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.

IRDye 650LT-N

Category	Fluorescent Dyes
Modification Code	IRD650LT-N
Reference Catalog Number	26-6646
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	905

Click here for a list of fluorophores.

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: 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.

IR650LT-N is a near-IR fluorescent dye used for labeling oligonucleotides. IR650LT-N has an absorbance maximum of 672 nm and an emission maximum of 695 nm. The combination of narrow absorbance/emission bands and low-background autofluorescence in the IR region results in higher S/N ratios and thus enhanced detection sensitivity compared with fluorophores with absorbance/emission maxima in the visible region (1). IRDye700 is used as a reporter moiety in real-time PCR applications. For such probes, IRDye700 is most commonly paired with the dark quencher BBQ-650, as the two have excellent spectral overlap (2).

IRDye650LT can be used to label DNA oligos for use as hybridization probes in a variety of in vivo and in vitro research or diagnostic applications, as well as for structure-function studies of DNA, RNA, and protein-oligonucleotide complexes. Oligos labeled with IRDye650LT at the 5'-end can be used as PCR and Sanger DNA sequencing primers to generate fluorescently-labeled PCR, sequencing or genetic analysis (AFLP, microsatellite) products (3-5).

Near Infrared Fluorophore Spectral Data & Quencher Selection Guide

Fluorophore Name

Absorbance Max, nm +/-10

Emission Max, nm +/-10

Extinction Coefficient*

Color**

Quencher

Cy5 650 665 250,000

IRDye 650 NHS 650 665 230,000

AZ647 NHS 655 680 191,800

AZ680 NHS 678 701 185,000

Cy5.5 684 710 198,000

IRDye 700 NHS 684 710 288,000

AZdye700 NHS 696 719 192,000

Atto 700 NHS 700 716 120,000

Atto 725 NHS 728 751 120,000

Atto 740 NHS 743 763 120,000

Cy7 NHS 740 773 199,000

IRDye 750 NHS 756 776 260,000

cy7.5 NHS 788 808 223,000

IRDye 800 NHS 795 819 240,000

*** Extinction coefficient at λ (max) in cm-1M-1. ** Typical emission color seen through the eyepiece of a conventional fluorescence microscope with appropriate filters. Near-IR region. Human vision is insensitive to light beyond ~650 nm; it is not possible to view near-IR fluorescent dyes.**

Click here for a list of fluorophores.

Click here for list of quenchers.

References

1. Middendorf, L.R., Bruce, J.C., Eckles, R.D., Grone, D.L., Roemer, S.C., Sloniker, G.D., Steffens, D.L., Sutter, S.L., Brumbaugh, J.A., et al. Continuous, on-line DNA sequencing using a versatile infrared laser scanner/electrophoresis apparatus. *Electrophoresis* (1992), 13: 487-494.

2. Peng X., Chen, H., Draney, D.R., Volcheck, W., Schutz-Geschwender, A., Olive, D.M. A nonfluorescent, broad-range quencher dye for Forster resonance energy transfer assays. *Anal. Biochem.* (2009), 388: 220-228.

3. Yomano, L.P., Scopes, R.K., Ingram, L.O. Cloning, sequencing, and expression of the Zymomonas mobilis phosphoglycerate mutase gene (pgm) in Escherichia coli. *J. Bacteriol.* (1993), 175: 3926-3933.

4. Oetting, W.S., Lee, H.K., Flanders, D.J., Wiesner, T.A., King, R.A. Linkage Analysis with Multiplexed Short Tandem Repeat Polymorphisms Using Infrared Fluorescence and M13 Tailed Primers. *Genomics* (1995), 30: 450-458.

5. Myburg, A.A., Remington, D.L, O'Malley, D.M., Sederoff, R.R., Whetton, R.W. High-Throughput AFLP Analysis Using Infrared Dye-Labeled Primers and an Automated DNA Sequencer. *Biotechniques* (2001), 30: 348-357.