Product Specifications

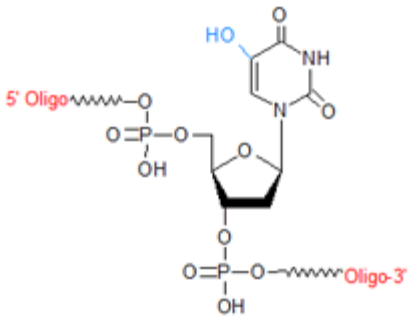
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2′-5′ linked Oligos

Oligo Modifications

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

5-OH dU

Category	Minor Bases
Modification Code	5-OH-dU
Reference Catalog Number	26-6695
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	306.17



5-hydroxy deoxyuridine (OH dU)
[26-6695-XX]

5-hydroxy deoxyuracil (5-OH-dU) is classified as an oxidized nucleotide, and is primarily used in studies of oxidative DNA damage and associated repair mechanisms. In the cell, 5-OH-dU DNA lesions are formed by spontaneous deamination of the lesion 5-OH-dC (itself formed by reaction with reactive oxygen species (ROS) generated either via normal oxidative metabolic processes or by UV ionizing radiation). 5-OH-dU can potentially mispair with A (leading to C-to-T transitions) (1). In fact, 5-OH-dU is now known to be the primary chemical precursor for such transitions in cellular DNA (2). As a single-base lesion, 5-OH-dU is removed by the base excision repair (BER) mechanism and the native cytosine base restored (3). However, the observation of 5-OH-dU in cellular DNA from liver, kidney and brain tissue at levels that remain relatively constant over time, suggests that the BER system is not completely effective at removing this lesion, and its presence in DNA may be a significant factor in both tumorigenesis and the aging process (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. Thiviyanathan, V., Somasunderam, A., Volk, D.E., Hazra, T.K., Mitra, S., Gorenstein, D.G. Base-pairing Properties of the Oxidized Cytosine Derivative, 5-Hyroxy Uracil. *Biochem. Biophys. Res. Commun.* (2008), **366**: 752-757.
3. Nilsen, H., Krokan, H.E. Base excision repair in a network of defence and tolerance.*Carcinogenesis* (2001), **22**: 987-998.
4. Wagner, J.R., Hu, C-C., Ames, B.N. Endogenous oxidative damage of deoxycytidine in DNA. *Proc. Natl. Acad. Sci. USA.* (1992), **89**: 3380-3384.