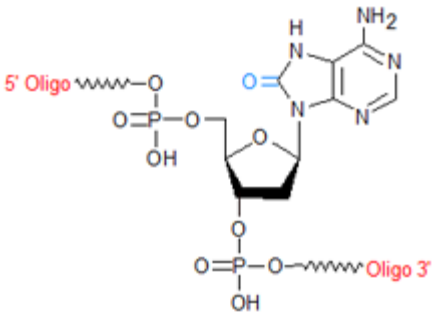
Oligo Modifications

8-oxo dA

Category	Structural Studies
Modification Code	8-Oxo-dA
Reference Catalog Number	26-6905
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	329.21



8-Oxo deoxyAdenosine
[26-6905-XX]

8-Oxo-deoxyadenosine (8-Oxo-dA) 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-dA 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-dA can potentially mispair with G, but this potential is fairly limited (2). As a single-base lesion, 8-Oxo-dA is removed by the base excision repair (BER) mechanism and the native guanine base restored (3). In the cell, 8-Oxo-dA 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. Shibutani, S., Bodepudi, V., Johnson, F., Grollman, A.P. Translesional Synthesis on DNA Templates Containing 8-Oxo-7,8-dihydrodeoxyadenosine. *Biochem.* (1993), **32**: 4615-4621.
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.