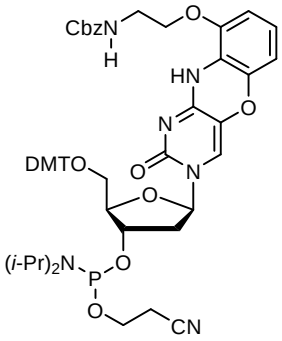
8-oxoG Clamp CEP
Product No. BA 0339
Product Information



$C_{55}H_{61}N_6O_{11}P$
Mol. Wt.: 1013.09

Fluorescent molecule for the selective recognition of 8-oxoG.

8-OxoG is the major oxidative damage metabolite of DNA, and serves as a marker for oxidative stress in cells. Many methods for detection of 8-oxoG exist, but until recently, a fluorescent probe for detection in DNA had not been developed. The Sasaki labs have identified a variation of Matteucci's cytosine analog "G-Clamp"[1] that is specific for 8-oxoG. This fluorescent phenoxazine analog 8-oxoG Clamp CEP (BA 0339) appears to be highly specific for pairing with 8-oxoG.[2] As illustrated in Figure 1, the hydrogen bonding network imparts the high degree of selectivity of the 8-oxoG Clamp for 8-oxoG via the interaction with the Cbz group oxygen.[3] This interaction is attractive in the case of 8-oxoG through formation of a hydrogen bond, and repulsive in the case of dG. When incorporated into an oligonucleotide, the duplex stabilization was lowered only slightly, and 8-oxoG was selectively detected by fluorescence quenching the 8-oxoG Clamp.[3]

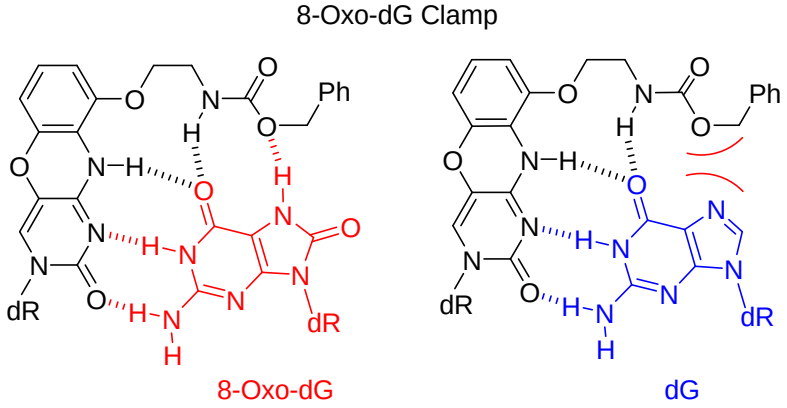


Figure 1. Proposed H-Bonding for 8-OxoG Clamp with 8-OxoG and dG.

Use: Employ acetonitrile diluent at the concentration recommended by the synthesizer manufacturer. Use standard coupling protocols; in our hands, extended coupling times were not required and coupling efficiencies of greater than 95% can be obtained. Cleavage from the solid support may be carried out by standard procedures. Standard nucleobase deprotection conditions may be employed.

References

1. Lin, K.-Y.; Jones, R.J.; Matteucci, M. *J. Am. Chem. Soc.*, **1995**, *117*, 3873-3874.
2. Nakagawa, O.; Ono, S.; Li, Z.; Tsujimoto, A.; Sasaki, S. *Angew. Chem. Int. Ed.*, **2007**, *46*, 4500-4503.
3. Nasr, T.; Li, Z.; Nakagawa, O.; Taniguchi, Y.; Ono, S.; Sasaki, S. *Bioorg. & Med. Chem. Lett.* **2009**, *19*, 727-730.