2'-O methyl U

Category: Nuclease Resistance
Modification Code: mU
Reference Catalog Number: 27-6410U

5 Prime: Y
3 Prime: Y
Internal: Y

Molecular Weight (mw): 320.2

2'-O-Methyl uracil U 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 oligos.

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: