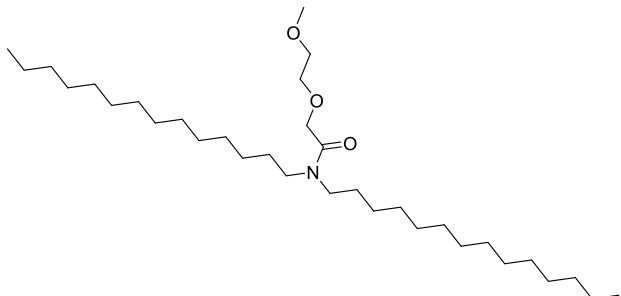


Product data sheet



MedKoo Cat#: 556014 Name: ALC-0159 CAS#: 1849616-42-7 Chemical Formula: $(C_2H_4O)_n C_{31}H_{63}NO_2$ Molecular Weight: 2450.0	
Product supplied as:	Powder
Purity (by HPLC):	$\geq 98\%$
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

ALC-0159 is a PEG/lipid conjugate (i.e. PEGylated lipid), specifically, it is the N,N-dimyristylamide of 2-hydroxyacetic acid, O-pegylated to a PEG chain mass of about 2 kilodaltons (corresponding to about 45-46 ethylene oxide units per molecule of N,N-dimyristyl hydroxyacetamide). It is a non-ionic surfactant by its nature. It has been deployed in the Pfizer-BioNTech SARS-CoV-2 mRNA vaccine that contains the active ingredient tozinameran.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	100.0	Need Ultrasonic
DMF	10.0	Need Ultrasonic
Ethanol	1.0	Need Ultrasonic

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	0.41 mL	2.04 mL	4.08 mL
5 mM	0.08 mL	0.41 mL	0.82 mL
10 mM	0.04 mL	0.20 mL	0.41 mL
50 mM	0.01 mL	0.04 mL	0.08 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Moghimi SM. Allergic Reactions and Anaphylaxis to LNP-Based COVID-19 Vaccines. *Mol Ther.* 2021 Mar 3;29(3):898-900. doi: 10.1016/j.ymthe.2021.01.030. Epub 2021 Feb 5. PMID: 33571463; PMCID: PMC7862013.

In vivo study

TBD

7. Bioactivity

Biological target:

ALC-0159 is a polyethylene glycol (PEG) lipid conjugate that could be used as vaccine excipient.

Product data sheet



In vitro activity

ALC-0315 is an ionisable aminolipid that is responsible for mRNA compaction and aids mRNA cellular delivery and its cytoplasmic release through suspected endosomal destabilization. The LNPs in the Pfizer-BioNTech COVID-19 vaccine contain low levels (<2 mol %) of ALC-0159, which contributes to nanoparticle stabilization by a steric mechanism through its poly(ethylene glycol) (PEG) moiety. Considering their low ALC-0159 content, LNPs in the Pfizer-BioNTech COVID-19 vaccine most likely display a weak steric barrier of PEG.

Reference: Mol Ther. 2021 Mar 3;29(3):898-900. <https://pubmed.ncbi.nlm.nih.gov/33571463/>

In vivo activity

TBD

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.