

DC67520 | nor-MC3

Instructions for Use

nor-MC3 is a novel ionizable lipid developed by Nanovation, derived from the MC3 structural framework, characterized by two C17 alkyl chains (each containing two Z-geometry double bonds) conjugated to a 4-(dimethylamino)butanoate headgroup. Synthesized via a streamlined route involving Claisen condensation of methyl linoleate, hydrolysis/decarboxylation to generate a C17 ketone, reduction to the corresponding alcohol, and final esterification with 4-(dimethylamino)butanoic acid, nor-MC3 retains the ionizable amine functionality critical for pH-dependent nucleic acid binding and endosomal escape. Compared to the benchmark lipid MC3 (C18 chains), nor-MC3 demonstrates superior mRNA delivery efficiency in vitro (2-fold higher luciferase expression at 10 µg/mL mRNA) and enhanced in vivo biodistribution (higher liver and spleen targeting in mice). Notably, its shortened C17 chains challenge conventional assumptions about optimal hydrophobic chain length, offering improved synthetic scalability while maintaining or exceeding MC3's encapsulation efficiency (~95%), nanoparticle size (~80 nm), and low polydispersity (PDI ~0.08). For siRNA delivery, nor-MC3 achieves comparable EC₅₀ values (0.1644 µg/mL vs. MC3's 0.1308 µg/mL), highlighting its versatility as a next-generation lipid nanoparticle (LNP) component for nucleic acid therapeutics.

Product information

CAS No.	Not available
Chemical Name	nor-MC3
Formula	C41H75O2N
M.Wt	614.06
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: 614.06 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	16.285 mL	3.257 mL	1.629 mL
25 mg	40.713 mL	8.143 mL	4.071 mL
50 mg	81.425 mL	16.285 mL	8.143 mL
100 mg	162.851 mL	32.570 mL	16.285 mL
250 mg	407.126 mL	81.425 mL	40.713 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