Product Specifications

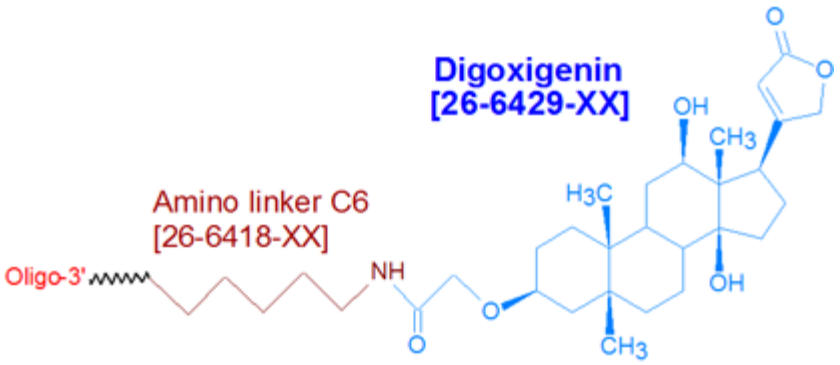
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2′-5′ linked Oligos

Oligo Modifications

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

Digoxigenin NHS

Category	Affinity Ligands
Modification Code	Dig-N
Reference Catalog Number	26-6429
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	561.3



This modification is a post synthesis conjugation to a primary amino group thus an additional modification with an amino group is required. A C3, C6 or C12 amino group can be placed at the 5' or for the 3' end a C3 or C7 amino and for internal positions an amino modified base is used, e.g Amino dT C6.

Yield of Post Synthesis NHS, Maleimide & Click Ligand Conjugation* Oligo Scale of Synthesis Yield, nmols 50 nmol 2 nmol 200 nmol 5 nmol 1 umol 16 nmol 2 umol 30 nmol 5 umol 75 nmol 10 umol 150 nmol 15 umol 225 nmol * The yield will be lower for oligos longer than 50mer. Click here for yield table of long oligos. * Click here for RNA Oligos scale of synthesis and yield. **NHS Ligand conjugation** requires a primary amino group. Gene Link offers a wide selection of amino modifications for 5', 3' and internal sites.

Click here for a list of conjugation chemistry modifications. **Maleimide Ligand conjugation** requires a thiol group. Gene Link offers a wide selection of thiol modifications for 5', 3' and internal sites.

Click here for a list of conjugation chemistry modifications.

Click Chemistry Ligand conjugation requires a corresponding Click modification; examples Alkyne:Azide, Azide:DBCO, BCN:Azide,
BCN:Tetrazine and TCO:Tetrazine. Gene Link offers a wide selection of click modifications for 5', 3' and internal sites. Click here for a list of click chemistry modifications.

Digoxigenin (as Digoxigenin-3-O-methylcarbonyl-epsilon-aminocaproic acid NHS ester) is a member of the steroid family found in Digitalis plants (1). It is a hapten, that is, a small molecule having high immunogenicity. Because antibodies raised against haptens have considerably higher affinities for them than other antibodies do for their targets makes haptens particularly desirable as affinity tags for oligonucleotides (2).

Digoxigenin ('Dig') is commonly used to label oligonucleotides probes for use in hybridization applications, for example, in situ hybridization (3), Northern and Southern blotting. After hybridization to their targets, these Dig-labeled probes are detected with anti-Dig antibodies that are labeled with dyes (for primary detection) or enzymes (for secondary detection using a fluorogenic, chemiluminogenic, or colorimetric substrate specific for the enzyme).
There is no limit to the Digoxigenin sites we can incorporate in an oligo to maximize signal. Gene Link recommends modifying the oligonucleotide probe with Dig molecules spaced about 10 bases apart to minimize steric hindrance.
Note that since digoxigenin is in the form of an NHS ester, an active primary amino group (such as Amino Linker C6) must first be incorporated into the oligonucleotide, to allow for subsequent conjugation to the digoxigenin NHS ester. **References**
1. Polya, G. *Biochemical targets of plant bioactive compounds.* New York: CRC Press, 2003. p 847.
2. Shreder, K. Synthetic Haptens as Probes of Antibody Response and Immunorecognition. *Methods (Academic Press)* (2000), **20**: 372-379.
3. Hauptmann, G., Gerster, T.. Two-color whole-mount in situ hybridixation to vertebrate and Drosophila embryos.*Trends Genet.* (1994), **10**: 266.