

DC67549 | ORNA lipid 144-1-C

Instructions for Use

ORNA lipid 144 is a novel ionizable lipid engineered for splenic RNA delivery developed by ORNA Therapeutics, featuring a biodegradable structure with a protonatable tertiary amine headgroup and ester-linked branched C14 alkyl chains. This design enables exceptional spleen-targeting capability, demonstrated by 3-fold higher luciferase expression in the spleen compared to benchmark lipids and near-complete B-cell depletion when delivering anti-CD19 CAR circRNA. It forms highly stable lipid nanoparticles maintaining homogeneous size (60–80 nm) and low polydispersity across diverse manufacturing conditions and buffer systems. Rapid clearance from the liver and spleen minimizes off-target accumulation, while high circRNA encapsulation efficiency (>90%) and pH-dependent endosomal escape make it ideal for immunotherapies and vaccines requiring precise splenic bioavailability and sustained efficacy.

Product information

CAS No.	Not available
Chemical Name	ORNA lipid 144-1-C
Formula	C ₄₉ H ₉₇ O ₆ N
M.Wt	796.32
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: 796.32 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	12.558 mL	2.512 mL	1.256 mL
25 mg	31.394 mL	6.279 mL	3.139 mL
50 mg	62.789 mL	12.558 mL	6.279 mL
100 mg	125.578 mL	25.116 mL	12.558 mL
250 mg	313.944 mL	62.789 mL	31.394 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