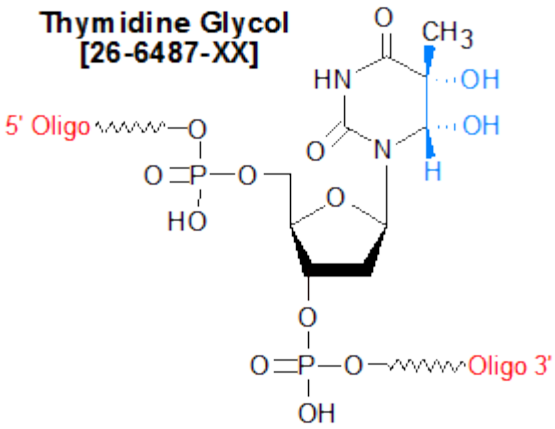
Oligo Modifications

Thymidine Glycol

Category	Minor Bases
Modification Code	Tg-Thy-Glycol
Reference Catalog Number	26-6487
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	338.21



Thymidine Glycol is classified as an oxidized nucleotide, and is primarily used in studies of oxidative DNA damage and associated repair mechanisms. In the cell, thymidine glycol DNA lesions are formed when the 5,6-double bond of thymidine is oxidized by oxidative metabolic processes, ionizing radiation, or industrial chemical oxidizers like potassium permanganate and osmium tetroxide. Although it does not appear to be mutagenic, it generates more structural distortion to the double helix than any other oxidatively-damaged base. Possibly as a result of this, thymidine glycol effectively blocks DNA polymerases, resulting in stalled replication forks, making it a potentially lethal lesion. However, despite the more extensive structural distortion, thymidine glycol lesions are most commonly repaired by the BER, rather than the NER mechanism (1,2).

References

1. Hatahet, Z., Wallace, S.S. Translesion DNA Synthesis. in *DNA damage and repair. Volume I* (1998), Humana Press: 231-232.

2. Nilsen, H., Krokan, H.E. Base excision repair in a network of defence and tolerance. *Carcinogenesis* (2001), **22**: 987-998.