

## 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.

## N6-Benzyl Adenosine (bn6A)

Category	RNA Oligo Synthesi	s NH
Modification Code	bn6A	5' Oligonam-O
Reference Catalog Number	27-6604	0=P-00.   N N
5 Prime	Υ	ОН
3 Prime	Υ	он Он
Internal	Υ	O≕P—O—∕⁄⁄⁄⁄ Oligo 3' OH
Molecular Weight(mw)	437.34	N6-Benzyl Adenosine (bn6A) [27-6604-XX]

N6-methyl-riboadenosine (N6-methyl rA; m6A) is a common, fairly abundant RNA modification found in the mRNA of most eukaryotes (1,2); it has also been observed in tRNA, rRNA snRNA and in long non-coding RNA (3). While the biological importance of this modification remains poorly understood, results from a number of research studies suggest that regulation of m6A levels in mRNA may have significant effects on subsequent gene expression. The modification mainly appears in exons, 3'-UTRs and near stop codons. Within 3'-UTRs, N6-methyl-rA is associated with miRNA binding sites (4). The modification itself is catalyzed by a N6-methyl-rA methyltransferase complex that contains the METTL3 subunit (5). Silencing this methyltransferase dramatically affects N6-methyl-A cellular levels, gene expression and alternative RNA splicing patterns (6). The FTO and ALKBH5 genes, implicated in obesity risk, encode two different N6-methyl-rA demethylases; silencing of FTO with siRNA results in increased levels of N6-methyl-rA in poly(A) RNA (6), while FTO overexpression results in decreased levels (4). Moreover, modulation of the activities of these three enzymes can alter the expression of thousands of genes at the cellular level. This suggests that N6-methyl-rA plays an important role in RNA metabolism and as an epigenetic marker (7). **References** 

- 1. Tuck, M.T. The formation of internal 6-methyladenine residues in eucaryotic messenger RNA. *Int. J. Biochem.* (1992), **24**: 379-386.
- 2. Jia, G., Fu, Y., He, G. Reversible RNA adenosine methylation in biological regulation. *Trends Genet.* (2013), **29**: 108-115. 3. Pan, T. N6-methyl-adenosine modification in messenger and long non-coding RNA. *Trends Biochem. Sci.* (2013), **38**: 204-209.
- 4. Meyer, K.D., Saletore, Y., Zumbo, P., Elemento, O. Mason, C.E., Jaffrey, S.R. Comprehensive Analysis of mRNA Methylation Reveals Enrichment in 3' UTRs and near Stop Codons. *Cell* (2012), **149**: 1635-1646.
- 5. Bokar, J.A., Shambaugh, M.E., Polayes, D., Matera, A.G., Rottman, F.M. High-Purification and cDNA cloning of the AdoMet-binding subunit of the human mRNA (N6-adenosine)-methyltransferase. *RNA* (1997), **3**: 1233-1247.
- 6. Dominissini, D., Moshitch-Moshkovitz, S., Schwartz, S., Salmon-Divon, M., Ungar, L., Osenberg, S., Cesarkas, K., Jacob-Hirsch, J., Amariglio, N., Kupiec, M., Sorek, R., Rechavi, G. Topology of the human and mouse m6A RNA methylomes revealed by m6A-seq.



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Nature (2112), 485: 201-206.

7. Niu, Y., Zhao, X., Wu, Y.S., Li, M.M., Wang, X.J., Yang, Y.G. N6-methyl-adenosine (m6A) in RNA: an old modification with a novel epigenetic function. *Genom. Proteom. Bioinform.* (2013), **11**: 8-17.

