



Product Specifications

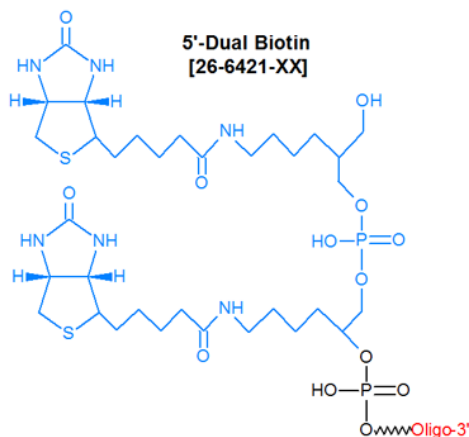
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2'-5' linked Oligos

Oligo Modifications

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

Biotin Multi

Category	Affinity Ligands
Modification Code	Bio-Multi
Reference Catalog Number	26-6421
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	435.48



"Biotin multi" modification specifically can be used to add multiple biotin moieties at the 5'- or 3'-end of an oligo. The most common use of this modification is to incorporate two biotin molecules in sequence (separated by a six-carbon linker) at the 5'-end of an oligo. This "Dual Biotin" has higher binding affinity for streptavidin than that of a single biotin. The additional binding strength can be critical for applications requiring the use of biotinylated DNA attached to streptavidin-coated beads at higher temperature (for example, in PCR). Dual Biotin is known to prevent or effectively reduce loss of biotinylated DNA from such beads during heating (1). Dual biotin also is used to label the linker primers in Serial Analysis of Gene Expression (SAGE) protocols (2).

For direct biotin-labeling of target RNA transcripts for microarray analysis, a special 3'-biotinylated donor nucleotide molecule containing three biotin molecules in sequence was synthesized and then ligated to the target RNA using T4 RNA ligase. The attachment of three biotins to RNA in this manner resulted in a 30% increase in target signal intensity and improved transcript detection sensitivity (3). **References**

1. Dressman, D., Yan, H., Traverso, G., Kinzler, K.W., Vogelstein, B. Transforming single DNA molecules into fluorescent magnetic particles for detection and enumeration of genetic variations. *Proc. Natl. Acad. Sci. USA.* (2003), **100**: 8817-8822.
2. Roh, T-Y., Zhao, K. High-resolution, Genome-Wide Mapping of Chromatin Modifications by GMAT. *Methods Mol. Biol.* (2007), **387**: 95-108.
3. Cole, K., Truong, V., Barone, D., McGall, G. Direct labeling of RNA with multiple biotins allows sensitive expression profiling of acute leukemia class predictor genes. *Nucleic Acids Res.* (2004), **32(11)**: e86.