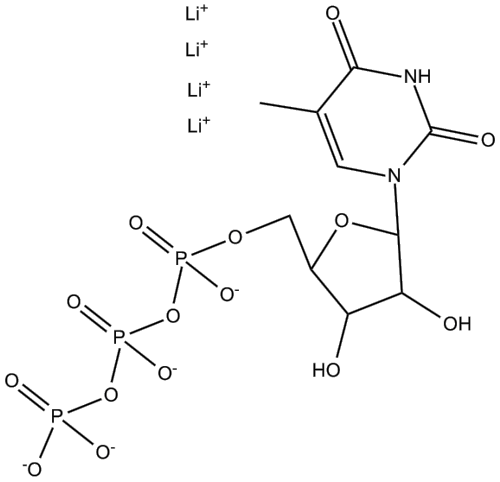
Product Data Sheet

Product Name: 5-Methyl-UTP
Cat. No.: GB20117

Chemical Properties

Cas. No.			
Formula	$C_{10}H_{17}N_2O_{15}P_3$ (free acid)	M.Wt	498.2 (free acid)
Solubility		Storage	Store at -20°C or below
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Background

5-methyl-UTP is a modified nucleoside triphosphate that can significantly affect the structure and function of RNA and plays an important role in biological systems[1]. During the in vitro mRNA synthesis process, 5-methyl-UTP can be incorporated into RNA molecules containing methylated uracil[2-3]. 5-methyl-UTP-mediated Methylation modification can enhance the stability and translation efficiency of RNA, reduce RNA degradation, thereby increasing the persistence and effectiveness of gene expression, and shows broad application prospects in the development of new RNA therapies and treatment methods[4]. The application of 5-methyl-UTP is crucial for studying the role of RNA methylation in gene regulation as well as the chemical properties and biological functions of RNA, 5-

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methyl-UT can be used in the screening of specific hydrolases and research related to nucleotide metabolism[5].

References:

[1] Gao S, Sun Y, Chen X, et al. Pyrimidine catabolism is required to prevent the accumulation of 5-methyluridine in RNA[J]. Nucleic Acids Research, 2023, 51(14): 7451-7464.
[2] NAKAYAMA C, SANEYOSHI M. Utilizations of various uridine 5′-triphosphate analogues by DNA-dependent RNA polymerases I and II purified from liver nuclei of the cherry salmon (Oncorhynchus masou)[J]. The Journal of Biochemistry, 1984, 96(5): 1501-1509.
[3] Nakayama C, Saneyoshi M. Utilization of 5-alkyl UTPs by DNA-dependent RNA polymerase I and II purified from cherry salmon (Onchorhynchus masou) liver[C]//Nucleic Acids Symposium Series. 1980 (8): s193-6.
[4] Meneghesso S, Vanderlinden E, Stevaert A, et al. Synthesis and biological evaluation of pyrimidine nucleoside monophosphate prodrugs targeted against influenza virus[J]. Antiviral research, 2012, 94(1): 35-43.
[5]Xu W L, Shen J Y, Dunn C A, et al. A new subfamily of the Nudix hydrolase superfamily active on 5-methyl-UTP (ribo-TTP) and UTP[J]. Journal of Biological Chemistry, 2003, 278(39): 37492-37496.

Caution: Product has not been fully validated for medical applications. For research use only.
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