Product Data Sheet

Product Name: Cy5 mCherry mRNA with N1-Me-pUTP (5'CAP)
Cat. No.: GM10022

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 mCherry mRNA with N1-Me-pUTP (5'CAP) is a fluorescent reporter gene commonly used in molecular biology research. Cy5 mCherry mRNA with N1-Me-pUTP (5'CAP) is produced through in vitro transcription. By simulating the mRNA processing process in eukaryotes, it 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]. Cy5 mCherry mRNA with N1-Me-pUTP (5'CAP) can be used as a standard to detect the transfection efficiency of different transfection reagents, and can also be used as a control to study the transfection and expression of fluorescent proteins in mammalian cells.

N1-Me-pUTP is a methyl modification of naturally occurring pseudouridine pUTP, catalyzed by N1 specific pseudouridine methyltransferase Nepl 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 mCherry mRNA with N1-Me-pUTP (5'CAP) can directly express proteins in the cytoplasm without relying on promoters, with a faster protein expression rate than

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

transfected DNA. The protein expression level is directly related to the mRNA transfection level, and there is no risk of gene integration. After transfecting cells with N1-Me-pUTP (5'CAP), Cy5 mCherry mRNA can express a strong and bright red fluorescent protein mCherry, with excitation/emission wavelengths of 587/610nm, respectively. Cy5 is a commonly used cyanine fluorescent dye, with maximum excitation/emission wavelengths of 650/670nm, which can monitor the transfection, localization, and expression of the target protein in cells in real time.

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.