

# PEG Products for RNA Delivery

Manufactured by JenKem Technology

## PEGs for mRNA Delivery

Lipid Nanoparticles (LNPs) are delivery systems commonly employed in the field of nucleic acid drugs. LNPs are generally believed to combine with the cell membrane through non-covalent affinity and absorbed by endocytosis. After being absorbed by the cell, the mRNA delivered by LNPs are released to the cytoplasm and express the target protein, escaping from the endocytosis. This technology has been adopted by Moderna, CureVac, and BioNTech in their clinical projects for COVID-19 vaccine manufacture<sup>1</sup>. JenKem Technology provides large scale GMP manufacture of PEG derivatives for LNPs and related PEG intermediates.

## PEGs for siRNA Delivery

A novel siRNA delivery system, consisting of CPP (cell penetrating peptide) such as LMWP, linked to a PEG, has been developed by JenKem Technology. siRNAs, while potentially very useful as drugs, are easily degraded by nucleases in vivo, and their relatively high molecular weight, negative charge and hydrophilicity inhibit their ability to permeate through cell membranes. Adding a PEG to CPP improves the siRNA drug's bioavailability<sup>2</sup> by preventing the self-assembly and formation of intra-molecular hairpin structures between CPP and siRNA.

### References:

1. Schoenmaker, Linde, et al., mRNA-lipid nanoparticle COVID-19 vaccines: structure and stability, International Journal of Pharmaceutics 601 (2021).
2. Ye, J., et al., High-Yield Synthesis of Monomeric LMWP(CPP)-siRNA Covalent Conjugate for Effective Cytosolic Delivery of siRNA, Theranostics (2017).

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## Example PEGs for LNPs

M-DMG-2000

(Methoxy PEG Dimyristoyl-rac-glycerol, MW 2000)

M-DTDA-2000

(Methoxy PEG Ditetradecylamino, MW 2000)

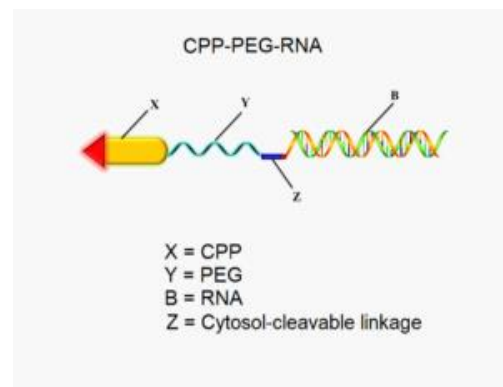
## Example CPP PEGs

OPSS-PEG-LMWP

(OPSS PEG LMWP)

MAL-PEG-LMWP

(Maleimide PEG LMWP)



## Contact Us

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