

Product Data Sheet

Product Name: DC-Chol (hydrochloride)

Cat. No.: GC43385

Chemical Properties

Cas. No. 166023-21-8

Chemical Name (3 β)-cholest-5-en-3-ol 3-[N-[2-(dimethylamino)ethyl]carbamate], monohydrochloride

SMILES CC(C)CCC[C@@H](C)[C@@]1([H])CC[C@@]2([H])[C@]3([H])CC=C4C[C@@H](OC(NCCN(C)C)=O)CC[C@]4(C)[C@@]3([H])CC[C@@]21C.Cl

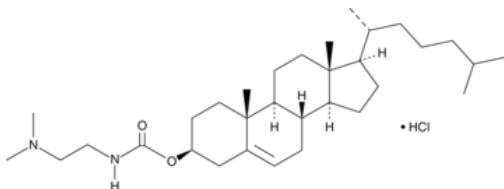
Formula C₃₂H₅₆N₂O₂•HCl M.Wt 537.3

Solubility 10mg/mL in methanol, 5mg/mL in DMSO Storage Store at -20°C, protect from light

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

Experimental method for mammalian cell transfection using DC-Chol^[1]

This protocol is for reference only. Please adjust according to actual needs.

(1) Preparation of cationic liposomes: 1.2 μ mol DC-Chol and 0.8 μ mol DOPE were dissolved in chloroform. The solvent was evaporated and the residue was dried under vacuum. The film was hydrated with 1mL sterile 20mM HEPES buffer (pH=7.8) for 24h at 4°C. The suspension was sonicated in a water bath for 5-10min to form liposomes with an average diameter of 150-200nm.

(2) Cell culture and seeding (using A549 cells as an example): A549 cells were cultured in F12

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

medium containing 10% fetal bovine serum. One day before transfection, cells were seeded in 35mm dishes and grown to approximately 80% confluence.

(3) Transfection procedure: 1-10min before transfection, cationic liposomes were placed at the bottom of a 12×75mm polystyrene tube. Plasmid DNA (4µg/mL) diluted in 1mL serum-free medium was added and mixed. The mixture was then added to cells that had been washed once with serum-free medium. Cells were incubated at 37°C for 5h, after which the medium was replaced with serum-containing medium. Cells were harvested 36h post-transfection.

Precautions:

(1) DC-Chol contains a carbamate bond. Liposome transfection activity does not decrease after storage at 4°C for 6 weeks.

(2) Excess DNA (>4µg/mL) saturates the cationic charge and reduces transfection efficiency. When DNA concentration is too low, excess cationic liposomes may cause mild cytotoxicity.

References:

[1] Gao X, Huang L. A novel cationic liposome reagent for efficient transfection of mammalian cells. Biochemical and Biophysical Research Communications. 1991 Aug 30;179(1):280-285.

Background

DC-Chol (hydrochloride) is a cholesterol derivative with cationic properties. DC-Chol can self-assemble with helper phospholipids such as DOPE to form cationic liposomes. DC-Chol can bind negatively charged nucleic acids like DNA, siRNA, and mRNA through electrostatic interactions to form lipid-nucleic acid complexes. The complexes enter cells via endocytosis and achieve endosomal escape, thereby mediating efficient gene transfection in mammalian cells. DC-Chol exhibits superior activity compared to Lipofectin and has approximately one-quarter of its cytotoxicity. DC-Chol can be used in gene delivery, nucleic acid drug carrier construction, mRNA vaccines, and anti-tumor research^[1-4].

References:

[1] Lendemanns DG, Myschik J, Hook S, et al. Cationic cage-like complexes formed by DC-cholesterol, Quil-A, and phospholipid. J Pharm Sci. 2005 Aug;94(8):1794-807.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

[2] Goo YT, Grigoriev V, Korzun T, et al. Endogenous targeting lipid nanoparticles for systemic mRNA delivery to lung cancer tumors. J Control Release. 2026 Jun 10;394:114870.

[3] Myschik J, McBurney WT, Rades T, et al. Immunostimulatory lipid implants containing Quil-A and DC-cholesterol. Int J Pharm. 2008 Nov 3;363(1-2):91-8.

[4] Lantz R, Busbee B, Wojcikiewicz EP, et al. Effects of disulfide bond and cholesterol derivatives on human calcitonin amyloid formation. Biopolymers. 2020 May;111(5):e23343.

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA