Product Data Sheet

Product Name: Cy5 OVA mRNA with N1-Me-pUTP (5'CAP)
Cat. No.: GM10024

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 OVA mRNA with N1-Me-pUTP (5'CAP) is produced through in vitro transcription. By simulating the mRNA processing 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].

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 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.

Ovalbumin (OVA) is a member of the chromoprotein superfamily and the main protein component in egg white. OVA is a glycoprotein with a molecular weight of approximately 45000 daltons that can induce moderate immunity in the body and is a commonly used

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antigen in immune and biochemical research. Egg white protein is often used as an immunogen for immune experiments, such as establishing animal models of high altitude sickness, asthma, etc. Cy5 OVA 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 transfected DNA. The protein expression level is directly related to the mRNA transfection level, and there is no risk of gene integration.

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.