Product Specifications

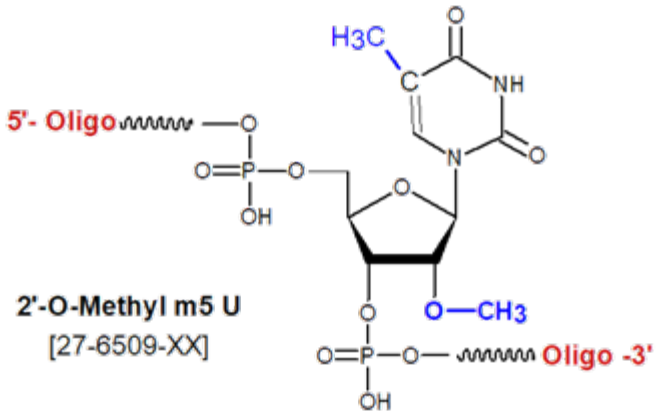
Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2′-5′ linked Oligos

Oligo Modifications

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

2'-O Me-5-Me-U

Category	Structural Studies
Modification Code	m5mU
Reference Catalog Number	27-6509
5 Prime	Y
3 Prime	Y
Internal	Y
Molecular Weight(mw)	334.22



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).
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.