Product Specifications

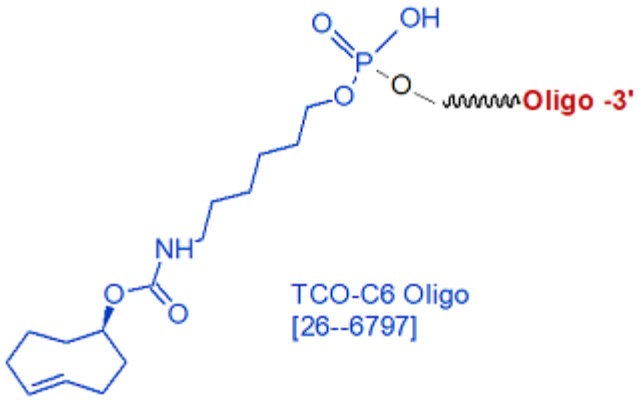
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2′-5′ linked Oligos

Oligo Modifications

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

TCO-C6- 5'

Category	Click Chemistry
Modification Code	TCO-C6
Reference Catalog Number	26-6797
5 Prime	Y
3 Prime	N
Internal	N
Molecular Weight(mw)	469.6



Click here for a complete list of Click Chemistry Oligo Modifications

TCO-C6 (trans-cyclooctene) is incorporated at the 5' end of oligo using automated chemistry. Other TCO offered are post synthesis NHS ester to introduce an active TCO group to an amino-modified oligonucleotide. The ability to incorporate directly without NHS chemistry enables the incorporation of other ligands in the same oligo using NHS chemistry. Introduction can be done at either the 5'- or 3'-end, or internally. To do this, the oligo first must be synthesized with a primary amino functional group modification, e.g Amino C3, C6 or C12 for the 5' end or amino C3, C6 or C7 for the 3' end for the ends) or the amino C6 version of the base phosphoramidite (for internal labeling). The TCO NHS ester is then manually attached to the oligo through the amino group in a separate reaction post-synthesis. The presence of the TCO allows the user to use "Click Chemistry" (a [3+2] cycloaddition reaction between alkynes and azides, using copper (I) iodide as a catalyst) to conjugate the azide-modified oligo to a terminal alkyne-modified oligo with extremely high regioselectivity and efficiency (1,2). Preparation of the alkyne-modified oligo can be achieved using the 5'-Hexynyl modifier (see its respective tech sheet for details). Click chemistry can be used to form short, cyclic oligos that can be used as research tools in various biophysical and biological studies (3). In particular, they have considerable potential for in vivo work, as cyclic oligos are known to be very stable in serum for up to several days.

References

1. Huisgen, R. *Angew. Chem. Int. Ed.* (1963), **2**: 565-568.
2. Rostovtsev, V.V., Green, L.G., Fokin, V.V., Sharpless, K.B. A Stepwise Huisgen Cycloaddition Process: Copper(I)-Catalyzed Regioselective Ligation of Azides and Terminal Alkynes. *Angew. Chem. Int. Ed.* (2002), **41**: 2596-2599.
3. Kumar, R., El-Sagheer, A., Tumpane, J., Lincoln, P., Wilhelmsson, L.M., Brown, T. Template-Directed Oligonucleotide Strand Ligation, Covalent Intramolecular DNA Circularization and Catenation Using Click Chemistry. *J. Am. Chem. Soc.* (2007), **129**: 6859-6864.