Product Specifications

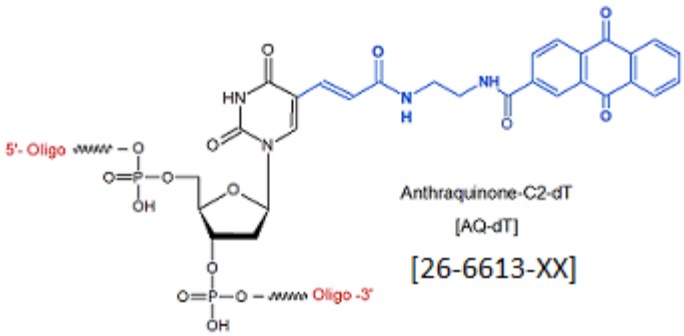
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2′-5′ linked Oligos

Oligo Modifications

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

Anthraquinone-C2-dT

Category	Redox Electrochemical
Modification Code	AQ-dT
Reference Catalog Number	26-6613
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	1077



Anthraquinone-modified oligonucleotides have proven to be versatile tools in stabilization of duplex DNA by intercalation (1),electrochemical detection of single-base mismatches (SNPs)(2),and as photoexcitable probes for the study of DNA hole transport(3). Charge-transfer phenomena in DNA either through oxidativeor reductive pathways have received considerable attention in recent years due to their importance in biological environments such protein-DNA complexes, DNA damage, mutations and cancer (4). Anthraquinones can be incorporated into oligonucleotides by using Anthraquinone-C2-dT during oligo synthesis.The anthraquinone moiety is useful for applications such as intercalation, duplex and triplex stabilization, photochemical immobilization, quenching of fluorescence, electrochemical detection, and charge transport through nucleic acids.

Anthraquinone derivatives as electron-acceptors Anthraquinone-C2-dT CEP features an electronically insulating tether that places the anthraquinone at a significant distance from the oligonucleotide. Dialkoxy derivatives of anthraquinone (AQ), dicyano-anthraquinone (DCAQ) and tetracyanoanthraquinone (TCAQ). displayed quasireversible, two sequential one-electron transfer redox reactions. DFT calculations of DCAQ and TCAQ demonstrate structural changes upon reduction, which is supported by spectroelectrochemical experiments. References H. Ihmels and D. Otto,Top. Curr. Chem., 2005,258, 161-204. Mikkel F. Jacobsen, Elena E. Ferapontova and Kurt V. Gothelf. Org. Biomol. Chem., 2009, 905-908. A. Okamoto, T. Kamei and I. Saito,J. Am. Chem. Soc., 2006,128,658-662. Review: H.-A. Wagenknecht,Nat. Prod. Rep., 2006,23, 973-1006 and references therein. Charge-transfer in DNA: From mechanism to Application, ed. H.-A.Wagenknecht, Wiley-VCH, Weinheim, 2005.5 E. Mayer-Enthart and H.-A. Wagenknecht,Ange. Ward, D.C., Reich, E., Stryer, L. Journal of Biological Chemistry, 1969, 244, 1228-1237. Murschell, A.E., Kan, W.H., Thangaduraia, V. and Sutherland, T.C. Phys. Chem. Chem. Phys., 2012,14, 4626-4634.