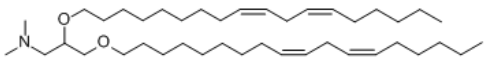
Product Data Sheet

Product Name: DLinDMA
Cat. No.: GC33476

Chemical Properties

Cas. No.	871258-12-7		
SMILES	CCCCC/C=C\C/C=C\CCCCCCCCOCC(OCCCCCCCC/C=C\C/C=C\CCCCC)CN(C)C		
Formula	$C_{41}H_{77}NO_2$	M.Wt	616.06
Solubility	Ethanol : ≥ 100 mg/mL (162.32 mM);DMSO : < 1 mg/mL (insoluble or slightly soluble)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			



Protocol

This plan is based on literature, please modify it to meet your specific needs.

Preparation of DLinDMA liposomes[1]

1) DLinDMA (5mM), DOPC (10mM), DOPE (2mM), and Cholesterol (2mM) were dissolved in

ethanol.

2) The resulting organic phase was injected into the aqueous phase (Milli-Q water) to spontaneously form the liposomes.

3) Liposomal suspension was then probe sonicated at 30 amplitudes for 120s to obtain nanoliposomes.

4) The liposomes were stirred at room temperature to remove the traces of ethanol.

References:

[1] Vemana HP, Saraswat A, et,al. A novel gene therapy for neurodegenerative Lafora disease via EPM2A-loaded DLinDMA lipoplexes. Nanomedicine (Lond). 2021 Jun;16(13):1081-1095.

Background

DLinDMA is a key lipid component of stable nucleic acid lipid particles as a benchmark. DLinDMA can be used to deliver siRNA[1]. DLinDMA (1.56-25μM; 48h) showed no toxicity to HEK293 cells and SK-N-SH cells[2]. DLinDMA (25-200μM; 48h) dose-dependently inhibited the proliferation of HEK293 cells and SK-N-SH cells[2]. LNPs containing DLinDMA achieve more efficient gene silencing, as the lack of ester bonds renders them less susceptible to degradation by lipases[3]. As a key lipid component of nucleic acid lipid granules (SNALP), DLinDMA can deliver small interfering RNA (siRNA) in mice[1].

References:

[1] Semple SC, Akinc A,et,al. Rational design of cationic lipids for siRNA delivery. Nat Biotechnol. 2010 Feb;28(2):172-6. doi: 10.1038/nbt.1602. Epub 2010 Jan 17. PMID: 20081866.

[2] Vemana HP, Saraswat A, et,al. A novel gene therapy for neurodegenerative Lafora disease via EPM2A-loaded DLinDMA lipoplexes. Nanomedicine (Lond). 2021 Jun;16(13):1081-1095.

[3] Lin PJ, Tam YY, et,al.Influence of cationic lipid composition on uptake and intracellular processing of lipid nanoparticle formulations of siRNA. Nanomedicine. 2013 Feb;9(2):233-46.