

DC60849 | THOR 76 Crude

Instructions for Use

THOR 76 is an ionizable lipid developed for lung-targeted mRNA delivery, synthesized via a high-throughput Ugi four-component reaction (U4CR). It combines spermine (N3, amine core), oleyl aldehyde (A2), oleic acid (C2), and a morpholine-functionalized isonitrile (D3). Remarkably, its crude reaction mixture outperforms purified forms in efficacy, suggesting synergistic impurities or intermediates enhance function. Formulated into lipid nanoparticles (LNPs) with cholesterol, DOPE, and PEG-lipid, THOR 76 LNPs exhibit exceptional lung tropism with secondary spleen affinity after intravenous administration. They efficiently transfect pulmonary endothelial cells, enabling robust gene expression (e.g., Cre recombinase) and significant CRISPR-Cas9-mediated gene editing (1.22% at 0.1 mg/kg dose) in the lungs. With a particle size <150 nm, positive zeta potential, and >90% mRNA encapsulation, THOR 76 achieves targeted delivery while minimizing off-target effects in the liver. Its design overcomes limitations of cationic helper lipids, offering a potent, tolerable platform for treating pulmonary genetic disorders and cancers.

Product information

CAS No.	Not available
Chemical Name	THOR 76 Crude
Formula	C98H186O6N8
M.Wt	1,572.62
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: 1572.62 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	6.359 mL	1.272 mL	0.636 mL
25 mg	15.897 mL	3.179 mL	1.590 mL
50 mg	31.794 mL	6.359 mL	3.179 mL
100 mg	63.588 mL	12.718 mL	6.359 mL
250 mg	158.970 mL	31.794 mL	15.897 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