Product Specifications

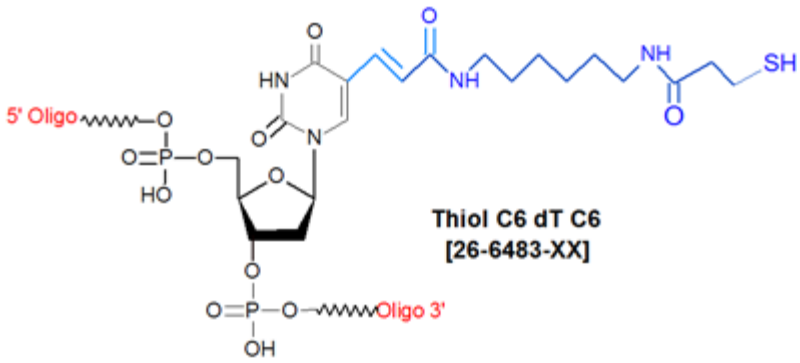
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2′-5′ linked Oligos

Oligo Modifications

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

Thiol C6 dT

Category	Others
Modification Code	S-C6-dT
Reference Catalog Number	26-6483
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	546.53



Thiol-C6 dT is a thiol modifier designed to functionalize an oligonucleotide at an internal T position for conjugation to the desired solid support e.g gold. The resulting thiol group is separated from the oligo by a six-carbon spacer arm, to reduce steric interactions with the end of the oligo.

Thiolated oligonucleotides can be labeled with thiol-reactive dye / happen iodoacetamides or maleimides (for example, lucifer yellow iodoacetamide or fluorescein maleimide) for use as hybridization or PCR-based detection probes (1). They also can be conjugated to enzymes (for example, alkaline phosphatase or horseradish peroxidase), through bifunctional linkers (2). Finally, thiolated oligos can be attached to glass slides or gold surfaces for use in various microarray or nanoelectronic applications (3,4). However, because oligos labeled with only one thiol slowly dissociate from a gold surface at the temperatures (60C to 90C) and high salt concentrations commonly used to denature DNA duplexes (5), Gene Link recommends that researchers who plan to use such conditions to repeatedly strip and re-probe oligo arrays based on thiol-gold surface conjugation modify the oligos with DTPA, which incorporates two thiol groups into the oligo, thereby allowing for a more stable attachment to gold. For further information on DTPA, please see its technical sheet.

References

1. Connolly, B.A., Rider, P. Chemical synthesis of oligonucleotides containing a free sulphydryl group and subsequent attachment of thiol specfic probes. *Nucleic Acids Res.* (1985), **13**: 4485-4502.
2. Ghosh, S.S, Kao, P.M., McCue, A.W., Chappelle, H.L. Use of maleimide-thiol coupling chemistry for efficient syntheses of oligonuclotide-enzyme conjugate hybridization probes. *Bioconjugate Chem.* (1990), **1**: 71-76.
3. Roger, Y-H., Jiang-Baucom, P., Huang, Z-J., Bogdanov, V., Anderson, S., Boyce-Jacino, M.T. Immobilization of oligonucleotides onto a glass support via disulfide bonds: A method for preparation of DNA microarrays. *Anal. Biohem.* (1999), **266**: 23-30.
4. Ackerson, C.J., Sykes, M.T., Kornberg, R.D. Defined DNA/nanoparticle conjugates. *Proc. Natl. Acad. Sci. USA* (2005), **102**: 13383-13385.
5. Li, Z., Jin, R., Mirkin, C.A., Letsinger, R.L. Multiple thiol-anchor capped DNA-gold nanoparticle conjugates *Nucleic Acids Res.*

(2002), **30**: 1558-1562.