DLin-KC2-DMA

Cat. No.: HY-112758

CAS No.: 1190197-97-7

Molecular Formula: $C_{43}H_{79}NO_2$

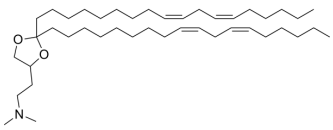
Molecular Weight: 642.09

Target: Liposome

Pathway: Metabolic Enzyme/Protease

Storage: -20°C, stored under nitrogen

* The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

Ethanol : 100 mg/mL (155.74 mM; Need ultrasonic)

DMSO : 100 mg/mL (155.74 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.5574 mL	7.7871 mL	15.5741 mL
	5 mM	0.3115 mL	1.5574 mL	3.1148 mL
	10 mM	0.1557 mL	0.7787 mL	1.5574 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (3.89 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (3.89 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (3.89 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

DLin-KC2-DMA is an ionisable cationic lipid (pKa≈6) that is virtually non-toxic to antigen presenting cells (APCs). DLin-KC2-DMA produces significant siRNA-mediated gene silencing of GAPDH, when binds to lipid nanoparticles (LNP). DLin-KC2-DMA can be used in siRNA delivery studies[1][2].

In Vitro

DLin-KC2-DMA (1, 5 μg; 72 h) effectively produces a significant siRNA-mediated GAPDH gene silencing in both macrophages and dendritic cells[1].

DLin-KC2-DMA (24 h) exhibits high uptake into macrophages and dendritic cells[1].

DLin-KC2-DMA efficiently promotes release of encapsulated siRNA into the cytosol following uptake via the endocytotic

pathway[1].
DLin-KC2-DMA displays almost no toxicity in primary APCs[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Cytotoxicity Assay[1]

Cell Line:	Macrophages, dendritic cells
Concentration:	5 μg/mL (DLin-KC2-DMA contained-LNPs)
Incubation Time:	72 h
Result:	Displayed almost no toxicity.

Western Blot Analysis[1]

Cell Line:	Macrophages, dendritic cells
Concentration:	1, 5 μg
Incubation Time:	72 h
Result:	Exhibited significant GAPDH silencing of more than 60% at 1 μg and of 80% at 5 μg in macrophages. Significantly reduced GAPDH protein and exhibited the silencing effects of 83% at 5 μg.

In Vivo

DLin-KC2-DMA contained-LNP siRNA systems (5 mg/kg; i.v.; single) effectively silences target genes in APcs in vivo[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Naive C57BL/6 mice[1].
Dosage:	3 or 5 mg/kg (DLin-KC2-DMA contained-LNPs)
Administration:	Intravenous injection; single.
Result:	Significantly reduced GAPDH production in peritoneal cavity macrophages and dendritic cells and in the spleen-derived APCs when at 5 mg/kg.

CUSTOMER VALIDATION

- Anal Chem. 2022 Jun 14.
- University of Toronto. 2023 Nov.
- bioRxiv. September 30, 2021.

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REFERENCES

[1]. Basha G, et al. Influence of cationic lipid composition on gene silencing properties of lipid nanoparticle formulations of siRNA in antigen-presenting cells. Mol Ther. 2011 Dec;19(12):2186-200.

[2]. Miller AD, et al. Delivery of RNAi therapeutics: work in progress. Expert Rev Med Devices. 2013 Nov;10(6):781-811.

Caution: Product has not been fully validated for medical applications. For research use only.

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