
Product Data Sheet

Product Name: Cy5 Cas9 mRNA with N1-Me-pUTP (5'CAP)

Cat. No.: GM10020

Chemical Properties

Purity	>98%	Extinction Coefficient	
Formula		M.Wt	
Salt Form		Concentration	1mg/mL
Buffer	1 mM Sodium Citrate, pH 6.4	Storage	-40°C or below
Synonyms		Backbone	
Base Analog		Sugar Type	
Nucleotide Category			

Background

Cy5 Cas9 mRNA with N1-Me-pUTP (5'CAP) is produced through in vitro transcription. By simulating the mRNA processing process in eukaryotes, Cy5 Cas9 mRNA with N1-Me-pUTP (5'CAP) has a 5' end Cap 1 cap structure, a 3' end poly (A) tail, Cy5-UTP modification, and N1-Me-pUTP modification (Cy5-UTP: N1-Me-pUTP=3:1 (molar ratio)), which increases the stability and translation efficiency of mRNA^[1]. N1-Me-pUTP is a methyl modification of naturally occurring pseudouridine pUTP, catalyzed by N1 specific pseudouridine methyltransferase NepI present in archaea and eukaryotes^[2]. This product uses N1-Me-pUTP instead of UTP, effectively enhancing RNA stability while reducing anti RNA immune response^[3]. Cy5 is a commonly used cyanine fluorescent dye with maximum excitation/emission wavelengths of 650/670nm, capable of real-time monitoring of the transfection, localization, and expression of target proteins in cells.

Bacteria and archaea use the CRISPR/Cas system to defend against invading viruses and plasmids. The CRISPR/Cas system functions in eukaryotic systems through two molecular components: Cas9 protein and non coding guide RNA (gRNA). The Cas9 endonuclease reaches the target site under the guidance of gRNA and cleaves the

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

sequence, resulting in gene silencing.

This product should be used in combination with purified Guide RNA.

References:

[1]. Jemielity J, Fowler T, Zuberek J, et al. Novel "anti-reverse" cap analogs with superior translational properties. RNA. 2003;9(9):1108-1122.

[2]. Callum J C Parr, et al. N 1-Methylpseudouridine substitution enhances the performance of synthetic mRNA switches in cells. 2020 Apr 6;48(6):e35. doi: 10.1093/nar/gkaa070.

[3]. Pedro Morais, Hironori Adachi, Yi-Tao Yu. The Critical Contribution of Pseudouridine to mRNA COVID-19 Vaccines. 2021 Nov 4;9:789427. doi: 10.3389/fcell.2021.789427.

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