

DC67538 | XH-04

Instructions for Use

XH-04 is an ionizable lipid engineered for advanced mRNA delivery developed by JiaChen West Lake Biotech. Its core structure features a central benzene ring with asymmetric hydrophobic tails (C9-C10 chains) and pH-responsive tertiary amines that enable efficient mRNA encapsulation and endosomal escape. As detailed in CN113993839A, XH04 outperforms industry benchmarks (e.g., MC3 lipid), boosting protein expression by >10-fold in BHK cells. In PCT/CN2024/121624, JiaChen further demonstrated its utility in lung-targeted LNPs (tLNP/tLCNP). When combined with cationic lipids (e.g., DOTMA at 2:1 molar ratio), XH 04 redirects >80% of mRNA delivery to murine lungs—overcoming liver tropism—while maintaining low toxicity. The lipid’s benzenic core and optimized alkyl chain geometry (patent claims 1-9) are credited for enhanced endosomal disruption and mRNA release kinetics. JiaChen’s innovations position XH-04 as a cornerstone for next-generation mRNA therapeutics.

Product information

CAS No.	Not available
Chemical Name	XH-04
Formula	C47H83O8N
M.Wt	790.18
Purity	ELSD-HPLC>95%
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: 790.18 g/mol. Volumes are final solution volumes.

Mass	1 mM	5 mM	10 mM
10 mg	12.655 mL	2.531 mL	1.266 mL
25 mg	31.638 mL	6.328 mL	3.164 mL
50 mg	63.277 mL	12.655 mL	6.328 mL
100 mg	126.553 mL	25.311 mL	12.655 mL
250 mg	316.384 mL	63.277 mL	31.638 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