2'-O methyl A

Category
Modification Code mA
Reference Catalog Number 27-6410A
5 Prime Y
3 Prime Y
Internal Y
Molecular Weight(mw) 343.24

2'-O-Methyl adenosine A is classified as a 2'-O-Methyl RNA monomer. 2'-O-Methyl nucleotides are most commonly used to confer nuclease resistance to an oligo designed for anti-sense, siRNA or aptamer-based research, diagnostic or therapeutic purposes, when specific 2'-OH is not required. Nuclease resistance can be further enhanced by phosphorothiolation of appropriate internucleotide linkages within the oligo.

The hydrogen bonding behavior of a 2'-O-Methyl RNA/RNA base pair is closer to that of an RNA/RNA base pair than a DNA/RNA base pair. Consequently, the presence of 2'-O-Methyl nucleotides improves duplex stability. Indeed, incorporation of a 2'-O-Methyl nucleotide into an anti-sense oligo (resulting in a 2'-O-Methyl RNA/DNA chimeric), lead to an increase in the Tm of its duplex with RNA, relative to that formed by an unmodified anti-sense DNA oligo, of 1.3°C per 2'-O-Methyl RNA residue added (2). Moreover, from a synthesis standpoint, the coupling efficiency of 2'-O-Methyl phosphoramidites are higher than those of RNA monomers, resulting in higher yield of full-length oligos. References 1. Cotton, M.; Oberhauser, B.; Burnar, H. et al. 2'O methyl and 2'O ethyl oligoribonucleotides as inhibitors of the in vitro U7 snRNP-dependent messenger-RNA processing event. Nucleic Acids Res. (1991), 19:2629-2635.