



Product Specifications

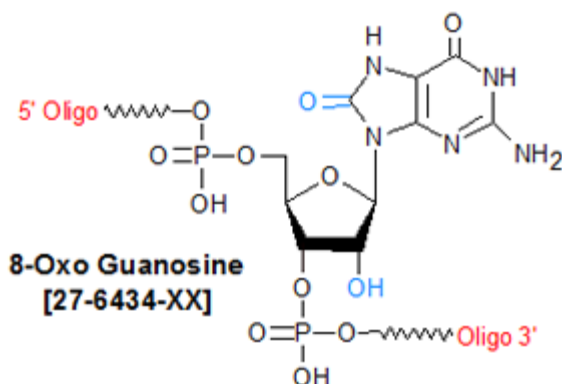
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2'-5' linked Oligos

Oligo Modifications

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

8-Oxo rG [8-Oxo-rG]

Category	Structural Studies
Modification Code	8-Oxo-rG
Reference Catalog Number	27-6434
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	361.21



8-Oxo-ribo-guanosine (8-Oxo-G) is classified as an oxidized ribonucleotide, and is primarily used in studies of oxidative RNA damage and associated RNA repair and RNA turnover mechanisms within the cell. In the cell, 8-Oxo-G RNA lesions are formed by reaction with reactive oxygen species (ROS) generated either via normal oxidative metabolic processes, UV ionizing radiation, or exposure to oxidative agents such as hydrogen peroxide, ethanol, ammonia and 2-nitropropane (an industrial solvent) (1,2). Oxidative RNA damage can lead to defects in protein synthesis, for example, decreased rates of protein synthesis and production of aggregated or truncated peptides (3,4), with important implications in aging and neurodegenerative disorders and atherosclerosis (5,6). Current understanding of cellular repair and turnover mechanisms for RNA 8-Oxo-G lesions is reviewed in reference 1. **References**

1. Wurtmann, E.J., Wolin, S.L. RNA under attack: Cellular handling of RNA damage. *Crit. Rev. Biochem. Mol. Biol.* (2009), **44**: 34-49.
2. Cadet J., Douki, T., Badouard, C., Favier, A., Ravanat-J.L. Oxidatively generated damage to cellular DNA: mechanistic aspects. *In: Oxidative Damage to Nucleic Acids (Evans, M.F., Cooke, M.S., ed.)*, Landes Bioscience; Austin, TX (2007), pp.1-13.
3. Shan, X., Chang, Y., Lin, C.G. Messenger RNA oxidation is an early event preceding cell death and causes reduced protein expression. *FASEB J.* (2007), **21**: 2753-2764.
4. Tanaka, M., Chock, P.B., Stadtman, E.R. Oxidized messenger RNA induces translation errors. *Proc. Natl. Acad. Sci. USA* (2007), **104**: 66-71.
5. Nunomura, A., Honda, K., Takeda, A., Hirai, K., Zhu, X., Smith, M.A., Perry, G. Oxidative Damage to RNA in neurodegenerative diseases. *J. Biomed. Biotechnol.* (2006), **2006**: 1-6.
6. Martinet, W., de Meyer, G.R.Y., Herman, A.G., Kockx, M.M. Reactive oxygen species induce RNA damage in human atherosclerosis. *Eur. J. Clin. Invest.* (2004), **34**: 323-327.