Product Specifications

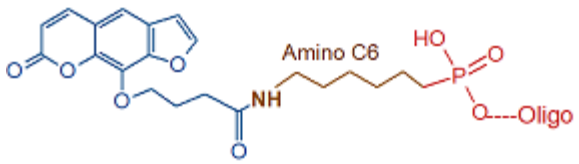
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2′-5′ linked Oligos

Oligo Modifications

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

Psoralen C6-NHS

Category	Intercalators
Modification Code	Pso-C6-N
Reference Catalog Number	26-6686N
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	420.4



Psoralen NHS
[26-6686N-XX]

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.

Psoralen is a heterocyclic compound capable of intercalating between bases, and cross-link bases, in both double-stranded and triple-stranded DNA. It is attached to a C6 linker in order to facilitate a psoralen-modified oligonucleotide's ability to intercalate and cross-link with triple-stranded DNA. Psoralen is typically used as a ss/ds DNA intercalating or cross-linking reagent, for the purpose of probing nucleic acid secondary structure (1). Upon exposure to long wavelength UV light (350 nm), psoralen forms covalent cyclobutane linkages to thymidine. Psoralen can form two different types of adducts with thymidine. The first is a monoadduct, in which the psoralen moiety binds to one adjacent thymidine on the same or complimentary strand. The second is a diadduct, in which psoralen binds to two thymidines adjacent to it, either on the same or complimentary strand (2). Diadducts formed between adjacent thymidines are photo-reversable with short wavelength UV light (254 nm). In addition to cross-linking duplex DNA, Psoralen-C6 homopyrimidine oligos can be used to bind to a complementary homopurine-homopyrimidine duplex, to form a triple-helix that can then be cross-linked together at the triplex-duplex junction point (3). Psoralen-modified oligonucleotides are widely used as research tools; representative examples of such use are shown in these references (4,5). **References**

1. Cimino, G.D., Gamper, H.B., Isaacs, S.T., Hearst, J.E. Psoralens as Photoactive Probes of Nucleic Acid Structure and Function: Organic Chemistry, Photochemistry, and Biochemistry. *Ann. Rev. Biochem.* (1985), **54**: 1151-1193.
2. Pieles, U., Englisch, U. Psoralen covalently linked to oligodeoxyribonucleotides: synthesis, sequence specific recognition of DNA and photo-cross-linking to pyrimidine residues of DNA. *Nucleic Acids Res.* (1989), **17**: 285-299.
3. Takasugi, M., Guendouz, A., Chassignol, M., Decout, J.L., Lhomme, J., Thuong, N.T., Helene, C. Sequence-specific photo-induced cross-linking of the two strands of double-helical DNA by a psoralen covalently linked to a triple-helix-forming oligonucleotide.*Proc. Natl. Acad. Sci. USA* (1991), **88**: 5602-5606.
4. Barre, F-X., Ait-Si-Ali, S., Giovannangeli, C., Luis, R., et al. Unambiguous demonstration of triple-helix-directed gene modification. *Proc. Natl. Acad. Sci. USA* (2000), **97**: 3084-3088.
5. Wang, X., Peterson, C.A., Zheng, H., Nairn, R.S., Legerski, R.J., Lei, L. Involvement of Nucleotide Excision Repair in a Recombination-Independent and Error-Prone Pathway of DNA Interstrand Cross-Link Repair.*Mol. Cell. Biol.* (2001), **21**: 713-720.