



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.

AFDye 647

Category	Fluorescent Dyes
Modification Code	AF647
Reference Catalog Number	26-6479
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	970.1

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** NHS based modifications are post synthesis conjugation performed using a primary amino group. The yield is lower as compared to direct automated coupling of modifications that are available as amidites. Approximate yield for various scales are given below.

~2 nmol final yield for 50 nmol scale synthesis.

~5 nmol final yield for 200 nmol scale synthesis.

~16 nmol final yield for 1 umol scale synthesis

Human vision is insensitive to light beyond ~650 nm; it is not possible to view near-IR fluorescent dyes.

AF Dyes are a set of fluorescent dyes that span the visible electromagnetic spectrum, as well as some of the near-IR. The absorbance range is 346-749 nm, and the emission range is 442-775 nm. Generally speaking, AF dyes are brighter, chemically more stable, and less pH-sensitive than other fluorescent dyes commonly used to label oligonucleotides (1). Because they currently only are in the form of NHS esters, oligos first must be synthesized with an Amino Linker modification (either at the ends or internally). The appropriate AF Dye is then manually attached to the oligo through the amino group in a separate reaction post-synthesis. The list of currently available dyes includes AF Dye 350, -405, -430, -488, -500, -514, -532, -546, -555, -568, -594, -610, -633, -647, -660, -680, -700, -750, with the number indicating the appropriate absorbance wavelength for the particular dye. AF Dyes are suitable for a variety of in vitro and in vivo applications. However, for in vivo experiments, users should note that dyes 350/405, being "blue" dyes, require higher-energy excitations than the other. Users of these particular dyes should confirm that the higher-energy required for excitation does not damage the relevant cells or tissues being used in the in vivo experiments.

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References

1. Panchuk-Voloshina, N., Haugland, R.P., Bishop-Stewart, J., Bhalgat, M.K., Millard, P.J., Mao, F., Leung, W-Y., Haugland, R.P. Alexa Dyes, a Series of New Fluorescent Dyes that Yield Exceptionally Bright, Photostable Conjugates. *J. Histochem. Cytochem.* (1999), **47**: 1179-1188.