

Base Modified Nucleosides and Nucleotides for Epigenetic Research

It has recently come to light that some bases and riboses in RNA sequences undergo chemical modifications such as methylation after transcription. Most of them are found on tRNAs and are known to affect tRNA stability and translation efficiency.¹⁾ The effects of changes in these modifications on the regulation of gene expression and biological phenomena are drawing attention.²⁾ The research field known as "Epitranscriptomics" has created a major trend in the life sciences as a new regulatory mechanism of gene expression at the post-transcriptional stage.³⁾ Recently, diseases caused by defective RNA modifications and modified RNA expression specific to cancer patients have been reported.⁴⁾

These base modified nucleoside triphosphates for transcription have passed DNase and RNase contamination tests and a function test in vitro transcription (IVT). TCI also offers other nucleoside triphosphates and related compounds as well as scale-up manufacturing services. Please feel free to contact us.

Base Modified Nucleoside Triphosphates for Transcription

5-Methylcytidine-5'-triphosphate Sodium Salt (ca. 100mM in Water)	0.01mL / 0.25mL	[M3583]
5-Methyluridine-5'-triphosphate Sodium Salt (ca. 100mM in Water)	0.01mL / 0.25mL	[M3582]
5-Methoxyuridine-5'-triphosphate Sodium Salt (ca. 85mM in Water)	0.01mL / 0.25mL	[M3584]
Pseudouridine 5'-Triphosphate Sodium Salt (ca. 100mM in Water)	0.01mL / 0.25mL	[P3045]
N¹-Methylpseudouridine 5'-Triphosphate Sodium Salt (ca. 100mM in Water)	0.01mL / 0.25mL	[M3544]

Base Modified Pyrimidine Nucleosides

N⁴-Acetylcytidine	5g / 25g	[A3535]
2'-Deoxy-5-methylcytidine	100mg / 500mg / 5g	[D3610]
5-Methylcytidine	1g	[M1931]
2'-Deoxy-5-(hydroxymethyl)cytidine	50mg / 200mg	[D4220]
5-(Hydroxymethyl)cytidine	50mg / 200mg	[H1863]
5-Aza-2'-deoxycytidine	20mg / 100mg	[A2232]
5-Azacytidine	100mg / 1g	[A2033]
2'-Deoxy-5-(hydroxymethyl)uridine	50mg / 200mg	[D6190]
5-(Hydroxymethyl)uridine	50mg / 200mg	[H1866]
5-Methyluridine	1g / 5g / 25g	[M1405]
2'-Deoxy-4-thiouridine	100mg	[D6061]
2'-Deoxy-2'-fluoro-4-thiouridine	25mg / 100mg	[D6030]
2-Thiouridine	100mg	[T4108]
4-Thiouridine	25mg / 100mg	[T4059]
Pseudouridine	25g	[P2936]
Pseudouridine (Synthetic)	100mg	[P2939]
1-Methylpseudouridine	100mg / 1g	[M3387]
6-Azauridine	10mg	[A0559]

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Base Modified Purine Nucleosides

2-Aminoadenosine	5g / 25g [A2135]
8-Oxoadenosine	200mg / 1g [O0401]
7-Methylguanosine	200mg / 1g [M3465]
N,N-Dimethylguanosine	25mg [D6076]
2'-Deoxyinosine	1g / 5g [D3584]
Inosine	25g / 500g [I0037]
Xanthosine Dihydrate	100mg [X0008]

2'-O-Methylribonucleosides

2'-O-Methyladenosine	1g [M2291]
2'-O-Methylguanosine Hydrate	200mg / 1g [M2318]
2'-O-Methylcytidine	200mg / 1g [M2317]
2'-O-Methyluridine	1g / 5g [M2290]

- References**
- 1) tRNA Stabilization by Modified Nucleotides
Y. Motorin, M. Helm, *Biochemistry* **2010**, *49*, 4934. <https://doi.org/10.1021/bi100408z>
 - 2) Dynamic RNA modifications in gene expression regulation
I. A. Roundtree, M. E. Evans, T. Pan, C. He, *Cell* **2017**, *169*, 1187. <https://doi.org/10.1016/j.cell.2017.05.045>
 - 3) Chemical Modifications to RNA: A New Layer of Gene Expression Regulation
J. Song, C. Yi, *ACS Chem. Biol.* **2017**, *12*, 316. <https://doi.org/10.1021/acscchembio.6b00960>
 - 4) The expanding world of tRNA modifications and their disease relevance
T. Suzuki, *Nat. Rev. Mol. Cell Biol.* **2021**, *22*, 375. <https://doi.org/10.1038/s41580-021-00342-0>

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TCI Deutschland GmbH

Tel : +49 (0)6196 64053-00
Fax : +49 (0)6196 64053-01
E-mail : Sales-DE@TCIchemicals.com

Tokyo Chemical Industry UK Ltd.

Tel : +44 (0)1865 78 45 60
E-mail : Sales-UK@TCIchemicals.com

梯希爱(上海)化成工业发展有限公司

Tel : 800-988-0390 / 021-67121386
Fax : 021-6712-1385
E-mail : Sales-CN@TCIchemicals.com

Tokyo Chemical Industry (India) Pvt. Ltd.

Tel : 1800 425 7889 / 044-2262 0909
E-mail : Sales-IN@TCIchemicals.com

TOKYO CHEMICAL INDUSTRY CO., LTD.

Tel : +81 (0)3-5640-8878
E-mail : globalbusiness@TCIchemicals.com

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