



Product Specifications

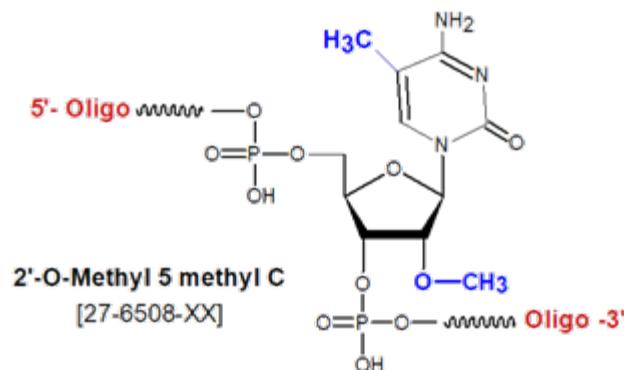
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA): 2'-5' linked Oligos

Oligo Modifications

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

2'-O Me-5-Me-C

Category	Structural Studies
Modification Code	m5mC
Reference Catalog Number	27-6508
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	333.24



Antisense Oligos (ODN) & siRNA Oligo Modifications

[Click here for more information on antisense modifications, design & applications.](#)

2'-OMethyl-5-methyl cytosine (2'-OMe-5-Me-C) is an RNA monomer that pairs with G, and when substituted for C in an oligonucleotide, both increases the stability of the resulting duplex relative to the comparable unmodified form, and confers nuclease resistance at that position(1). This "double-methylated"-modified cytosine thus is an excellent choice for incorporation into anti-sense oligos, where both properties are particularly desirable. Furthermore, because anti-sense oligonucleotides containing a CpG motif are known to induce pro-inflammatory responses after *in vivo* administration to animals, including human, via activation of Toll-like receptor 9 (TLR9), substitution of 2'-OMe-5-Me-dC for C in these motifs can prevent or sharply reduce these undesirable immune responses (2,3).

can prevent or sharply reduce these undesirable immune responses. Modifications Increasing Duplex Stability and Nuclease Resistance

Modification

Duplex Stability [Tm Increase]

Nuclease Resistance Locked Analog Bases Increased [2-4C per substitution] Increased 2-Amino-dA Increased [3.0C per substitution] Similar to DNA C-5 propynyl-C Increased [2.8C per substitution] Increased C-5 propynyl-U Increased [1.7C per substitution] Increased 2'-Fluoro Increased [1.8C per substitution] Increased 5-Methyl-dC Increased [1.3C per substitution] Similar to DNA 2'-O Methyl Increased Increased Phosphorothioate Slightly decreased Increased

asp?mod_sp_cat_id=19 >Click here for complete list of duplex stability modifications **References**

1. Bundock, P.; de Both, M.T.J.; Hogers, R.C.J. 2006. Alternative nucleotides for improved targeted nucleotide exchange. Patent No. 2007073149, filed Dec 22. 2005, issued June 28, 2007.
2. Henry, S.P.; Stecker, K.; Brooks, D.; Monteith, D.; Conklin, B.; Bennett, C.F. Chemically modified oligonucleotides exhibit decreased immune stimulation in mice. *J. Pharmacol. Exp. Ther.* (2000), **292**: 468-479.
3. Yu, D.; Wang, D.; Zhu, F.-G.; Bhagat, L.; Dai, M.; Kandimalia, E.R.; Agrawal, S. Modifications Incorporated in CpG Motifs of Oligodeoxynucleotides Lead to Antagonist Activity of Toll-like Receptors 7 and 9. *J. Med. Chem.* (2009), **52**: 5108-5114.