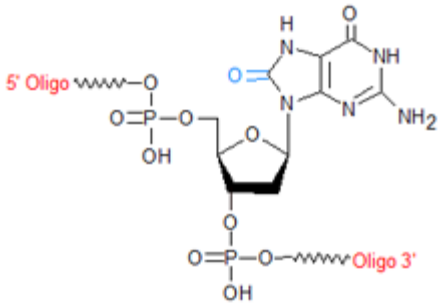
Oligo Modifications

8-Oxo dG

Category	Minor Bases
Modification Code	8-Oxo-dG
Reference Catalog Number	26-6434
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	345.21



8-Oxo deoxyguanosine (8-Oxo dG)
[26-6434-XX]

8-Oxo-deoxyguanosine (8-Oxo-dG) is classified as an oxidized nucleotide, and is primarily used in studies of oxidative DNA damage and associated repair mechanisms. In the cell, 8-Oxo-dG DNA lesions are formed by reaction with reactive oxygen species (ROS) generated either via normal oxidative metabolic processes, UV ionizing radiation, or 2-nitropropane (an industrial solvent and component of tobacco smoke) (1). 8-Oxo-dG can potentially mispair with A (leading to G-to-T transversions) (2). As a single-base lesion, 8-Oxo-dG is removed by the base excision repair (BER) mechanism and the native guanine base restored (3). In the cell, 8-Oxo-dG does not appear to be strongly mutagenic (4). **References**

1. Feig, D.I., Sowers, L.C., Loeb, L.A. Reverse chemical mutagenesis: Identification of the mutagenic lesions resulting from reactive oxygen species-mediated damage to DNA. *Proc. Natl. Acad. Sci. USA.* (1994), **91**: 6609-6613.
2. Neeley, W.L., Essigmann, J.M. Mechanisms of formation, genotoxicity, and mutation of guanine oxidation products. *Chem. Res. Toxicol.* (2006), **19**: 491-505.
3. Nilsen, H., Krokan, H.E. Base excision repair in a network of defence and tolerance.*Carcinogenesis* (2001), **22**: 987-998.
4. Kalam, M.A., Haraguchi, K., Chandani, S., Loechler, E.L., Moriya, M., Greenberg, M.M., Basu, A.K Genetic effects of oxidative DNA damages: comparative mutagenesis of the imidazole ring-opened formamidopyrimidines (Fapy lesions) and 8-oxo-purines in simian kidney cells. *Nucleic Acids Res.* (2006), **34**: 2305-2315.