

---

## Product Data Sheet

---

Product Name: 5-Me-CTP,100mM Sodium Solution

Cat. No.: GB20005

### Chemical Properties

Cas. No. 327174-86-7

Formula  $C_{10}H_{15}N_3Na_3O_{14}P_3$

M.Wt 563.1

Solubility

Storage

Store at -20°C

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-Me-CTP,100mM Sodium Solution is a modified nucleoside triphosphate that is commonly used to replace naturally occurring cytidine triphosphate (CTP) during in vitro mRNA synthesis, increasing mRNA stability and protein expression while reducing the interaction between innate immune receptors and immune cells<sup>[1]</sup>. 5-Me-CTP is the only naturally occurring modified base in animal DNA and is found in mRNA, rRNA, and tRNA of various representative organisms<sup>[2]</sup>. Methylation of the fifth C atom of 5-Me-CTP is a reversible epigenetic modification that can regulate the binding of transcription factors or induce the binding of specific 5-mC binding proteins when present near gene regulatory regions, leading to the recruitment of co-repressor complexes to methylated target promoters<sup>[3]</sup>. 5-Me-CTP modification of RNA affects the fate of RNA molecules, including promoting mRNA stability, splicing, and nucleocytoplasmic transport; viral protein expression; DNA damage repair; cell tolerance, proliferation, and migration; and stem cell development, differentiation, and reprogramming<sup>[3]</sup>. The distribution of 5-Me-CTP varies among cell types, and 5-Me-CTP modifications at specific locations in mRNA exhibit different regulatory activities<sup>[4]</sup>.

References:

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

---

## Product Data Sheet

---

- [1] Steinle H, Ionescu T M, Schenk S, et al. Incorporation of synthetic mRNA in injectable chitosan-alginate hybrid hydrogels for local and sustained expression of exogenous proteins in cells[J]. International Journal of Molecular Sciences, 2018, 19(5): 1313.
- [2] Riggs A D, Jones P A. 5-methylcytosine, gene regulation, and cancer[J]. Advances in cancer research, 1983, 40: 1-30.
- [3] Breiling A, Lyko F. Epigenetic regulatory functions of DNA modifications: 5-methylcytosine and beyond[J]. Epigenetics & chromatin, 2015, 8: 1-9.
- [4] Song H, Zhang J, Liu B, et al. Biological roles of RNA m5C modification and its implications in Cancer immunotherapy[J]. Biomarker research, 2022, 10(1): 15.

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

**Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com**

**Address: 10292 Central Ave. #205, Montclair, CA, USA**