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## Product Data Sheet

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Product Name: 5-Methyl-CTP

Cat. No.: GB20105

### Chemical Properties

Cas. No.

Formula  $C_{10}H_{18}N_3O_{14}P_3$  (free acid) M.Wt 497.1 (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-CTP is a modified nucleoside triphosphate, commonly used to substitute the naturally occurring cytidine triphosphate (CTP) during in vitro mRNA synthesis. Methylation of the cytosine C-5 position is a common, post-transcriptional modification for mRNA. Incorporation of chemically modified 5-methyl-CTP can increase mRNA stability and protein expression, and meanwhile, reduce interaction of innate immune receptors with in vitro-transcribed (IVT) mRNA. Apart from its application in encoding antigens for the activation of immune response against a variety of diseases such as COVID-19, IVT mRNA can also express the nanobody/variable domain of heavy chain of heavy-chain antibody targeting the intracellular components, enabling intracellular antigen labeling and manipulation. References: 1. Rahman MM, Zhou N, Huang J. An overview on the development of mRNA-based vaccines and their formulation strategies for improved antigen expression in vivo. *Vaccines (Basel)*, 2021, 9(3): 244. 2. Lu J, Lu G, Tan S, et al. A COVID-19 mRNA vaccine encoding SARS-CoV-2 virus-like particles induces a strong antiviral-like immune response in mice. *Cell Research*, 2020, 30(10): 936-939. 3. Zhou X, Hao R, Chen C, et al. Rapid delivery of nanobodies/VHHs into living cells via expressing in vitro-transcribed mRNA. *Molecular Therapy - Methods & Clinical Development*, 2020, 17: 401-408.

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

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