

DC67551 | Lipid CDL9

Instructions for Use

CDL9 is an original cyclic disulfide lipid first designed, synthesized, and functionally validated in the study "In Vivo Demonstration of Enhanced mRNA Delivery by Cyclic Disulfide-Containing Lipid Nanoparticles for Facilitating Endosomal Escape" published in RSC Medicinal Chemistry (DOI: 10.1039/D5MD00084J). Its molecular architecture—featuring a C18:2 di-unsaturated alkyl chain linked to a tertiary amine headgroup modified with an α -lipoic acid-derived cyclic disulfide unit—was explicitly detailed in the paper's lipid library. Experimental data from this study demonstrated CDL9's capacity to boost mRNA delivery efficiency by 6-fold in vitro and 5-fold in vivo when integrated into SM102-based LNPs, leveraging thiol-disulfide exchange for enhanced endosomal escape.

Product information

CAS No.	Not available
Chemical Name	Lipid CDL9
Formula	C54H103O6NS2
M.Wt	926.54
Purity	>98%
Storage	Original product: up to 1 year under the storage conditions stated on the vial, kept tightly sealed. Stock solutions: aliquots at -20°C, generally up to one month.
Shipping condition	Ships from Shanghai. Pure lipid is stable during ice-pack transport.

Formulation & study context

Literature values apply to the cited study only. Administration routes describe research, not clinical instructions.

A complete product-specific formulation has not been verified. No standard ratio is substituted.

N/P ratio	Not reported in the verified record
Cargo	Not available in the verified record
Administration route	Not available in the verified record
Animal model	Not available in the verified record
Formulation process	Not available in the verified record

N/P is a nitrogen-to-phosphate molar ratio. Lipid:cargo mass ratio is a different quantity and must not be used as N/P.

Stock-solution preparation table

Calculated using product-page MW: 926.54 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	10.793 mL	2.159 mL	1.079 mL
25 mg	26.982 mL	5.396 mL	2.698 mL
50 mg	53.964 mL	10.793 mL	5.396 mL
100 mg	107.928 mL	21.586 mL	10.793 mL
250 mg	269.821 mL	53.964 mL	26.982 mL

Volume (mL) = mass (mg) × 1000 / [MW (g/mol) × concentration (mM)]. Mathematical conversions only; not measured solubility. Confirm solvent compatibility and the exact material before preparation.

Handling & storage

Provided that storage conditions are as stated on the product vial and the vial is kept tightly sealed, the product can be stored for up to 1 year.

Wherever possible, prepare and use solutions on the same day. If stock solutions must be prepared in advance, store them as aliquots in tightly sealed vials at -20°C. Generally, these will be usable for up to one month.

Before use, and prior to opening the vial, allow the product to equilibrate to room temperature for at least 1 hour.

References

Not available