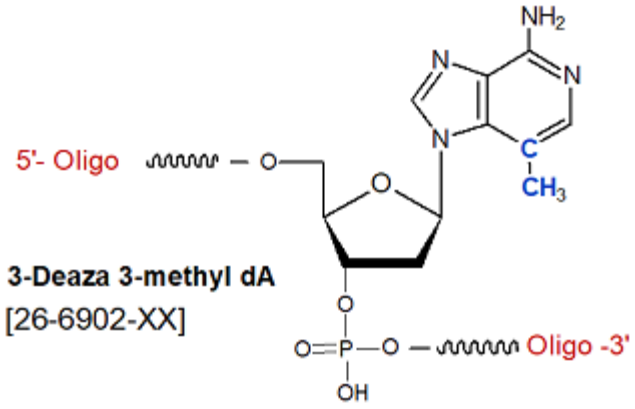
Oligo Modifications

For research use only. Not for use in diagnostic procedures for clinical purposes.

3-deaza-3-me-dA

Category	Structural Studies
Modification Code	3-deaza-3-me-dA
Reference Catalog Number	26-6902
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	323.05



3-deaza dA has a nitrogen at position 3 replaced by a carbon with an additional methyl group.
3-Deaza-3-methyl-dA has been shown to be a stable analog of N3-methyladenine (3MeA) which is the major cytotoxic lesion formed in DNA by methylating agents. 3- Deaza-3-methyl-dA CEP (BA 0212) can be used to incorporate this important, stable analog into synthetic oligonucleotides.

[7-deaza-8-aza-deoxyadenosine (7-deaza-8-aza-dA) is a deoxyribonucleoside in which the 7-nitrogen and 8-carbon are flipped. The resulting modified dA is unable to form a hydrogen bond at position 7, but can at position 8, of the base. The result is that the 7-deaza-8-aza-dA : dT base pair has essentially the same duplex stability as that of the unmodified A : T base pair, and is more stable than the 7-deaza-dA : dT base pair (1). Similar to 7-deaza-dA, 7-deaza-8-aza-dA can be used for modulate the amount of structural DNA bending existing within long polyA regions of single- and double-stranded oligonucleotides (2).

Furthermore, 7-deaza-8-aza-dA is specifically recommended over 7-deaza-dA whenever multiple insertions of a 7-deaza-dA-type modification into an oligo must be done. This is because 7-deaza-8-aza-dA is stable to the iodine-based oxidizer solution used in phosphoramidite-based DNA synthesis, while 7-deaza-dA is sensitive to it. **References**

1. Plosky, B. S.; Frank, E. G.; Berry, D. A.; Vennall, G. P.; McDonald, J. P.; Woodgate, R. Nucleic Acids Res. 2008, 36, 2152-2162.
2. Seela, F.; Zulauf, M. Synthesis of oligonucleotides containing pyrazola[3,4-d]pyrimidines: The influence of 7-substituted 8-aza-7-deazaadenines on the duplex structure and stability. *J. Chem. Soc., Perkin Trans.* (1999), **1**: 479-488.
2. Seela, F.; Grein, T. 7-Deaza-2'-deoxyadenosine and 3-deaza-2'-deoxyadenosine replacing dA within d(A6)-tracts: differential bending at 3'- and 5'-junctions of d(A6)-d(T6) and B-DNA.*Nucleic Acids Res.* (1992), **20**: 2297-2306.